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ACRONYMS

ADA	Americans with Disabilities Act
ADT	average daily traffic
CEQA	California Environmental Quality Act
CMP	Congestion Management Program
CP	Control Point
D/C	demand to capacity
DASH	Downtown Area Short Hop
EB	eastbound
EIR	Environmental Impact Report
HCM	<i>Highway Capacity Manual</i>
HSR	High-Speed Rail
LADOT	Los Angeles Department of Transportation
LAUS	Los Angeles Union Station
Link US	Link Union Station
LOS	level of service
Metro	Los Angeles County Metropolitan Transportation Authority
MOU	Memorandum of Understanding
ROW	right-of-way
RTP	Regional Transportation Plan
SCAG	Southern California Association of Governments
SCS	Sustainable Communities Strategy
SF	square feet
V/C	volume to capacity
VMT	vehicle miles traveled
WB	westbound

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ES.0 Executive Summary

This traffic impact assessment documents the project-related traffic impacts on the existing roadway system, traffic volumes and conditions, truck percentages, transit services, pedestrian and bicyclist movements, and parking availability within the study area. For the purpose of the study, the 2031 corresponds to the “opening year” when construction of the new lead tracks, elevated rail yard, and new passenger concourse, and run-through track infrastructure are complete. The following scenarios are analyzed as part of the study:

- 1) Existing (2016) Condition
- 2) 2031 no project condition
- 3) 2040 no project condition
- 4) 2031 plus project construction condition (proposed project with an above-grade passenger concourse with new expanded passageway)
- 5) 2031 plus project construction condition (build alternative with an at-grade passenger concourse)
- 6) 2031 plus project condition
- 7) 2040 plus project condition

A total of 32 study intersections were analyzed in the AM and PM peak hours. Additionally, portions of US-101 north of Vignes Street was analyzed as part of this traffic impact assessment. The following summarizes the key findings of the study.

ES.1 Construction

In the 2031 plus project construction condition (proposed project with an above-grade passenger concourse with new expanded passageway), the following intersections are significantly impacted:

- Intersection #2: Garey Street and Commercial Street (AM and PM Peaks)
- Intersection #10: Alameda Street and Los Angeles Street eastbound (EB; PM Peak)
- Intersection #15: Vignes Street and Main Street (PM Peak)

In the 2031 plus project construction condition (build alternative with an at-grade passenger concourse), the following intersections are significantly impacted:

- Intersection #1: Alameda Street and Commercial Street (PM Peak)
- Intersection #2: Garey Street and Commercial Street (AM peak)
- Intersection #10: Alameda Street and Los Angeles Street EB (PM Peak)
- Intersection #15: Vignes Street and Main Street (PM Peak)

- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

The project would reduce the number of available parking spaces on Commercial Street (between Alameda Street and Center Street, and east of Center Street) and Bolero Lane (between Bloom Street and Leroy Street) during construction closures, as well as completion of project-related improvements. However, the impacts are minimum due to the fact that the uses these parking spaces serve would be eliminated as part of the Commercial Street realignment.

ES.2 Operation

ES.1.1 Existing Condition (2016)

All study intersections operate within Los Angeles Department of Transportation (LADOT) recommended acceptable level of service (LOS) thresholds. Most intersections operate at LOS C or better during both peak hours, except the following intersections:

- Intersection #4: Center Street and Commercial Street (PM Peak)
- Intersection #15: Vignes Street and Main Street (PM Peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

Northbound US-101 operates at LOS F(2) and F(1) during AM and PM peak hours, respectively. Southbound US-101 operates at LOS E and F(2) during AM and PM peak hours, respectively.

ES.1.2 2031 Conditions

Two intersections are significantly impacted by project-related traffic in the 2031 plus project condition due to operational traffic delay and would continue to exceed LADOT Transportation Impact Study Guidelines (LADOT Guidelines; LADOT 2016).

- Intersection #2: Garey Street and Commercial Street (AM and PM Peaks)
- Intersection #4: Center Street and Commercial Street (AM and PM Peaks)

During 2031, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during AM and PM peak hours, respectively. These levels of service apply to both 2031 no project condition and 2031 plus project condition.

ES.1.3 2040 Conditions

Two intersections are significantly impacted by project-related traffic in the 2040 plus project condition due to operational traffic delay and would continue to exceed LADOT Guidelines (LADOT 2016).

- Intersection #2: Garey Street and Commercial Street (AM and PM Peaks)

- Intersection #4: Center Street and Commercial Street (AM and PM Peaks)

In the 2040 plus project condition, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during AM and PM peak hours, respectively. These levels of service apply to both 2040 no project and 2040 plus project conditions.

The project would not significantly impact the Congestion Management Program (CMP) arterial, freeway, or transit networks.

ES.3 Mitigation

The significant impacts identified during construction would be mitigated via implementation of a Traffic Management Plan that would include provisions for temporary measures, such as signing and maintenance of traffic strategies, adjusting the signal timing at the affected intersections, providing alternate routes for commuter traffic, and installation of the closed-circuit television cameras to monitor real-time traffic conditions. The detailed construction traffic management plan is proposed to be prepared during the final engineering phase of the project for review and approval by the City of Los Angeles and the California Department of Transportation at least 30 days prior to construction.

The significant impacts identified in 2031 and 2040 plus project conditions would be mitigated via implementation of a new traffic signal and adjustments to signal timing at affected intersections. A traffic signal warrant analysis was conducted for the intersection of Center Street and Commercial Street, and the intersection satisfies the warrants during the peak hours.

LADOT Guidelines (LADOT 2016) require mitigation programs for impacts that are expected to be significant under the California Environmental Quality Act (CEQA) to primarily aim to minimize the demand for trips by single-occupant vehicles by encouraging, promoting, and supporting the use of other sustainable modes of travel such as public transit, walking, and bicycling. Consistent with LADOT Guidelines, mitigation in the form of active transportation improvements is also proposed to improve connectivity between neighborhoods surrounding Los Angeles Union Station (LAUS) and facilitate cycling and walking in the project study area. These active transportation improvements would provide mitigation for significant impacts pursuant to LADOT Guidelines.

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1.0 Introduction

The Los Angeles County Metropolitan Transportation Authority (Metro) is proposing the Link Union Station project to transform Los Angeles Union Station (LAUS) from a “stub-end tracks station” into a “run-through tracks station” with a new passenger concourse that would improve the efficiency of the station and accommodate future growth and transportation demands in the region.

1.1 Project Location and Study Area

LAUS is located at 800 Alameda Street in the City of Los Angeles, California. LAUS is bounded by US-101 to the south, Alameda Street to the west, Cesar Chavez Avenue to the north, and Vignes Street to the east. Figure 1-1 depicts the regional location and general vicinity of LAUS.

Figure 1-2 depicts the project study area, which encompasses the extent of environmental study associated with potential direct, indirect, and cumulative impacts from implementation of the project. The project study area includes three main segments (Segment 1: Throat Segment, Segment 2: Concourse Segment, and Segment 3: Run-Through Segment). The existing conditions within each segment are summarized north to south below.

- **Segment 1: Throat Segment** – This segment, known as the LAUS throat, includes the area north of the platforms, from Main Street at the north to Cesar Chavez Avenue at the south. In the throat segment, all arriving and departing trains traverse five lead tracks into and out of the rail yard, except for one location near the Vignes Street Bridge where the tracks reduce to four lead tracks. Currently, special track work consisting of multiple turnouts and double-slip switches are used in the throat to direct trains into and out of the appropriate assigned terminal platform tracks.
- **Segment 2: Concourse Segment** – This segment is between Cesar Chavez Avenue and US-101 and includes LAUS, the rail yard, the Garden Tracks (stub-end tracks where private train cars are currently stored, just north of the platforms and adjacent to the existing Gold Line aerial guideway), the East Portal building, the baggage handling building with aboveground parking areas and access roads, the ticketing/waiting halls, and the pedestrian passageway with connecting ramps and stairways below the rail yard.
- **Segment 3: Run-Through Segment** – This segment is south of LAUS and extends east/west from Alameda Street to the west bank of the Los Angeles River and north/south from Keller Yard to Control Point (CP) Olympic. This segment includes US-101, the Commercial Street/Ducommun Street corridor, Metro Red and Purple Lines Maintenance Yard (Division 20 Rail Yard), BNSF West Bank Yard, Keller Yard, the main line tracks on the west bank of the Los Angeles River, from Keller Yard to CP Olympic, and the “Amtrak Lead Track” connecting the main line tracks with Amtrak’s Los Angeles Maintenance Facility. Businesses within the run-through segment are primarily industrial and manufacturing related.

The project study area has a dense street network ranging from major highways to local city streets. The roadways within the project study area include the El Monte Busway, US-101, Bolero Lane, Leroy Street, Bloom Street, Cesar Chavez Avenue, Commercial Street, Ducommun Street, Jackson Street, East Temple Street, Banning Street, First Street, Alameda Street, Garey Street, Vignes Street, Main Street, Aliso Street, Avila Street, Bauchet Street, and Center Street.

1.2 Proposed Project Overview

The proposed project components are summarized north to south below.

- **Throat and Elevated Rail Yard** – The proposed project includes subgrade and structural improvements in Segment 1 of the project study area (throat segment) to increase the elevation of the tracks leading to the rail yard. The proposed project includes the addition of one new lead track in the throat segment for a total of six lead tracks to facilitate enhanced operations for regional/intercity rail service providers (Metrolink/Amtrak) and accommodate the planned High-Speed Rail (HSR) system within a shared track alignment. Regional/intercity and HSR trains would share the two western lead tracks in the throat segment. The rail yard would be elevated approximately 15 feet. New passenger platforms with individualized canopies would be constructed on the elevated rail yard, with an underlying assumption that the platform infrastructure and associated vertical circulation elements (stairs, escalators, and elevators) would be modified at a later date to accommodate the planned HSR system. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed. North of CP Chavez, the proposed project also includes safety improvements at the Main Street public at-grade crossing on the west bank of the Los Angeles River (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.
- **Above-Grade Passenger Concourse with New Expanded Passageway** – The proposed project includes an above-grade passenger concourse with new expanded passageway in Segment 2 of the project study area (concourse segment). The above-grade passenger concourse with new expanded passageway would include space dedicated for passenger circulation, waiting areas, ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and open spaces and terraces. The new passenger concourse would create an opportunity for an outdoor, community-oriented space and enhance Americans with Disabilities Act (ADA) accessibility at LAUS. The elevated portion of the above-grade passenger concourse would be located above the rail yard, approximately 90 feet above the existing grade with new plazas east and west of the elevated rail yard (East and West Plazas). The new expanded passageway would be located below the rail yard to provide additional passenger travel-path convenience and options. Amtrak ticketing and baggage check-in services would occur at two locations at the east and west ends of LAUS, and new carousels would be constructed within the new expanded passageway. The above-grade passenger concourse includes a canopy over the West Plaza up to 70 feet in height, with individual canopies that would extend up to 25 feet over each platform. New vertical circulation elements (VCEs) would also be constructed throughout the concourse to

enhance passenger movements throughout LAUS while meeting ADA and National Fire Protection Association (NFPA) platform egress code requirements.

- **Run-Through Tracks** – The proposed project includes up to 10 new run-through tracks (including a new loop track) south of LAUS in Segment 3 of the project study area (run-through segment). The run-through tracks would facilitate connections for regional/intercity rail trains and HSR trains from LAUS to the main line tracks on the west bank of the Los Angeles River. A “common” viaduct/deck over US-101 and embankment south of US-101, from Vignes Street to Center Street, would be constructed wide enough to support regional/intercity rail run-through service, and future run-through service for the planned HSR system.

The proposed project would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); railroad signal, positive train control, and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to Keller Yard and BNSF West Bank Yard (First Street Yard); modifications to the Amtrak lead track; new access roadways to the railroad right-of-way (ROW); additional ROW; new utilities; utility relocations, replacements, and abandonments; and new drainage facilities/water quality improvements.

1.3 Build Alternative Overview

The primary differences between the proposed project and the build alternative are related to the lead tracks north of LAUS and the new passenger concourse. Compared to the proposed project, the build alternative includes the following:

- **Dedicated Lead Tracks North of LAUS** – The build alternative includes reconstruction of the throat, with two new lead tracks that would be located outside of the existing railroad ROW, facilitating a dedicated track alignment, with a total of seven lead tracks. Reconfiguration of Bolero Lane and Leroy Street would also be required.
- **At-Grade Passenger Concourse** – The build alternative includes an at-grade passenger concourse below the rail yard.

All other infrastructure elements are similar to the proposed project. The components of the build alternative are described north to south below.

- **Throat and Elevated Rail Yard** – The build alternative accommodates future HSR trains on dedicated lead tracks in the throat segment. The build alternative includes the addition of two new lead tracks for a total of seven lead tracks in the throat segment (with future HSR trains and some express/intercity services using the two western dedicated lead tracks and most regional/intercity trains using the five eastern lead tracks). The rail yard would be elevated approximately 15 feet. New passenger platforms with a grand canopy covering the elevated rail yard would be constructed, with an underlying assumption that the platform infrastructure and associated vertical circulation elements (stairs, escalators, and elevators) would be modified at a later date to accommodate the

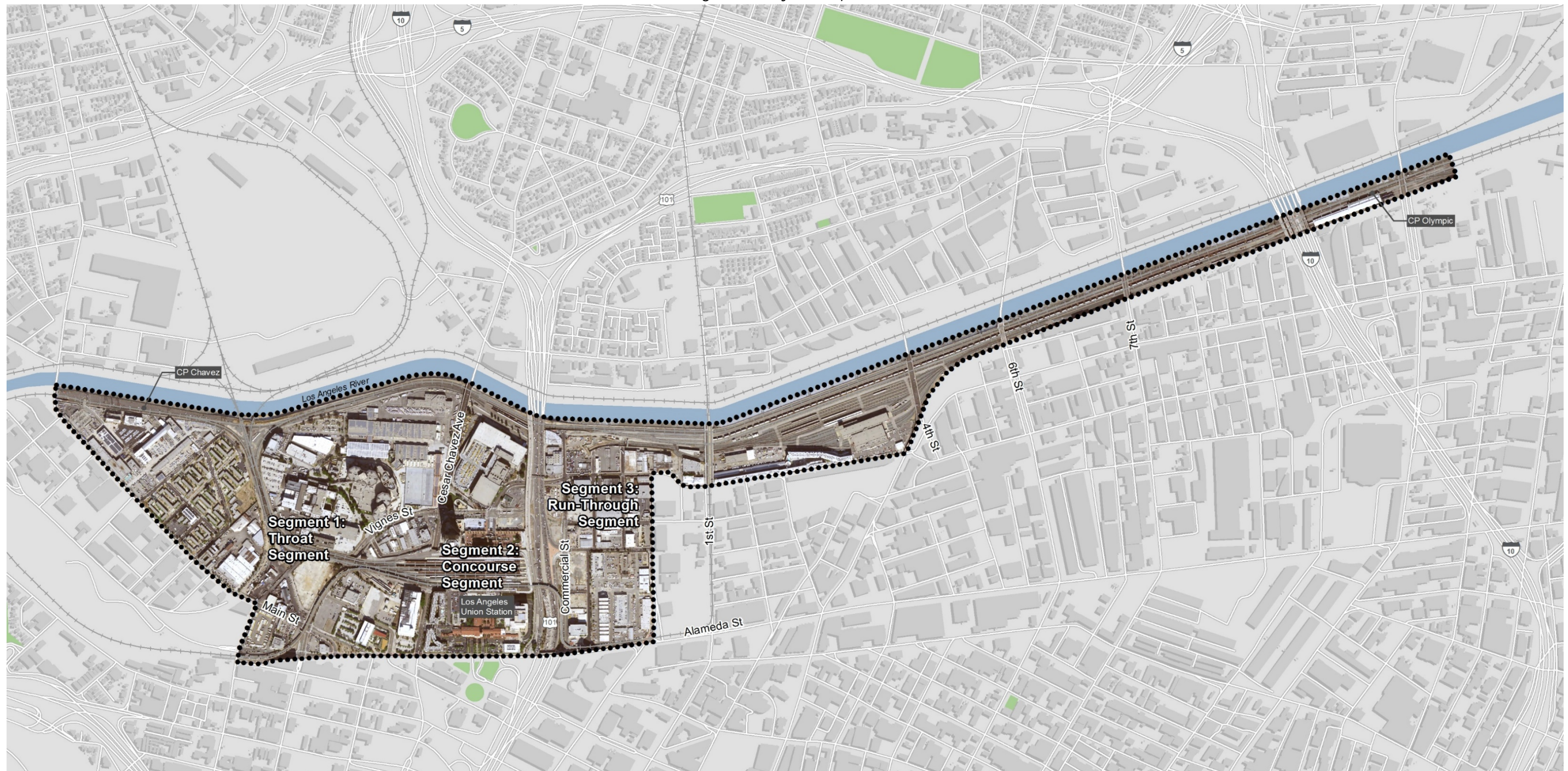
planned HSR system. The existing railroad bridges in the throat segment at Vignes Street and Cesar Chavez Avenue would also be reconstructed under the build alternative. North of CP Chavez, the build alternative also includes safety improvements at the Main Street public at-grade crossing on the west bank of the Los Angeles River (medians, restriping, signals, and pedestrian and vehicular gate systems) to facilitate future implementation of a quiet zone by the City of Los Angeles.

- **At-Grade Passenger Concourse** – The build alternative includes a new at-grade passenger concourse that would include space dedicated for passenger circulation, waiting areas, ancillary support functions (back-of-house uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and open spaces and terraces. The at-grade passenger concourse would also create an opportunity for an outdoor, community-oriented space and enhanced ADA accessibility. The at-grade passenger concourse would be constructed below the elevated rail yard. Amtrak ticketing and baggage check-in services would occur at a centralized location where new carousels would be constructed at the concourse level. The at-grade passenger concourse also includes new plazas east and west of the elevated rail yard (East and West Plazas), and a grand canopy that would extend up to 70 feet above the elevated rail yard and West Plaza. New vertical circulation elements would also be constructed throughout the concourse to enhance passenger movements throughout LAUS while meeting ADA and NFPA platform egress code requirements.
- **Run-Through Tracks** – The build alternative includes up to 10 new run-through tracks (including a new loop track) in the run-through segment. All infrastructure south of LAUS is the same as described above for the proposed project.

The build alternative would also require modifications to US-101 and local streets (including potential street closures and geometric modifications); railroad signal, positive train control, and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the main line tracks on the west bank of the Los Angeles River; modifications to Keller Yard and BNSF West Bank Yard (First Street Yard); modifications to the Amtrak lead track; new access roadways to the railroad ROW; additional ROW; new utilities; utility relocations, replacements, and abandonments; and new drainage facilities/water quality improvements.

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Figure 1-2. Project Study Area



LEGEND
Project Study Area

0 Feet 1,000

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2.0 Purpose

The purpose of this Traffic Impact Assessment is to:

- A) Document the project-related traffic impacts on the existing roadway system, traffic volumes and conditions, truck percentages, transit services, pedestrian and bicyclist movements, and parking availability within the study area based on changes to existing conditions (2016) and two horizon years (2031 and 2040).
- B) Document the:
 - o methods used to complete the analysis
 - o thresholds applied for determining significance
- C) Identify potential traffic impacts (and mitigation) associated with short-term construction and long-term operations of the proposed project and the build alternative.
- D) Provide the necessary traffic-related data, analysis, and documentation to support other environmental technical studies (air quality, noise, and vibration).

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3.0 Methodology

In order to address the purpose for this Traffic Impact Assessment, the following approach was taken:

- **Review Existing Conditions:** Document the existing roadway system, traffic volumes and conditions, truck percentages, transit services, and pedestrian and bicyclist movements within the study area.
- **Review Future Conditions:** Document the future roadway system and the methodologies used to forecast future traffic volumes.
- **Analyze Traffic Conditions:** Perform traffic impact analysis for existing (2016)¹ condition and future 2031 and 2040 traffic for no project, plus project, and plus project construction conditions. Perform the CMP regional transportation system impact analysis. Perform on-street parking analysis to address how on-street parking availability would be impacted during construction and operation.
- **Conclusion:** Summarize this study and provide mitigation measures for addressing identified traffic impacts.
- **Mitigation:** Provide discussion for subsequent actions to follow this study.

¹ Existing traffic conditions for 2016 are based on traffic counts collected in the Base Year (2015), except for traffic counts at the intersection of Cesar Chavez Avenue/Union Station North Driveway, which were conducted in 2018.

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4.0 Study Scope and Organization

As discussed in Section 5.0, this Traffic Impact Assessment is based on traffic counts that were obtained in 2015.

4.1 Scope

In 2005, an Environmental Impact Report (EIR) was finalized for the Los Angeles Union Station Run-Through Tracks project (Run-Through Tracks project), which examined improvements to LAUS. The EIR included a traffic impact assessment that was prepared by Kaku Associates in 2003 (Kaku Associates, Inc. 2003). This traffic impact assessment prepared for the Link Union Station (Link US) project incorporates applicable data and analysis from the 2003 Kaku Study, with the most recent project-related information. This traffic impact assessment accounts for the proposed site improvements and surrounding transportation system changes since 2003. Changed conditions since 2003 include:

- Widening of Commercial Street, reconfiguration of the US-101/Commercial Street on-/off-ramps
- Operation of Metro Gold Line Light Rail Transit – including the railroad bridge overcrossing US-101
- Widening of the First Street viaduct over the Los Angeles River to accommodate the Metro Gold Line Eastside Light Rail Transit operation

This traffic impact assessment methodology is based on the Memorandum of Understanding (MOU) submitted to and approved by LADOT (Appendix A). Traffic impacts were identified by determining the deterioration in the operations and performance of the study intersections and roadway segments due to the added traffic from the proposed project for two horizon years: 2031 and 2040. For the purpose of the study, the 2031 corresponds to “opening year,” when construction of the new lead tracks, elevated rail yard and new passenger concourse, and run-through track infrastructure are complete. This traffic impact assessment identifies potential project-generated traffic impacts on local streets and on the US-101 for the following six traffic scenarios (conditions):

1. Existing Condition (2016)
2. 2031 no project condition (Existing Condition plus background traffic growth from 2016 to 2031)
3. 2040 no project condition (Existing Condition plus background traffic growth from 2016 to 2040)
4. 2031 plus project construction condition (project-related traffic during concurrent construction of all major project elements including the lead tracks, passenger concourse [at-grade or above-grade], and run-through track infrastructure)
5. 2031 plus project condition (no project condition plus project-related traffic)
6. 2040 plus project condition (no project condition plus project-related traffic)

The “plus project” condition is compared to the “no project condition” to determine project-related traffic impacts in accordance with LADOT Guidelines (LADOT 2016). This traffic impact assessment includes an

evaluation of potential project impacts during the weekday AM and PM peak hours of traffic, in addition to potential impacts on the regional highway and transit systems to meet the requirement of the Los Angeles County CMP. This traffic impact assessment also includes an evaluation of how the project, once completed, would impact on-street parking.

The 2031 scenarios evaluated herein identify the greatest potential for project-related traffic impacts associated with all major project components being constructed concurrently by 2031. Although early action/interim improvements (i.e., Phase A) may be implemented prior to 2031, this traffic impact evaluation is conservative, and addresses any potential traffic impacts associated with the interim condition because the detailed construction scenarios prepared to support the environmental impact evaluation assume that all major project elements would be constructed concurrently. If run-through track infrastructure south of LAUS is constructed prior to the elevated rail yard and new passenger concourse, fewer construction-related traffic impacts and associated truck trips are anticipated than reported herein because the greatest extent of potential impacts are addressed within this Traffic Impact Assessment for both construction and operational scenarios.

4.2 Organization

The remainder of this traffic impact assessment is divided into the following sections:

- **Section 5.0: Traffic Data and Traffic Analysis Methodology** presents traffic counts (intersection peak hour, average daily traffic [ADT], vehicle counts, counts from other studies) and discusses LOS thresholds for traffic analysis.
- **Section 6.0: Existing Conditions** describes the existing roadway system, traffic volumes, traffic conditions, truck percentages, transit services, and pedestrian and bicyclist movements within the study area.
- **Section 7.0: Future Traffic Projections and Roadway Characteristics** describes the future roadway system and the methodologies used to forecast future traffic volumes.
- **Section 8.0: Traffic Impact Analysis** presents an assessment of existing and future traffic volumes and LOS.
- **Section 9.0: Congestion Management Program Transportation Impact Analysis** presents the results of the CMP regional transportation system impact analysis.
- **Section 10.0: Signal Warrant Analysis** presents the peak hour traffic signal warrant analysis for the intersection of Center Street and Commercial Street for all scenarios.
- **Section 11.0: On-Street Parking Impact Analysis** summarizes the results of impacts on on-street parking availability.
- **Section 12.0: Conclusion** identifies potential significant short-term and long-term traffic impacts and mitigation measures to reduce those impacts.
- **Section 13.0: References** provides a list of all references cited in this Traffic Impact Assessment.

5.0 Traffic Data and Traffic Analysis Methodology

5.1 Traffic Study Area

A secondary traffic study area expands beyond LAUS (and the project study area) and is bound by the Los Angeles River, College Street, Main Street, Los Angeles Street, and First Street. This traffic study area covers all roads likely to be impacted by construction, including any interim improvements. The project's direct impact on the local transportation network was assessed within the traffic study area. A full description of the intersections and roadways evaluated in this traffic study area are further described below in Section 5.1.

5.2 Traffic Data

Traffic counts were collected to support the project, and separate traffic counts were collected in support of the environmental documents being prepared for the planned HSR system (Burbank to Los Angeles and Los Angeles to Anaheim project sections). This Traffic Impact Assessment reconciles the individual traffic counts obtained in the study area to document the existing traffic conditions for the project and future no build conditions.

Based on discussions with LADOT and Metro during the project development phase, 32 intersections were selected for this study. The intersections are comprised of intersections from the 2003 Kaku Study, and additional intersections that may be impacted by project-specific traffic generation, realignment, or detours.

Traffic counts were performed at 31 intersections by National Data and Surveying Services for the study on September 9, 2015, and November 5, 2015. Two sets of counts were performed at Intersections #9 and #10 (the intersection of Alameda Street and El Monte Busway and the intersection of Alameda Street and Los Angeles Street, respectively); the second sets of counts are referred to as counts for Intersections #109 and #110. Additional traffic counts at these two intersections were performed by National Data and Surveying Services on June 18, 2015, and November 19, 2015, in support of Metro's Los Angeles Union Station Master Plan project.

The intersection at the Union Station North Driveway and Cesar Chavez Avenue was added to this Traffic Impact Assessment in September 2018 during subsequent stages of the traffic impact evaluation. Traffic counts at this intersection (Intersection #32) were conducted by Gibson Transportation Consulting, Inc., in August 2018, and were adjusted to reflect the full occupancy in the adjacent apartment buildings since they were partly unoccupied when the initial counts were conducted.

The traffic count data used in this traffic impact assessment is recent and reflective of current conditions. The counts conducted at 32 intersections included ADT and intersection turn movements. Counts for vehicle classification, bicyclists, and pedestrians were also performed at the study intersections in the vicinity of the project.

Traffic counts were collected at the following 32 intersections:

1. Alameda Street and Commercial Street
2. Garey Street and Commercial Street
3. Vignes Street and Commercial Street
4. Center Street and Commercial Street
5. Alameda Street and Temple Street
6. Vignes Street and Temple Street
7. Alameda Street and First Street
8. Vignes Street and First Street
9. Alameda Street and El Monte Busway (westbound [WB])/Arcadia Street
10. Alameda Street and Los Angeles Street (EB)
11. Alameda Street and Cesar Chavez Avenue
12. Alameda Street and Vignes Street/Alpine Street
13. Vignes Street and Cesar Chavez Avenue
14. Vignes Street and Ramirez Street
15. Vignes Street and Main Street
16. Alameda Street/Spring Street and College Street
17. Alameda Street and Main Street/Ord Street
18. Alameda Street and Main Street/Bauchet Street
19. Main Street and Cesar Chavez Avenue
20. Alameda Street at Northbound US-101 northbound on-ramp
21. Los Angeles Street and Arcadia Street
22. Los Angeles Street and Aliso Street
23. Los Angeles Street and Temple Street
24. Los Angeles Street and First Street
25. Judge John Aiso Street and Temple Street
26. Judge John Aiso Street/San Pedro Street and First Street
27. Mission Road and Cesar Chavez Avenue
28. Mission Road and First Street
29. Central Avenue and First Street

30. Vignes Street and Bauchet Street
31. Ramirez Street and Center Street
32. Cesar Chavez Avenue and Union Station North Driveway
109. Alameda Street and El Monte Busway (EB)
110. Alameda Street and Los Angeles Street (WB)

The traffic study area and intersection locations are illustrated on Figure 5-1, and intersection turning movement count sheets are provided in Appendix B. Traffic counts were performed at the study intersections between 6:00 and 9:00 AM for the AM peak period and between 3:30 and 6:30 PM for the PM peak period.

In addition, tube counts to document the 24-hour directional ADT were conducted at the following 12 locations:

1. Alameda Street north of Commercial Street
2. Hewitt Street south of Commercial Street
3. Commercial Street west of Garey Street
4. Garey Street south of Commercial Street
5. Commercial Street east of Garey Street
6. Vignes Street south of Commercial Street
7. Ducommun Street between Vignes Street and Center Street
8. Jackson Street between Vignes Street and Center Street
9. Temple Street between Vignes Street and Center Street
10. Center Street north of Commercial Street
11. Center Street south of Commercial Street
12. Cesar Chavez Avenue east of Alameda Street

The ADT on Alameda Street south of Commercial Street included vehicle classifications. The locations of ADTs are illustrated on Figure 5-2, and ADT count sheets are provided in Appendix B1.

5.3 Traffic Analysis Methodology

5.3.1 Intersection Level of Service Standards and Methodology

In this analysis, minimum acceptable intersection operating conditions will follow the City guidelines for all intersections. The CMP allows CMP-intersections to operate at LOS E. According to LADOT Guidelines, for non-CMP intersections, operating at LOS E or F is considered unsatisfactory (LADOT 2016). The

definitions for the range of levels of service for signalized and STOP sign-controlled intersections under the *Highway Capacity Manual* (HCM; TRB 2010) are listed in Table 5-1 and Table 5-2, respectively.

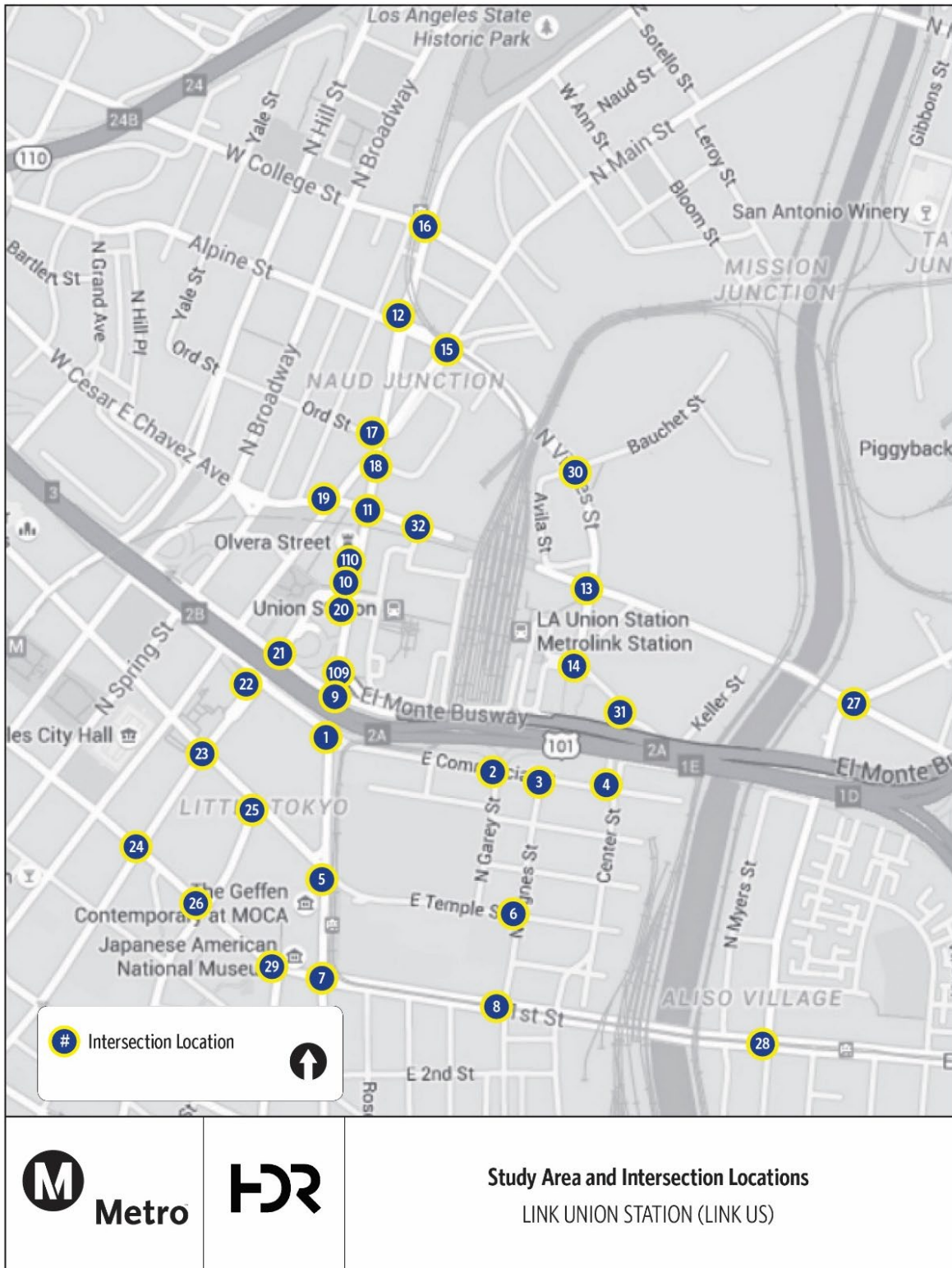
The study intersections were analyzed as an integrated network. The freeway segment was analyzed according to the Los Angeles County CMP methodology (Table 5-3).

For this study, HCM delay-based methodology utilizing Synchro software was used for calculating the intersection LOS. Since the project would be considered an infrastructure-related project such as transit, rail, bicycle, and roadway improvements, HCM delay-based methodology was utilized, as opposed to the Circular 212 Critical Movement Analysis Planning Method. Per City guidelines, HCM delay-based methodology is acceptable for infrastructure projects.

5.3.2 Freeway Level of Service Standards

Freeway main line LOS is estimated through calculation of the demand-to-capacity (D/C) ratio and associated LOS, according to Table 5-3. Table 5-3 explains the correlations between D/C ratios and LOS for freeway main line segments.

Figure 5-1. Traffic Study Area and Intersection Locations



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Table 5-1. Level of Service Definitions for Signalized Intersections

LOS	Definition/Interpretation	Signalized Intersection Delay (seconds per vehicle)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	> 10 and ≤ 20
C	Good operation. Occasionally drivers may have to wait for more than 60 seconds and backups may develop behind turning vehicles. Most drivers feel somewhat restricted.	> 20 and ≤ 35
D	Fair operation. Cars are sometimes required to wait for more than 60 seconds during short peaks. There are no long-standing traffic queues. This level is typically associated with design practice for peak periods.	> 35 and ≤ 55
E	Poor operation. Some long-standing vehicular queues develop on critical approaches.	> 55 and ≤ 80
F	Forced flow. Represents jammed conditions. Backups from locations downstream or on the cross street may restrict or prevent movements of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop-and-go type traffic flow.	> 80

Source: Highway Capacity Manual, Special Report 209. Transportation Research Board, Washington, DC (2010).

Notes:

LOS=level of service.

Table 5-2. Level of Service Definition for STOP Sign-Controlled Intersections

Level of Service	Unsignalized Intersection Delay (seconds per vehicle)
A	≤ 10
B	> 10 and ≤ 15
C	> 15 and ≤ 25
D	> 25 and ≤ 35
E	> 35 and ≤ 50
F	≥ 50

Source: Highway Capacity Manual. Transportation Research Board, Washington, DC (2010).

Table 5-3. Level of Service Definitions – Freeway Main line Segments

Demand/Capacity Ratio	Level of Service
0.00–0.35	A
> 0.35–0.54	B
> 0.54–0.77	C
> 0.77–0.93	D
> 0.93–1.00	E
> 1.00–1.25	F(0)
> 1.25–1.35	F(1)
> 1.35–1.45	F(2)
> 1.45	F(3)

Source: Los Angeles County CMP, 2010, Exhibit D-6

5.3.3 Significant Transportation Impact (Delay Methodology)

According to LADOT Guidelines (LADOT 2016), when utilizing the HCM methodology for signalized intersections for transportation infrastructure projects, a transportation impact shall be deemed “significant” in accordance with Table 5-4.

Table 5-4. Significant Transportation Impact (Delay Methodology)

Level of Service	Final Delay (seconds)	Project-Related Increase in Delay (seconds)
C	> 20–35	≥ 6.0
D	> 35–55	≥ 4.0
E	> 55–80	≥ 2.5
F	> 80	≥ 2.5

"Final delay" means the future delay per vehicle at an intersection, considering impacts with project, ambient, and related project growth, but without proposed traffic mitigation. "Project-related increase in delay" means the change in delay between final delay and future delay with ambient and related project growth, but without project and proposed traffic mitigation.

5.3.4 Los Angeles County Congestion Management Program Methodology

The CMP guidelines for determining the study area for CMP arterial monitoring intersections and for freeway monitoring locations are:

- All CMP arterial monitoring intersections where the project is expected to add 50 or more peak hour trips during either the AM or PM weekday peak hours of adjacent street traffic
- All CMP main line freeway monitoring locations where the project is expected to add 150 or more trips in either direction during either the AM or PM weekday peak hours

For purposes of the CMP, a significant impact occurs when the project increases traffic demand on a CMP facility by 2 percent of capacity (volume to capacity $[V/C] \geq 0.02$), causing LOS F ($V/C > 1.00$); if the facility is already at LOS F, a significant impact occurs when the project increases traffic demand on a CMP facility by 2 percent of capacity ($V/C \geq 0.02$). The study section of the US-101 is a CMP location, and this significant impact threshold is applicable for this facility.

5.3.5 Senate Bill 743 – Vehicles Miles Traveled

Senate Bill 743 was approved in 2013 and will change the evaluation of traffic impacts under CEQA. The bill required the Office of Planning and Research to modify the CEQA Guidelines to replace existing approaches for studying transportation impacts. These existing approaches are focused on auto delay and congestion, which are typically measured using LOS. These metrics will no longer be considered an environmental impact under CEQA upon certification of revised CEQA Guidelines. Rather, Senate Bill 743 requires the Office of Planning and Research to establish criteria for determining the significance of transportation impacts that promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses. In response, the Office of Planning and Research published a document titled *Updating Transportation Impacts Analysis in the CEQA Guidelines: Preliminary Discussion Draft of Updates to the CEQA Guidelines Implementing Senate Bill 743*. These preliminary updates identify vehicles miles traveled (VMT) as the primary metric for evaluating transportation impacts. The Office of Planning and Research published a revised Technical Advisory in April 2018. The revised Technical Advisory identifies VMT (per capita, per employee, or other appropriate efficiency measure) as new metrics for evaluating transportation impacts.

Senate Bill 743 preserves local government authority to make planning decisions. Therefore, LOS and congestion can still be measured for planning purposes; however, studies based on these metrics will no longer be required as part of the CEQA process.

The City of Los Angeles is in the process of developing methodologies and criteria for implementing VMT analyses for new development projects, which are anticipated to be adopted and in effect by January 2019. In the meantime, the proposed project and the build alternative were compared to the goals of Senate Bill 743, and because both predominantly involve transit improvements that would enhance regional accessibility to and through LAUS, the project can be expected to increase transit ridership and,

therefore, reduce regional VMT. The project is anticipated to result in a less than significant impact due to the reduction of regional VMT and greenhouse emissions.

6.0 Existing Conditions

This section describes key roadway segments and intersections, reports existing daily roadway and peak hour intersection traffic volume information, and presents the LOS analysis for existing conditions.

6.1 Existing Street Network

The primary street network in the traffic study area is described below. Figure 6-1 presents the primary street network within the study area and existing lane geometry at each study intersection.

6.1.1 East-West Roadways

Cesar Chavez Avenue is a major arterial north of LAUS with two through lanes in each direction east of Alameda Street and three through lanes in each direction west of Alameda Street. It has one left-turn pocket at all major connecting intersections (Cesar Chavez Avenue intersects with the major streets: Alameda Street and Vignes Street). Cesar Chavez Avenue crosses the Los Angeles River via a bridge. North of Cesar Chavez Avenue, there are no river-crossing east-west roadways until Main Street, which is 0.8 mile away. Cesar Chavez Avenue crosses underneath the northern section of the rail yard at LAUS. No on-street parking is allowed on Cesar Chavez Avenue.

El Monte Busway runs just north of US-101 and abuts the south side of LAUS. It connects to both US-101 and I-10, and terminates at Alameda Street with on- and off-ramps at Alameda Street. The El Monte Busway off-ramp also provides exits for westbound traffic from US-101. The on-ramp can be used only by buses and vehicles with a FasTrak transponder (carpools of three or more can use the busway free of charge).

US-101 is the closest freeway to the project. In general, it has a north-south orientation. However, it runs east-west through the project study area with four lanes in each direction. There are two sets of southbound on- and off-ramps in the study area, one of which is the recently completed reconfiguration of the US-101/Commercial Street ramp, located at the intersection of Commercial Street and Garey Street. The other set of southbound on- and off-ramps are west of the project, located at the intersection of Los Angeles Street and Aliso Street. With respect to the northbound on- and off-ramps, there are three on-ramp and two off-ramp locations. A set of northbound on- and off-ramps is located at Vignes Street, south of Ramirez Street. The other two on-ramps are located on Los Angeles Street and Alameda Street.

Arcadia Street is one half of a one-way street coupled with Aliso Street. Arcadia Street is aligned as the westbound extension of the El Monte Busway; it distributes US-101 traffic to Downtown through Los Angeles Street, Main Street, Spring Street, Broadway, and Hill Street.

Aliso Street is one half of a one-way street coupled with Arcadia Street. Aliso Street runs eastbound merging into Commercial Street, terminating at its intersection with Alameda Street/ Commercial Street. Aliso Street is located south of US-101 and operates as the frontage road for on-ramp and off-ramp traffic collection

and distribution through local streets that connect to Downtown such as Los Angeles Street, Main Street, Spring Street, Broadway, and Hill Street.

Commercial Street, a two-way street, runs south of LAUS. West of Garey Street and the US-101 ramps, Commercial Street is classified as a major collector and has two through lanes in each direction; Commercial Street becomes Aliso Street west of Alameda Street. East of Garey Street and the US-101 ramps, Commercial Street narrows to one through lane in each direction. Commercial Street serves as an on- and off-ramp for US-101 and intersects with the major streets: Alameda Street and Center Street. No on-street parking is allowed on Commercial Street.

Temple Street is a major arterial and has two through lanes in each direction west of Alameda Street, but is a minor arterial and narrows down to one through lane in each direction east of Alameda Street. Temple Street terminates at the railroad yard by the Los Angeles River.

First Street is a major arterial with two through lanes in each direction, and intersects with Alameda Street. The Gold Line Light Rail Transit operates in the median of First Street. No on-street parking is allowed on First Street.

6.1.2 North-South Roadways

Because both US-101 and the El Monte Busway traverse the project study area in an east-west orientation, only a limited number of north-south-oriented roadways are able to provide north-south access through overcrossing or undercrossing bridges. For example, San Pedro Street, Central Avenue, and Garey Street terminate south of US-101. Vignes Street terminates on either side of US-101.

Alameda Street is a major arterial bordering the west side of LAUS. It has three through lanes and a left-turn pocket in each direction. It intersects with Cesar Chavez Avenue, LAUS, a northbound US-101 on-ramp, the northbound US-101/Arcadia Street off-ramp, Aliso Street, Commercial Street, Temple Street, and First Street. Farther north, Alameda Street becomes Spring Street and curves northeast toward the Lincoln Heights community. No on-street parking is allowed on Alameda Street within the project study area.

Los Angeles Street is a major arterial west of Alameda Street with two through lanes and one left-turn pocket in each direction. It has interchanges with US-101, both northbound and southbound, and also intersects with First Street and Temple Street, and with Alameda Street at LAUS. No on-street parking is allowed on Los Angeles Street.

Center Street/Ramirez Street is a major arterial that runs east of LAUS with one through lane in each direction. Center Street intersects with Commercial Street. North of Commercial Street, Center Street becomes Ramirez Street and then joins Vignes Street at LAUS. On-street parking is allowed on Center Street, south of Commercial Street.

Vignes Street provides access to LAUS and terminates as on- and off-ramps to US-101. It then resumes as a major collector at Commercial Street south of US-101 to beyond First Street.

Mission Road is the first arterial east of the Los Angeles River that connects the communities east of the river to LAUS via Cesar Chavez Avenue.

LAUS is located approximately 0.3 mile west of the Los Angeles River. With the river running north-south within the project vicinity, only a limited number of east-west roadways (Cesar Chavez Avenue, First Street, and US-101) are able to provide access as bridges to the communities east of the river.

6.2 Existing Traffic Volumes and Operating Conditions

6.2.1 Existing Traffic Conditions

Arterial Annual Daily Traffic

Alameda Street: For existing (base year 2015), the ADT shows 32,542 vehicles travelling daily on Alameda Street north of Commercial Street, comprised of a northbound volume of 17,107 vehicles and a southbound volume of 15,435 vehicles. It should be noted that there is a significant difference between the AM and PM periods, with the AM period (12 midnight to 12 noon) having a volume of 13,760 vehicles (42.3 percent ADT) and the PM period having a volume of 18,782 vehicles (57.7 percent ADT).

Commercial Street: The ADT for Commercial Street west of Garey Street totals 11,841 vehicles, of which the eastbound ADT is 6,319 vehicles and the westbound ADT is 5,522 vehicles. Meanwhile, the ADT shows 8,427 vehicles on Commercial Street east of Garey Street, comprised of 4,077 vehicles heading eastbound and 4,350 vehicles heading westbound. Garey Street south of Commercial Street has an ADT of 2,993 vehicles, consisting of 2,084 vehicles heading northbound and 909 vehicles heading southbound. The reduction on Commercial Street from 11,841 vehicles west of Garey Street to 8,427 vehicles east of Garey Street indicates that many motorists who use Commercial Street turn at the US-101 “eastbound” (US-101 southbound) on-ramp or onto Garey Street.

Hewitt Street: The ADT on the north-south-oriented Hewitt Street between Commercial Street and Ducommun Street is 1,463 vehicles, of which the northbound ADT is 642 vehicles and the southbound ADT is 821 vehicles. It appears likely that Hewitt Street is used by motorists to avoid heavier traffic volumes at the intersection of Commercial Street and Garey Street.

Center Street: The ADT north of Commercial Street is 11,985 vehicles, which consists of 6,916 vehicles northbound and 5,069 vehicles southbound. Meanwhile, the ADT shows 15,636 vehicles south of Commercial Street, comprised of 7,595 vehicles northbound and 8,041 vehicles southbound. The reduction from an ADT of 15,636 vehicles south of Commercial Street to an ADT of 11,985 vehicles north of Commercial Street indicates that Commercial Street is accessed by motorists from Center Street.

Vignes Street: The ADT on Vignes Street between Ducommun Street and Commercial Street is 3,404 vehicles, which consists of 2,026 vehicles northbound and 1,378 vehicles southbound. This segment is likely to be used by motorists as an alternative route to Center Street or Garey Street.

Temple, Jackson, and Ducommun Streets: There are three segments between Vignes Street and Center Street that have an ADT of 1,176 vehicles on Temple Street, 232 vehicles on Jackson Street, and 317 vehicles on Ducommun Street. These low traffic volumes indicate that these segments serve as minor streets in the local roadway network.

Cesar Chavez Avenue: The ADT on Cesar Chavez Avenue east of Alameda Street is 26,094 vehicles, comprised of an ADT of 11,981 vehicles eastbound and an ADT of 14,113 vehicles westbound. These volumes indicate a 45 percent eastbound and 55 percent westbound directional split.

ADT count information is depicted on Figure 5-2, in Section 5.0.

Existing Peak Hour Traffic Volumes

The AM and PM peak hour intersection turn movements are shown on Figure 6-2. As shown, the existing peak hour volumes were balanced between adjacent intersections and adjusted accordingly.

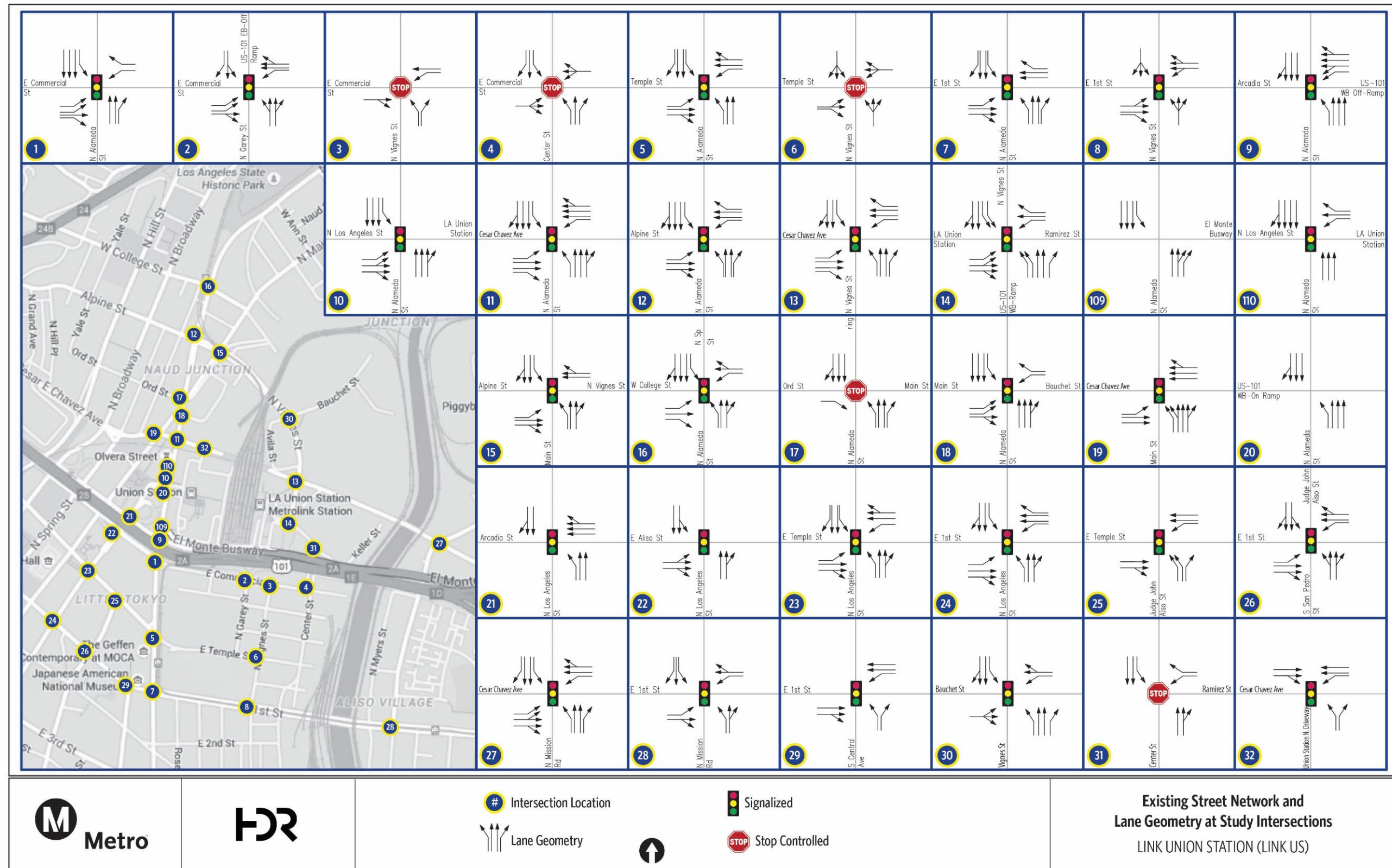
Vehicle Classification and Truck Percentages

Vehicle classification counts were conducted through both ADT (automatic counts dated September 9, 2015, and September 17, 2015) and intersection turn movement counts (manual counts dated June 18, 2015; September 9, 2015; November 5, 2015; and November 19, 2015). Manual counts were used to ensure accuracy, particularly for identifying the number of axles on a truck during AM and PM peak hours. ADT counts were used for their ability to cover a 24-hour period.

Vehicle classification counts were conducted at all study intersections. The following four intersections are in the direct vicinity of the project and were also included in the machine counts for ADT on Alameda Street south of Commercial Street:

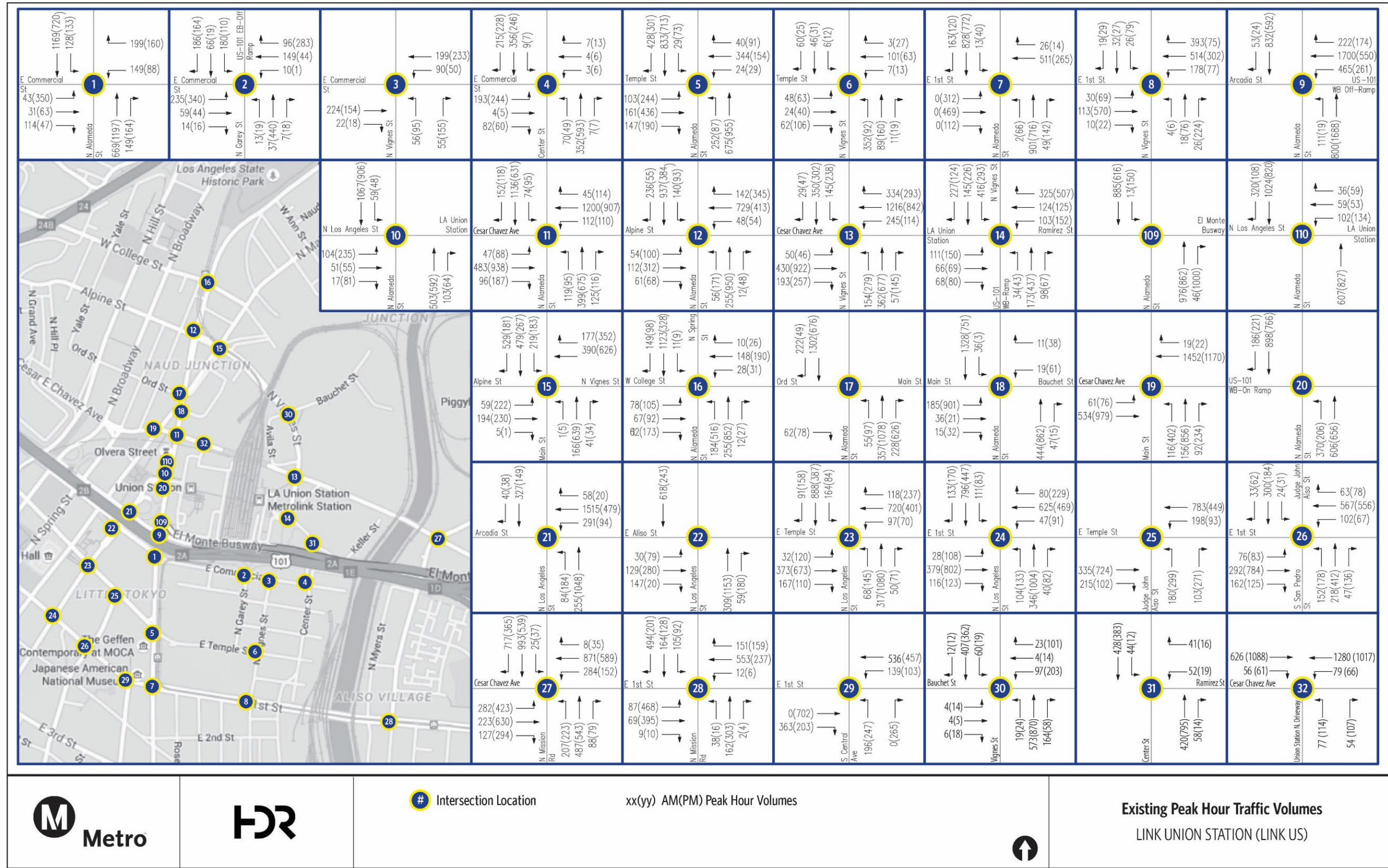
- Intersection 1 – Alameda Street at Commercial Street
- Intersection 2 – Garey Street/US-101 southbound ramps at Commercial Street
- Intersection 3 – Vignes Street at Commercial Street
- Intersection 4 – Center Street at Commercial Street

Figure 6-1. Existing Street Network and Lane Geometry at Study Area Intersections



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Figure 6-2. Existing Peak Hour Traffic Volumes



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Vehicles classified include cars, trucks, and buses. The two-axle truck and bus percentages of the four intersections during AM peak hours and PM peak hours are depicted in Table 6-1. Additional information, including turn movements and ADT truck and bus percentages, can be found in Appendix C.

Table 6-1. Vehicle Classification on Commercial Street		
Peak Period	Car (%)	Truck and Bus (%)
AM Peak		
At Alameda Street	92.0	8.0
At Garey Street/US-101 southbound ramp	89.6	10.4
At Vignes Street	91.0	9.0
At Center Street	84.6	15.4
PM Peak		
At Alameda Street	95.3	4.7
At Garey Street/US-101 southbound ramp	96.5	3.5
At Vignes Street	89.2	10.8
At Center Street	89.9	10.1

During both AM and PM peak hours, the combined truck and bus percentages are generally less than 10 percent on Commercial Street within the study area. An exception is the intersection at Garey Street/US-101 southbound ramp in the AM peak hour (Intersection 2), the intersection at Vignes Street in the PM peak hour (Intersection 3), and the Center Street/Commercial Street intersection (Intersection 4) where the truck and bus percentage is higher than 10 percent during both AM and PM peak hours.

6.2.2 Existing Intersection Level of Service

Table 6-2 summarizes the existing LOS during the AM and the PM peak hours for the study intersections. Intersection LOS worksheets are presented in Appendix D. In the AM peak hour, 31 of the 32 intersections operate at LOS C or better, while 30 of the 32 operate at LOS C or better in the PM peak hour. It should be noted that if the intersections are so congested that the actual demand cannot be processed by the signal, then the performance of the intersections may be poorer than the LOS calculations indicate. It should therefore be noted that the observed LOS could be worse than the one based on the calculations in the analysis.

Table 6-2. Existing Peak Hour Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1	Alameda Street and Commercial Street	29.9	0.56	C	33.9	0.84	C
2	Garey Street and Commercial Street	31.4	0.38	C	34.2	0.47	C
3	Vignes Street and Commercial Street a	9.6	0.37	A	9.9	0.39	A
4	Center Street and Commercial Street a	16.0	0.68	C	33.0	1.00	D
5	Alameda Street and Temple Street	13.9	0.65	B	15.4	0.71	B
6	Vignes Street and Temple Street a	14.5	0.69	B	9.7	0.40	A
7	Alameda Street and First Street	17.8	0.53	B	17.3	0.59	B
8	Vignes Street and First Street	21.7	0.49	C	27.4	0.56	C
9	Alameda Street and El Monte Busway/Arcadia Street	19.5	0.83	B	14.5	0.60	B
10	Alameda Street and Los Angeles Street EB	12.4	0.31	B	12.7	0.33	B
110	Alameda Street and Los Angeles Street WB	4.2	0.33	A	5.6	0.29	A
11	Alameda Street and Cesar Chavez Avenue	15.3	0.74	B	14.9	0.67	B
12	Alameda Street and Vignes Street/Alpine Street	11.8	0.56	B	14.1	0.60	B
13	Vignes Street and Cesar Chavez Avenue	19.0	0.75	B	20.4	0.85	C
14	Vignes Street and Ramirez Street	23.4	0.41	C	25.9	0.51	C
15	Vignes Street and Main Street	17.5	0.57	B	41.9	0.97	D
16	Alameda Street/Spring Street and College Street	16.0	0.59	B	17.0	0.68	B
17	Alameda Street and Main Street/Ord Street a	0.6	0.33	A	0.7	0.40	A
18	Alameda Street and Main Street/Bauchet Street	5.7	0.40	A	8.8	0.56	A
19	Main Street and Cesar Chavez Avenue	7.6	0.42	A	19.0	0.62	B
20	Alameda Street and Northbound US-101 b						
21	Los Angeles Street and Arcadia Street	7.2	0.57	A	5.1	0.50	A
22	Los Angeles Street and Aliso Street	9.4	0.29	A	11.3	0.59	B
23	Los Angeles Street and Temple Street	15.0	0.59	B	16.5	0.70	B
24	Los Angeles Street and First Street	14.8	0.53	B	19.4	0.80	B

Table 6-2. Existing Peak Hour Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
25	Judge John Aiso Street and Temple Street	8.2	0.38	A	7.9	0.41	A
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	0.42	B	15.0	0.63	B
27	Mission Road and Cesar Chavez Avenue	46.4	1.08	D	23.9	0.85	C
28	Mission Road and First Street	28.3	0.77	C	31.1	0.83	C
29	Central Avenue and First Street	8.9	0.32	A	11.0	0.48	B
30	Vignes Street and Bauchet Street	10.7	0.28	B	19.1	0.48	B
31	Ramirez Street and Center Street	1.8	0.19	A	0.6	0.34	A
32	Union Station North Driveway and Cesar Chavez Avenue	13.5	0.53	B	14.2	0.50	B

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

EB=eastbound; LOS=level of service; V/C=volume to capacity; WB=westbound

6.2.3 Existing Volumes and Traffic Conditions on US-101

Freeway traffic data from the 2010 CMP were utilized for this analysis to assess the existing operating conditions on US-101 north of Vignes Street (postmile 0.46). D/C ratios were estimated assuming a capacity of 2,000 vehicles per hour, per lane. Table 6-3 shows the existing US-101 main line segment north of Vignes Street LOS results. As shown, this freeway segment operates at an unacceptable LOS of E or worse, during both AM and PM peak hours.

Table 6-3. Existing Freeway Main line Level of Service

Freeway Analysis Location	Peak	Northbound				Southbound			
		Demand	Capacity	D/C	LOS	Demand	Capacity	D/C	LOS
US-101 North of Vignes Street (postmile 0.46)	AM	10,900	8,000	1.36	F(2)	7,500	8,000	0.94	E
	PM	10,800	8,000	1.35	F(1)	11,000	8,000	1.38	F(2)

Source: Los Angeles County CMP, 2010, Appendix B, 2009 CMP Freeway Monitoring Stations and Levels of Service

Notes:

D/C=Demand to Capacity; LOS=level of service

6.3 Existing Public Transit Usage

The study area is currently served by an extensive transit system including bus, rail, and high-occupancy vehicle facilities. The project is situated in and around the Patsaouras Transit Plaza, which is a major hub of transit activity in Downtown Los Angeles. Numerous bus routes start, stop, or terminate at the Patsaouras Transit Plaza, currently located on the east side of LAUS. These include long-haul, express, and local municipal buses provided by LADOT, Metro, and other agencies. Buses include the Los Angeles International Airport FlyAway provided by Los Angeles World Airports, with scheduled ground transportation between Los Angeles International Airport and LAUS. Express buses are provided by Orange County Transportation Authority, Foothill Transit, LADOT, and other surrounding agencies. Local buses include LADOT Downtown Area Short Hop (DASH) and other local service providers. Along with bus routes, the Patsaouras Transit Center provides connection to Metro Red and Purple Lines, Gold Line, Metrolink, and Amtrak trains.

On weekdays, approximately 1,046 buses are dispatched from the Patsaouras Transit Plaza. On Saturdays and Sundays, approximately 556 and 655 buses are dispatched, respectively. Thus, in a week, a total of 6,441 buses are dispatched. Under an estimation that each bus carries approximately 30 passengers, the Patsaouras Transit Plaza accommodates approximately 190,000 individual trips per week, approximately 31,000 individual trips per weekday, and approximately 17,000 individual trips per weekend day, which, as a whole, reduces the number of motorists using roadways in the project vicinity.

In the project study area, LADOT DASH Route D is the only bus route using Center Street. During construction, possible detour bus routes for Route D would be via Alameda Street and Cesar Chavez Avenue. Other DASH bus routes that traverse the area include Routes A and B. Detailed bus routes are shown on Figure 6-3. Bus schedule and detailed information can be found in Appendix E. Additionally, El Monte Busway is a shared-use bus corridor and high-occupancy vehicle lane that travels west along US-101.

6.4 Pedestrians and Bicyclists

The study area intersections currently experience a high number of pedestrian and bicyclist activities during both AM and PM peak hours. As part of this study, pedestrian and bicyclist counts were collected and included in the intersection analysis as applicable.

Pedestrian and bicyclist activities were observed at each study intersection by National Data and Surveying Services while manual counts were conducted during AM and PM peak periods for the following intersections:

- At the intersection of Alameda Street and Commercial Street, the amount of pedestrian activity was notably high on each crosswalk of the intersection during both AM and PM peak hours. During the AM peak hour, there were 0 to 224 pedestrians per hour, with the south leg having the highest volume. During the PM peak hour, the counts ranged from 0 to 144 pedestrians per hour, with the south leg again having the highest volume. Bicyclists were observed at this intersection, and counts

were similar for both AM and PM peak hours; the counts for each movement ranged from 0 to 9 bicyclists.

- At the intersection of Garey Street and Commercial Street, there were few pedestrians during both AM and PM peak hours. Of the observed pedestrians, only the south leg had volumes ranging from 7 to 15 pedestrians during the AM and PM peak periods. Bicyclists were observed at each approach for AM and PM peak hours; however, only 1 bicyclist was observed at the westbound approach.
- At the intersection of Center Street and Commercial Street, the number of pedestrians was low on all legs for AM and PM peak hours. The pedestrian counts for all the legs that had crosswalks observed 11 pedestrians during the AM peak hour and 28 pedestrians during the PM peak hour. Bicyclists were observed at this intersection, and numbers were similar during AM and PM peak hours; the counts for each movement ranged from 5 to 26 bicyclists.

The above pedestrian and bicyclist volumes demonstrate that the intersection of Alameda Street and Commercial Street experiences higher pedestrian and bicyclist volumes than other nearby intersections and is used during both morning and evening peak hours. Pedestrian and bicyclist count data can be found in Appendix F.

There are existing bicycle lane facilities along Main Street, Los Angeles Street, First Street, and Third Street. Metro is also implementing the *Connect US Action Plan* (formerly the Union Station and First/Central Station Linkages Study; Metro 2015) to improve historical and cultural connections in Downtown Los Angeles by enhancing pedestrian and bicycle travel options. Central to the study is improving access to LAUS. The *Connect US Action Plan* includes a neighborhood-level assessment of arterial and collector streets with an emphasis on bicycle and pedestrian mobility. Under the *Connect US Action Plan*, Alameda Street between Cesar Chavez Avenue and US-101 would be modified to further emphasize bicycle and pedestrian mobility by reducing one vehicular travel lane in each direction in order to widen the sidewalk for pedestrian and bicycle use.

6.4.1 Approach to Identification of Baseline Condition

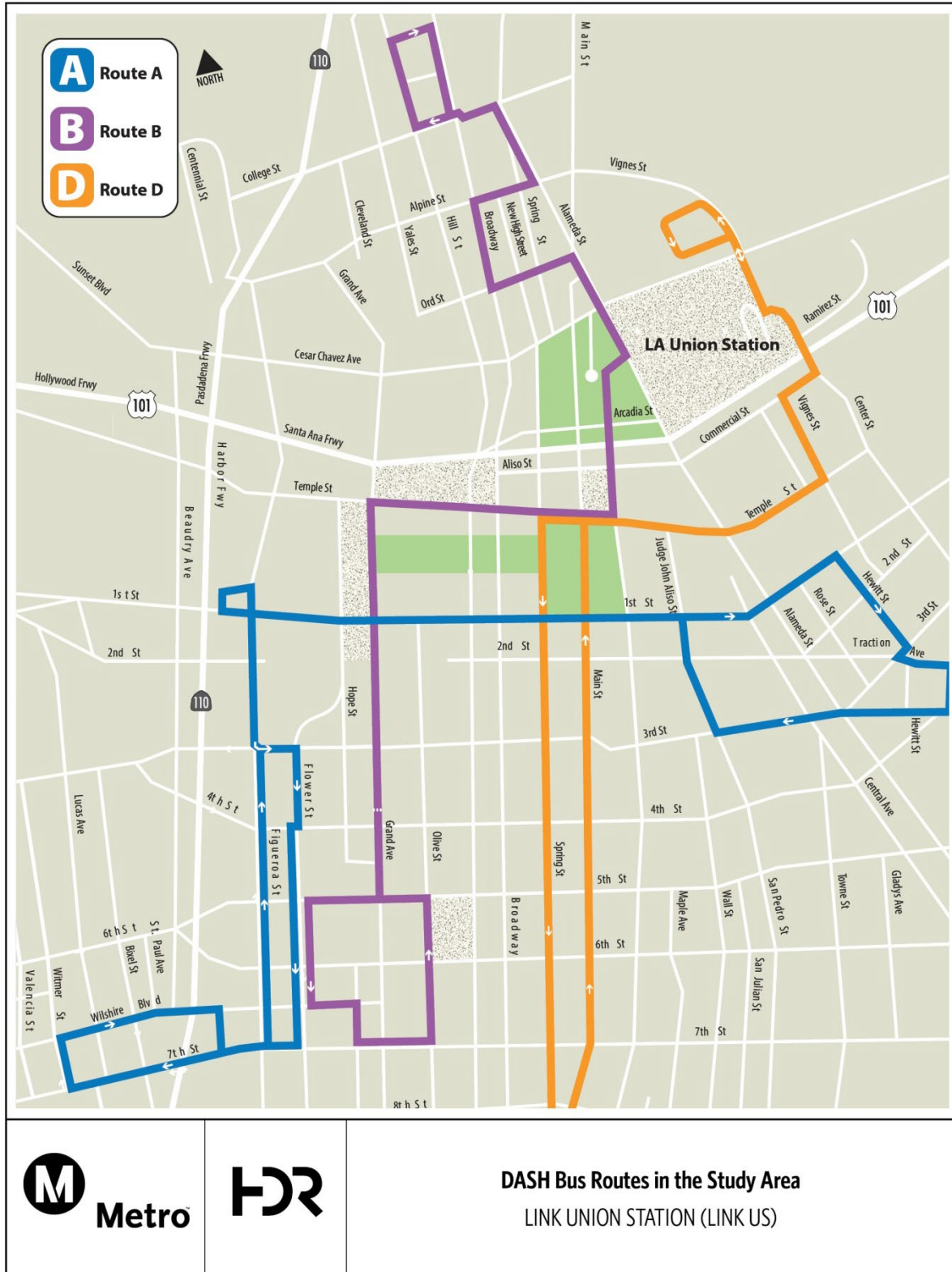
Based on the significant impact criteria as per the LADOT's guidelines (Section 5.3.3), the project related impacts and deterioration in the operational performance of study intersections due to the added delay are measured by the difference in delay between the 'with project' and the 'no project' conditions during the 'opening year' of a project. Because the project related traffic would be generated only after the project is constructed and fully operational, the 'Baseline' condition is during the 'opening year' of the project and not the 'existing year'. The existing year is not the baseline because the project will not be built and operational during the existing year; therefore, the existing plus project condition would never occur. The traffic counts were conducted in 2015 and were used to estimate the baseline volumes for the opening year by adding annual growth rate and traffic from the other planned projects located in the vicinity of the proposed project to the traffic counts.

In order to fulfill the existing plus project condition as part of this traffic impact analysis of the project, the level of service analysis for all study intersections for the existing plus project scenario was included in

Appendix G. As identified in the appendix, the results of the analysis for the existing plus project condition would not result in any new significant impacts or substantially greater project related impacts as those identified utilizing LADOT's guidelines and the opening year of the project as the analysis baseline.

It should be noted that for the 2031 opening year and 2040 horizon year conditions, the analysis consists of the comparison of LOS and delay between the corresponding 'no project' and 'with project' conditions. The project related impacts for the 2031 opening year with project and 2040 horizon year with project are the same as the existing with project conditions.

Figure 6-3. Downtown Area Short Hop Bus Routes in the Study Area



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7.0 Future Traffic Projections and Roadway Characteristics

This section describes the methodology for performing traffic forecasts and the actual traffic volumes projected for 2031 and 2040 conditions at key roadway segments and intersections.

Two future years were evaluated: (1) 2031 and (2) 2040. Forecasts for five future conditions were developed:

- 2031 no project condition
- 2040 no project condition
- 2031 plus project construction condition
- 2031 plus project condition
- 2040 plus project condition

No project conditions forecasts reflect traffic increases due to background growth in the region. Plus project conditions forecasts reflect the traffic under no project conditions plus expected traffic volume changes due to construction and operation. Cumulative plus project construction conditions forecasts reflect traffic of the cumulative base plus expected traffic volume changes due to construction of the project.

7.1 Traffic Forecasting Methodology

Trip distribution is the process of identifying the probable origins, destinations, and directions or traffic routes that will be utilized by project-related traffic. The potential interaction between the project and surrounding regional access routes is considered to identify the route where the traffic will distribute.

For the purpose of this Traffic Impact Assessment, the 2016 Southern California Association of Governments (SCAG) Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) model was used as the basis for ambient traffic growth in Downtown Los Angeles per the MOU approved by LADOT. The City of Los Angeles sub-area model is built upon the latest version of the SCAG 2016 RTP/SCS regional traffic model. The model includes all traffic analysis zones in the City of Los Angeles. The City of Los Angeles provided a list of proposed projects that are approved or in the process of approval to use as cumulative projects in the analysis.

The following steps were taken to develop the 2031 and 2040 traffic forecasts using the SCAG model data:

- 1) The list of cumulative projects was compared against the land use assumptions in the SCAG model.
- 2) It was determined that the majority of cumulative projects were in the SCAG model land use assumptions.

- 3) Based on projected growth in the study area and direction from LADOT², a 0.2 percent per year growth rate was applied to the Existing Conditions traffic volume to generate ambient traffic growth.
- 4) Three specific projects that required trip generation estimates were identified and added to the cumulative traffic forecasts for 2031 and 2040.

A cumulative project list was obtained from LADOT for an area within a 3-mile radius of the project, and the analysis was compared to the SCAG land use data. Three projects were identified that were not included in the SCAG/City model. Associated trip generation rates and estimates for AM and PM peak hour trips were added to the project cumulative year traffic to account for these projects. The trip generation rates and estimates for the three specific projects are included in Table 7-1.

Project	Location	Description	Estimated Trip Generation						
			Daily Vehicular Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
1	441 Bauchet Street	Los Angeles County Men's Central Jail	—	64	75	139	69	208	277
2	129 W. College Street	College Station	—	169	290	459	307	201	508
3	800 N. Alameda Street	High-Speed Rail a	32% of 40,960 = 13,107	1,305	870	2,175	870	1,305	2,175

Notes:

^a Trip generation from the planned HSR system is based on data shared by the California High-Speed Rail Authority.

² Confirmed at a meeting with LADOT on May 25, 2016.

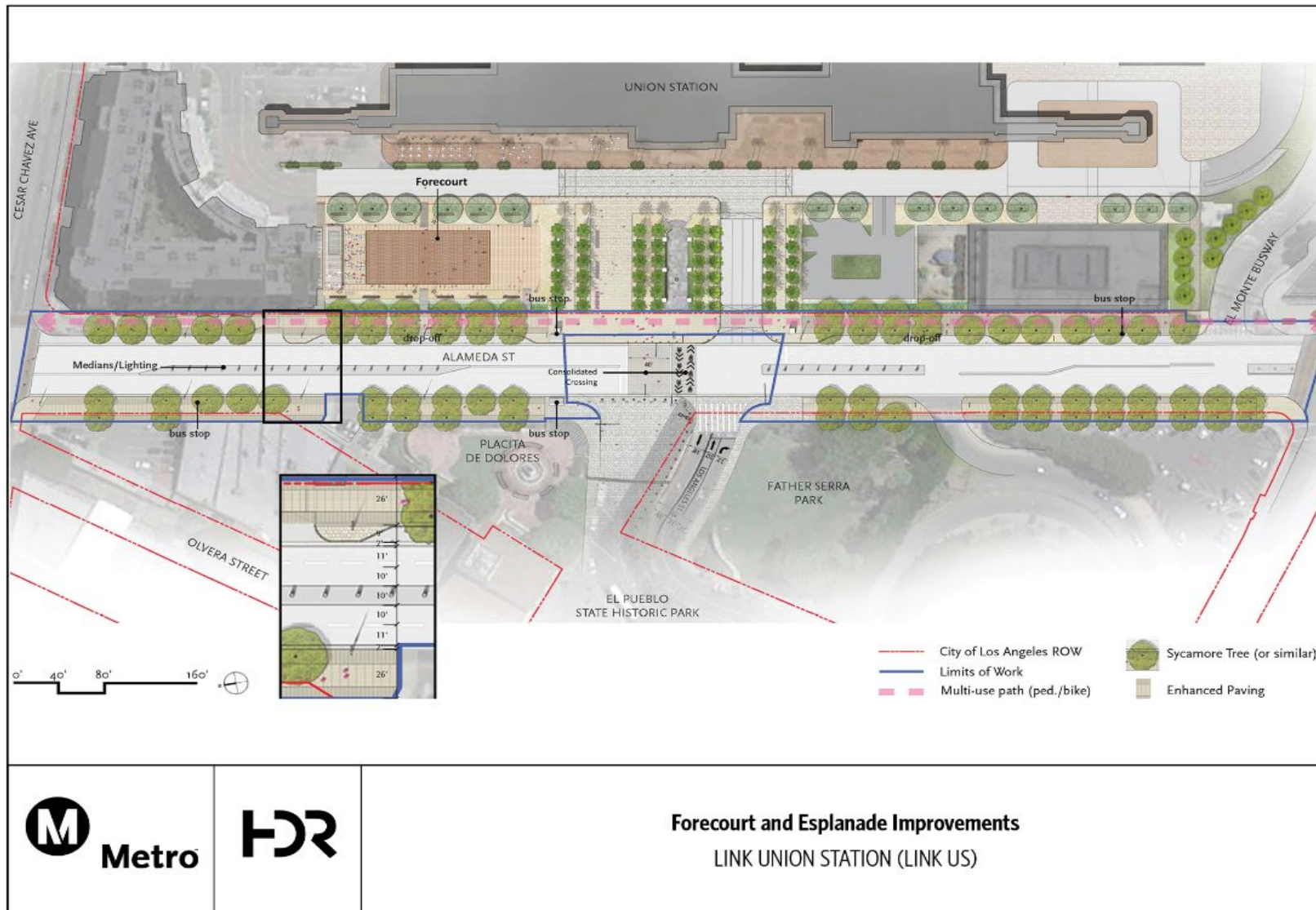
7.2 Characteristics of 2031 and 2040 Roadway System

For the 2031 no project condition, it is assumed that there will be no major changes to the roadway network aside from those proposed in the 2016 RTP/SCS.

For the 2031 no project condition, it is assumed that the *Connect US Action Plan* (Metro 2015) will already be implemented, as well as the LAUS Forecourt and Esplanade Improvements project. The modifications to Alameda Street would reduce the number of lanes from Cesar Chavez Avenue to Arcadia Street/El Monte Busway. The northbound and southbound through lanes would be reduced from three lanes to two lanes. In addition to the lane reductions, Los Angeles Street across from LAUS would be closed and vacated for an exclusive pedestrian plaza. With this closure, LAUS would have a combined intersection for entrances and exits. An illustration of the LAUS Forecourt and Esplanade Improvements concept is shown on Figure 7-1.

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Figure 7-1. Alameda Street Improvements (Los Angeles Union Station Forecourt and Esplanade Improvements Project)



Source: Metro 2015

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The 2040 no project condition is therefore different from Existing Conditions with respect to the roadway network and traffic distribution with the completion of the LAUS Forecourt and Esplanade Improvements project. Below is a summary of concept plans with the lane configurations for the Alameda Street road improvements.

Intersection #3: Vignes Street and Commercial Street:

- Westbound and northbound left turns are prohibited with the proposed raised median along Commercial Street.

Intersection #9: Alameda Street and Arcadia Street:

- Eliminate one through lane (future configuration will be one through/right and one through lane southbound).
- Northbound through/right lane becomes trap right (onto El Monte Busway), two northbound lanes until Cesar Chavez Avenue.

Intersections #10 and #110: Alameda Street and Los Angeles Street:

- East/west will be split phase, southbound protected left. Eastbound left turn prohibited. Intersections 10 and 110 are merged into one intersection (east leg).
- No right-turn on red is noted for most of the right turns (to eliminate pedestrian conflicts); the crosswalk would run concurrent with the westbound through/left phase.

Intersection #11: Alameda Street at Cesar Chavez Avenue:

- Southbound through/right lane becomes right-turn-only lane, two southbound receiving lanes south of the intersection.
- Northbound right-turn-only lane, two through lanes.

Intersection #20: Alameda Street and US-101 Northbound On-ramp:

- Eliminate one through lane (future configuration will be one through/right and one through lane southbound).
- Northbound two through lanes.

7.3 2031 and 2040 No Project Traffic Projections

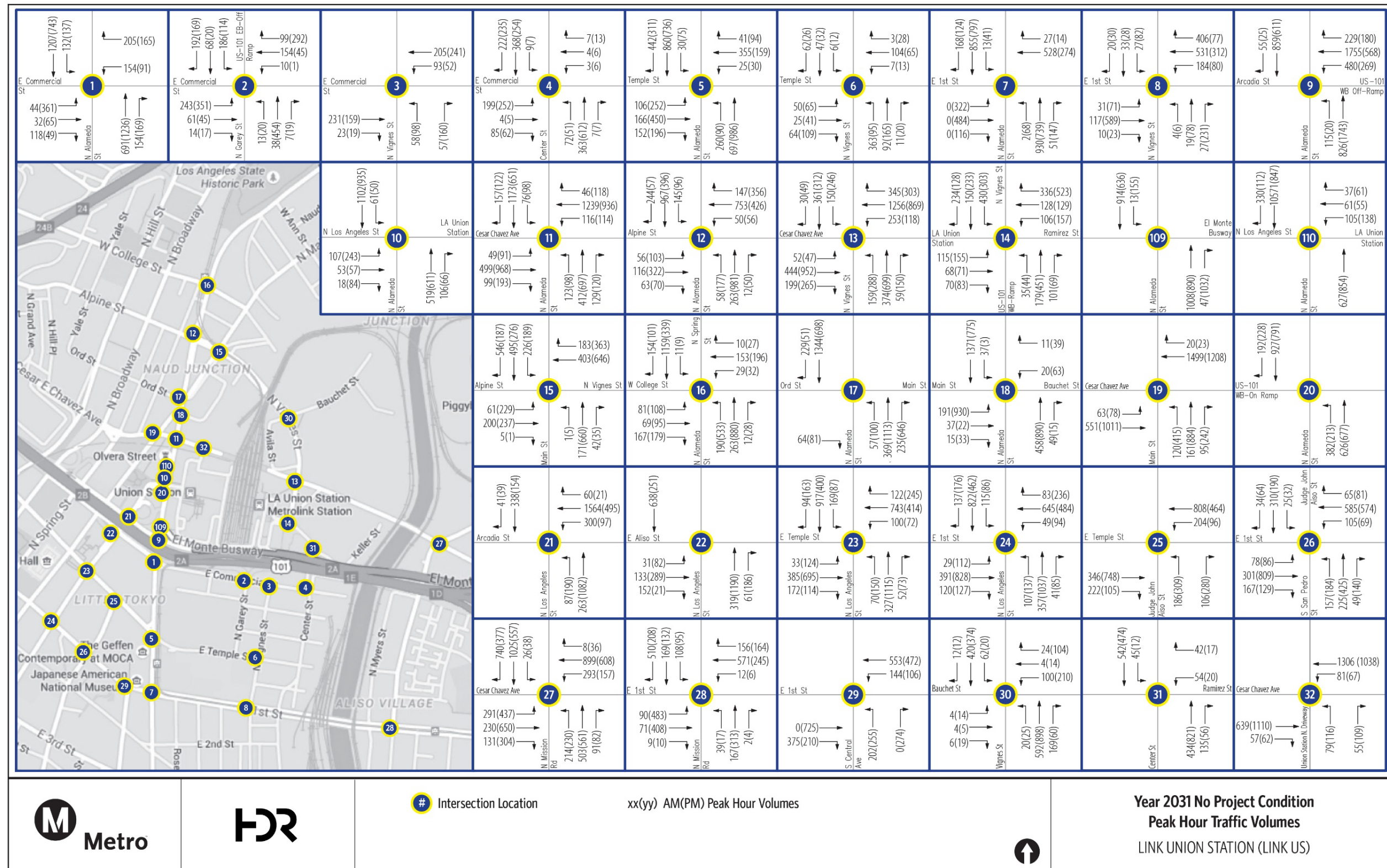
The no project traffic conditions have been estimated using the methodology identified in Section 7.1, Traffic Forecasting Methodology.

The no project scenario consists of the cumulative base traffic conditions that reflect the background growth and the related cumulative projects that were identified and were not included in the regional growth

model. The cumulative traffic growth rate in the study area is assumed to increase at 0.2 percent per year from 2016 to 2031 and 2040. The resulting peak hour traffic volumes under 2031 no project and 2040 no project conditions are illustrated on Figure 7-2 and Figure 7-3, respectively. Below are the planned increases in new transit services in the near future:

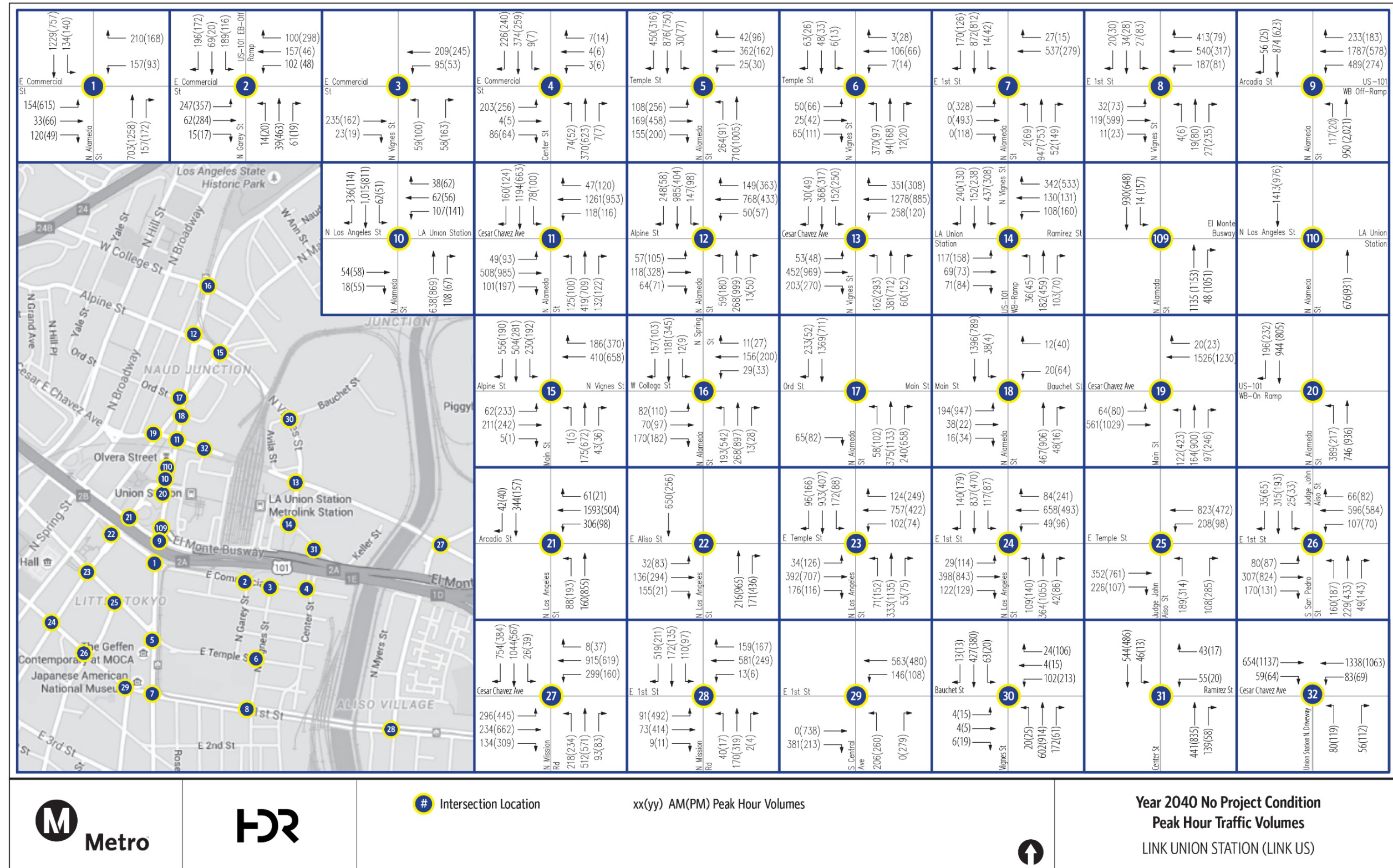
- 1) Regional Connector project is expected to be completed by 2021.
 - a. It will connect Gold Line to Red/Purple Lines.
 - b. Future frequency of trains will reduce to 2 minutes on combined Red/Purple Lines during peak.
- 2) Crenshaw/Los Angeles International Airport transit project is expected to be completed by 2019.
- 3) Los Angeles World Airport People Mover project is expected to be completed by 2019.

Figure 7-2. 2031 No Project Peak Hour Traffic Volumes



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Figure 7-3. 2040 No Project Peak Hour Traffic Volumes



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7.4 Project Construction Traffic Generation

Construction of the proposed project or the build alternative would require large amounts of workers, materials, and equipment working simultaneously in multiple locations. The additional traffic generated during construction would consist of construction equipment, construction employee vehicles and construction material deliveries, and haul of landfill materials in trucks.

7.4.1 Project Phases A and B (Simplified Project Phases)

Project Phases A and B are two construction sub-phases that correspond to the interim condition (Phase A: 2026) and the full build-out condition (Phase B: 2031). Detailed construction phasing scenarios were developed to support the traffic, air quality, and noise analyses; however, this simplified project phasing approach summarizes how regional/intercity rail run-through service could be implemented as early as 2026 via early action/interim improvements, and how the remaining project elements, including reconstruction of the throat with new lead tracks, an elevated rail yard with new platforms and canopies, and the new passenger concourse, could be implemented as early as 2031. A summary of the construction activities in each segment of the project study area associated with Phases A and B is provided below and shown on Figure 7-4 and Figure 7-5, respectively.

Phase A/Interim Condition:

- Conduct property acquisitions in Segment 1: Throat Segment through Segment 3: Run-Through Segment
- Relocate utilities in Segment 1: Throat Segment and Segment 3: Run-Through Segment
- Construct special track work and modify signal/communication infrastructure in Segment 1: Throat Segment
- Construct local street modifications south of LAUS, including realignment of Commercial Street and lowering of Center Street in Segment 3: Run-Through Segment
- Construct a run-through track ramp from the southern extent of Platform 4 in Segment 2: Concourse Segment.
- Construct a common viaduct/deck over US-101 wide enough to accommodate up to ten run-through tracks (including the northern loop track) south of LAUS in Segment 3: Run-Through Segment.
- Construct a common embankment from Vignes Street to Center Street in Segment 3: Run-Through Segment.
- Construct regional/intercity rail embankments and viaducts east of Center Street to facilitate main line connections for the loop track and regional/intercity rail run-through tracks in Segment 3: Run-Through Segment. Metro and the project stakeholders are also considering design

approaches that would accommodate future interoperability for multiple rail service providers from LAUS to the main line tracks on the west bank of the Los Angeles River.

- Construct a retaining wall/sound wall in Segment 1: Throat Segment.
- Construct two run-through tracks in Segment 3: Run-Through Segment that would connect to the existing Platform 4 in Segment 2: Concourse Segment.

Phase B/Full Build-Out Condition:

- Construct new compatible lead tracks and reconstruct throat in Segment 1: Throat Segment
- Construct new bridges over Vignes Street and Cesar Chavez Avenue in Segment 1: Throat Segment
- Construct elevated rail yard and new passenger concourse in Segment 2: Concourse Segment
- Construct remaining run-through tracks for regional/intercity rail operations in Segment 3: Run-Through Segment

Two detailed construction phasing plans were developed for the environmental impact evaluation because the proposed project with an above-grade passenger concourse with new expanded passageway and the build alternative with an at-grade passenger concourse require different construction sequencing and durations, truck traffic, and equipment use.

Project Phases A and B are encompassed within Construction Phases 1–4 (both scenarios), but do not directly relate because the detailed construction phasing plans described below are based on a conservative estimate of typical construction activities based on a concurrent construction schedule for all major project features (i.e., construction of the new lead tracks, elevated rail yard, run-through tracks, and new passenger concourse together).

Construction traffic, project access, and construction staging are discussed in subsequent sections and additional information is provided in Appendix H.

All phases were developed to provide adequate platform space and associated tracks to maintain rail operations for existing Gold Line and regional/intercity rail service, as well as safe and adequate passenger movement throughout the construction process.

The underlying assumptions and approach to the construction phasing plans applicable to both construction scenarios are:

- The difference in timeframes to construct shared and dedicated tracks in the throat segment is relatively minor in terms of the overall project construction schedule. Lead tracks would be constructed in a similar fashion for both scenarios.
- No less than three track leads from the north, and eight platform tracks would be available at all times to maintain operational objectives during construction.
- Full closure of the rail yard is possible between 12 AM and 5 AM.

- The East Portal Building would provide continuous passenger access during construction.
- The construction duration is based on a 5 days per week, 8 hours per day schedule. Where permissible, nighttime construction would be implemented in certain locations.
- Double berthing (two tracks utilizing one platform) would be maximized to the extent feasible.
- The at-grade passenger concourse requires a “top-down” construction method, and the above-grade passenger concourse with new expanded passageway requires a “bottom-up” construction method.
- Shoring walls would be placed 10 feet from centerline of the existing track.
- Construction work zones areas would be contained to help manage staging, distribution of materials, and movement of personnel to specific areas.
- Impacts to existing roadways and traffic signal operations would be minimized to the extent possible.
- Ancillary roadway improvements (e.g., widening, restriping, and curb/gutter) and drainage/water quality improvements would be constructed throughout all construction phases, as needed.
- On average, project construction would affect up to 10 acres of the project footprint per day.

The overall construction phasing process relates to the following project areas:

- Throat Segment
- Concourse Segment
- Run-Through Segment

The following sections include discussion of the general construction activities that would occur within each segment of the project study area with reconstruction of the throat, elevation of the rail yard, and construction of new run-through tracks, concurrent with construction of an at-grade passenger concourse or above-grade passenger concourse with new expanded passageway.

Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario

Reconstruction of the throat, elevation of the rail yard, and construction of new run-through tracks, concurrent with an above-grade passenger concourse with new expanded passageway, would be completed in 22 steps that comprise four main construction phases (Phases I through IV). Generally, the construction methodology for the proposed project with an above-grade passenger concourse is the reverse of that for the build alternative with an at-grade passenger concourse (east to west and bottom to top). All construction activities would be conducted in a manner to minimize service disruptions to existing rail/transit service providers during construction.

Phase I Construction (Steps 1–6)

Figure 7-6 depicts the Phase I Construction Work Area. Major work elements in this phase include realignment of Commercial Street, lowering of the existing Commercial Street/Center Street intersection, construction of the East and West Plazas, and construction of the run-through track structures south of LAUS. Phase I construction activities planned within each of the main segments are summarized below.

- **Segment 1: Throat Segment** – Phase I includes removal of the southern portion of the lead tracks in the throat area, removal of the garden tracks, construction of a shoofly and crossovers to facilitate temporary at-grade leads to the rail yard, minor track work at CP Mission, and special track work.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase I includes construction of new temporary leads and connections to existing platform tracks.
 - **Concourse Area** – Phase I includes construction of the East and West Plazas.
- **Segment 3: Run-Through Segment** – Phase I includes roadway work to realign Commercial Street and lower the existing Commercial Street/Center Street intersection, construction of the US-101 viaduct as a combined structure, construction of an embankment to support run-through tracks south of Commercial Street, and construction of the Center Street viaduct.

Phase II Construction (Steps 7–12)

Figure 7-7 depicts the Phase II Construction Work Area. Major work elements in this phase include reconstruction of the throat (east to west), construction of the eastern portions of the Vignes Street and Cesar Chavez Avenue Bridges, construction of new permanent Platforms 7 through 5 (east to west), construction of the loop track and new run-through tracks, and construction of the new above-grade passenger concourse with new expanded passageway. Phase II construction activities planned within each of the main areas are summarized below.

- **Segment 1: Throat Segment** – Phase II includes removal of existing track and reconstruction of the eastern portion of the throat area with new lead tracks on an embankment from the southern end of CP Mission through CP Terminal to the rail yard. Phase II also includes special track work, rail signal and communication work, and construction of the easterly portions of the Vignes Street and Cesar Chavez Avenue Bridges.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase II includes the removal of Platforms 7, 6, and 5, and the southern portions of Platforms 4 through 2. As part of Phase II, Platforms 7, 6, and 5 would be reconstructed (east to west) with the corresponding vertical circulation elements connecting to the new passenger concourse above.
 - **Concourse Area** – Phase II includes major construction of the elements of the above-grade passenger concourse over the rail yard, the new expanded passageway below the rail yard, and

the associated vertical circulation elements. As each platform is reconstructed east to west, the existing ramp from the pedestrian passageway to that platform would be closed to the public and reopened for use as the next platform is being reconstructed. Passenger access between new platforms and the newly constructed above-grade passenger concourse and new expanded passageway would be via the new vertical circulation elements.

- **Segment 3: Run-Through Segment** – Phase II includes continuation of the run-through track structure construction south of LAUS. East of Center Street, Phase II also includes replacement of existing tracks at the BNSF West Bank Yard at a lower elevation, track work along the existing two-track main line, and rail signal and communication work to support regional/intercity rail infrastructure requirements.

Phase III Construction (Steps 13–17)

Figure 7-8 depicts the Phase III Construction Work Area. Major work elements in this phase include continuation of reconstruction of the throat (east to west), construction of the western portions of the Vignes Street and Cesar Chavez Avenue Bridges, construction of new permanent Platform 4, and construction of run-through tracks south of LAUS. Phase III construction activities planned within each of the main areas are summarized below.

- **Segment 1: Throat Segment** – Phase III includes removal of existing track and reconstruction of the center portion of the throat area with new lead tracks on an embankment. Phase III also includes special track work, rail signal and communication work, and construction of the center portion of the Cesar Chavez Avenue Bridge.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase III includes removal and replacement of Platform 4, and removal of Platforms 3 and 2. Phase III also includes associated track work and rail signal and communication work.
 - **Concourse Area** – Phase III includes continuation of construction of the above-grade passenger concourse that would extend above Platform 4.
- **Segment 3: Run-Through Segment** – Phase III includes continuation of construction of new run-through tracks on previously constructed structures.

Phase IV Construction (Steps 18–22)

Figure 7-9 depicts the Phase IV Construction Work Area. Major work elements in Phase IV are associated with completing reconstruction of the throat (east to west) to facilitate construction of the final three platforms in the elevated rail yard (Platforms 3 through 1) and the new above-grade passenger concourse with new expanded passageway. Phase IV also includes construction and removal of a temporary track shoofly for the Gold Line to facilitate construction of the final portion of the Cesar Chavez Avenue Bridge while keeping the Gold Line in operation. Phase IV also includes construction of the westerly portion of the

Vignes Street Bridge. Phase IV construction activities planned within each of the main areas are summarized below.

- **Segment 1: Throat Segment** – Phase IV includes construction of the westerly portion of Vignes Street Bridge and Cesar Chavez Avenue Bridge, new embankment, track work, tie-ins to existing tracks, and rail signal and communication work.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase IV includes construction and removal of a track shoofly for the Gold Line and construction of permanent Platforms 3, 2, and 1 (including extension of Platform 1). Phase IV also includes associated track work and retaining walls.
 - **Concourse Area** – Phase IV includes construction of the remaining portion of the new passenger concourse with new expanded passageway and completion of the West Plaza.
- **Segment 3: Run-Through Segment** – Phase IV includes final connections and track work, as new platforms and run-through tracks are brought online.

Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario

Reconstruction of the throat, elevation of the rail yard, and construction of new run-through tracks, concurrent with an at-grade passenger concourse, would be completed in 17 steps that comprise 4 main construction phases (Phases I through IV). All construction activities would be conducted in a manner to minimize service disruptions to existing rail/transit service providers during construction.

Phase I Construction (Steps 1–4)

Figure 7-10 depicts the Phase I Construction Work Area. Major work elements in this phase include construction of a temporary passenger gantry, removal of existing tracks and platforms and construction of temporary platforms, realignment of Commercial Street, lowering of the existing Commercial Street/Center Street intersection, and construction of the run-through structures south of LAUS. Phase I construction activities planned within each of the main areas are summarized below.

- **Segment 1: Throat Segment** – Phase I includes reconstruction of the northern portion of the lead tracks in the throat area from CP Chavez to CP Mission, construction of a retaining wall/sound wall to support new lead tracks, removal of the garden tracks, special track work, and rail signal and communication work.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase I includes construction of a temporary platform (Platform 8) and a temporary overhead passenger gantry (pedestrian bridge) with stairways, escalators, and/or elevators. The temporary passenger gantry would be constructed above the rail yard to facilitate ongoing transit service with adequate passenger movement and safe ingress/egress areas during construction of the elevated rail yard below. Phase I also includes removal of the southernmost portion of Platforms 7 and 6, removal of Platforms 5 and 4, construction of

- temporary Platforms 5 and 4, and removal of Platforms 3 and 2, along with the removal of the Garden Tracks, and associated track work.
- o **Concourse Area** – Phase I includes closure of passenger and vehicular access in the existing concourse and pedestrian passageway. Throughout construction, the existing pedestrian ingress/egress areas would be redirected to new access points at the East Portal Building and the parking lot west of Gold Line Platform 1, which would connect via the temporary passenger gantry. Construction of the East and West Plazas would commence during this phase.
 - **Segment 3: Run-Through Segment** – Phase I includes roadway work to realign Commercial Street and lower the existing Commercial Street/Center Street intersection, construction of the US-101 viaduct as a combined structure, construction of an embankment south of the newly realigned Commercial Street, and construction of the Center Street viaduct. East of Center Street, Phase I also includes replacement of existing tracks at the BNSF West Bank Yard at a lower elevation, construction of embankments/viaducts leading to Keller Yard and the BNSF West Bank Yard, track work in the vicinity of the existing two-track main line, and rail signal and communication work to support regional/intercity rail infrastructure requirements.

Phase II Construction (Steps 5–7)

Figure 7-11 depicts the Phase II Construction Work Area. Major work elements in this phase are associated with reconstruction of the Gold Line Platform 1. Phase II construction activities planned within each of the main segments are summarized below.

- **Segment 1: Throat Segment** – Phase II includes continuation of special track work, removal and reconstruction of new lead tracks on an embankment, and rail signal and communication work in the throat area. The first phase of construction on the Cesar Chavez Avenue Bridge would also commence during Phase II.
- **Segment 2: Concourse Segment:**
 - o **Rail Yard Area** – Phase II includes construction of a temporary shoofly and platform to maintain Gold Line operations from temporary Platform 3. This phase also includes the removal and reconstruction of the existing Gold Line Platform 1 and associated track work including two new universal crossovers north and south of the existing platform. After construction of the new Gold Line Platform 1, the temporary shoofly and temporary Platform 3 would be removed.
 - o **Concourse Area** – Phase II includes continuation of the East and West Plaza construction. No other construction activities would occur within the concourse area as part of Phase II. The existing concourse and pedestrian passageway under the rail yard would be closed to the public during Phase II. The temporary passenger gantry would facilitate ongoing transit service with adequate passenger movement and safe ingress/egress areas.
- **Segment 3: Run-Through Segment** – Phase II includes continuation of construction of the run-through track structures south of LAUS.

Phase III Construction (Steps 8–12)

Figure 7-12 depicts the Phase III Construction Work Area. Major work elements in this phase include reconstruction of the throat (west to east), construction of the western portions of the Vignes Street and Cesar Chavez Avenue Bridges, construction of new permanent Platforms 2 through 5 (west to east), construction of the loop track and new run-through tracks, and construction of the new passenger concourse. Phase III construction activities planned within each of the main areas are summarized below.

- **Segment 1 – Throat Segment:** Phase III includes reconstruction of the southern portion of the throat area with new lead tracks on an embankment. Phase III also includes special track work, rail signal and communication work, and construction of the westerly portions of the Vignes Street and Cesar Chavez Avenue Bridges.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase III includes construction of new Platforms 2 and 3, removal of temporary Platforms 4 and 5, construction of Platform 4, removal of Platform 6, and construction of Platform 5. All associated track work in the rail yard would also be reconstructed west to east concurrent with construction of the new platforms, usually two tracks at a time. Rail signal and communication work would also be completed during this phase.
 - **Concourse Area** – The existing concourse and pedestrian passageway under the rail yard would be closed to the public during Phase III. The temporary passenger gantry would facilitate ongoing transit service with adequate passenger movement and safe ingress/egress areas. Excavation, slabs, utilities, and interior work on the concourse would begin, and construction on the East and West Plazas would continue.
- **Segment 3: Run-Through Segment** – Phase III includes continuation of the loop track and run-through track construction. Track work at the BNSF West Bank Yard and along the main line would also be conducted in this phase to support regional/intercity rail infrastructure requirements.

Phase IV Construction (Steps 13–17)

Figure 7-13 depicts the Phase IV Construction Work Area. Major work elements in this phase include removal of Platform 7 and temporary Platform 8 to facilitate construction of the final two platforms in the elevated rail yard (Platforms 6 and 7) and construction of the at-grade passenger concourse. Phase IV construction activities planned within each of the main areas are summarized below.

- **Segment 1 – Throat Segment:** Phase IV includes continuation of construction of the Vignes Street and Cesar Chavez Avenue Bridges, new embankment, track work, tie-ins to existing tracks, and rail signal and communication work.
- **Segment 2: Concourse Segment:**
 - **Rail Yard Area** – Phase IV includes removal of Platform 7 and temporary Platform 8 to facilitate construction of the final two platforms in the elevated rail yard (Platforms 6 and 7) and removal of the temporary passenger gantry.

- o *Concourse Area* – Phase IV includes completion of new foundations and walls, new amenities, and the new at-grade passenger concourse. Construction work on the East and West Plazas would also be completed during this phase.
- *Segment 3: Run-Through Segment* – Final connections and track work would be required during this phase.

Potential Staging Areas and Regional Facilities

- *Staging Area 1* – Eastern terminus of Commercial Street between US-101 and Commercial Street at the Amay's Bakery and Noodle Co. and the Magellan Storage building
- *Staging Area 2* – Northwest corner of Commercial Street and Center Street at the vacant lot
- *Staging Area 3* – Southwest corner of Commercial Street and Center Street at the Urgent Gear building
- *Staging Area 4* – North side of Commercial Street on the east and west sides of the US-101 ramps
- *Staging Area 5* – South side of Commercial Street between Garey Street and Vignes Street
- *Staging Area 6* – South side of Commercial Street between Hewitt Street and Garey Street
- *Staging Area 7* – Southeast corner of Vignes Street and Ramirez Street at the Denny's restaurant lot
- *Staging Area 8* – Southwest corner of Vignes Street and Ramirez Street adjacent to the Patsaouras Transit Plaza
- *Staging Area 9* – South side of station yard and proposed run-through track structure abutment from existing LAUS access road serving the Metropolitan Water District of Southern California building and Amtrak baggage handling building

Construction Site Access

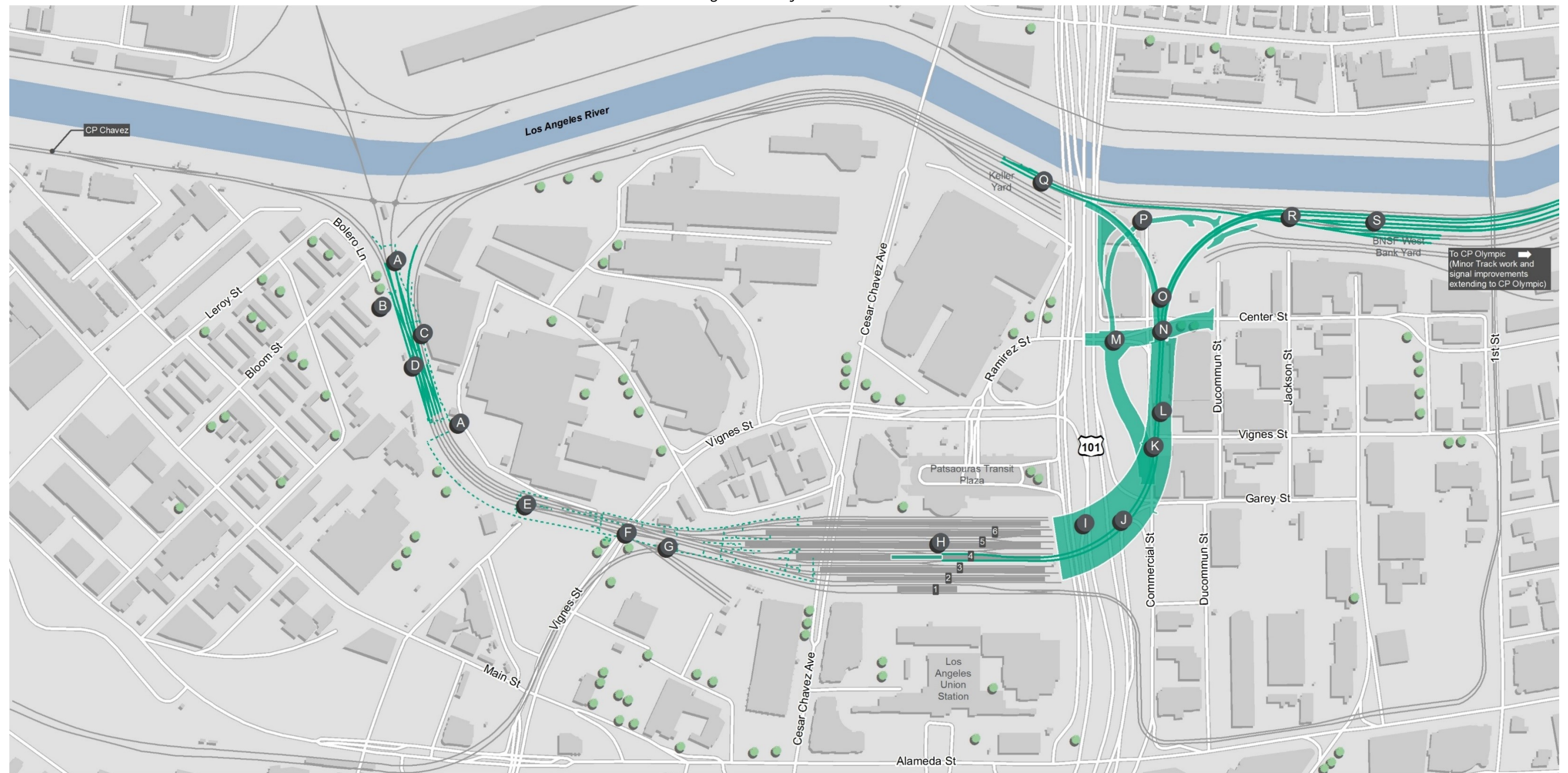
There are several potential site access points that could be utilized during various stages of construction for the proposed on-site improvements at LAUS and the proposed track throat area to the north. The following are the potential site access points:

- Northern/middle part of the track throat area: access via old Alhambra Avenue and College Street
- Middle part of throat area: access via existing vacant property located along the west side of throat area just north of Vignes Street
- East side of station yard/throat area: access via Avila Street
- West side of station yard: access via access road serving Postal Annex building and Bauchet Street
- West side of proposed concourse/station yard: access via LAUS access road serving Mozaic Apartments

South side of station yard: access via existing LAUS access road serving Metropolitan Water District building and Amtrak baggage handling building

An illustration of the potential staging areas and regional facilities is shown on Figure 7-14.

Figure 7-4. Project Phase A



LEGEND

- █ Structure Constructed in This Phase
- ▬ Track Constructed in This Phase
- - - Signal Improvements in This Phase
- Existing Platform
- Existing Tracks

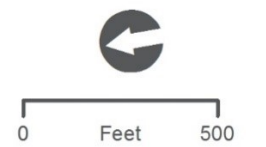
- A** Proposed CP Mission Signal House
- B** Potential Retaining wall/Sound Wall
- C** Replace Turnouts and Track at CP Mission
- D** Remove Existing CP Mission Signal House

- E** Replace Existing Signal Backbones and Conduits
- F** Proposed CP Terminal Signal House
- G** Remove Existing CP Terminal Signal House
- H** Platform 4 Shortening and Ramp

- I** New Viaduct over U.S. 101
- J** Two (2) Regional/Intercity Rail Run-Through Tracks
- K** Shared Berm and Retaining Walls
- L** New CP Ducommun

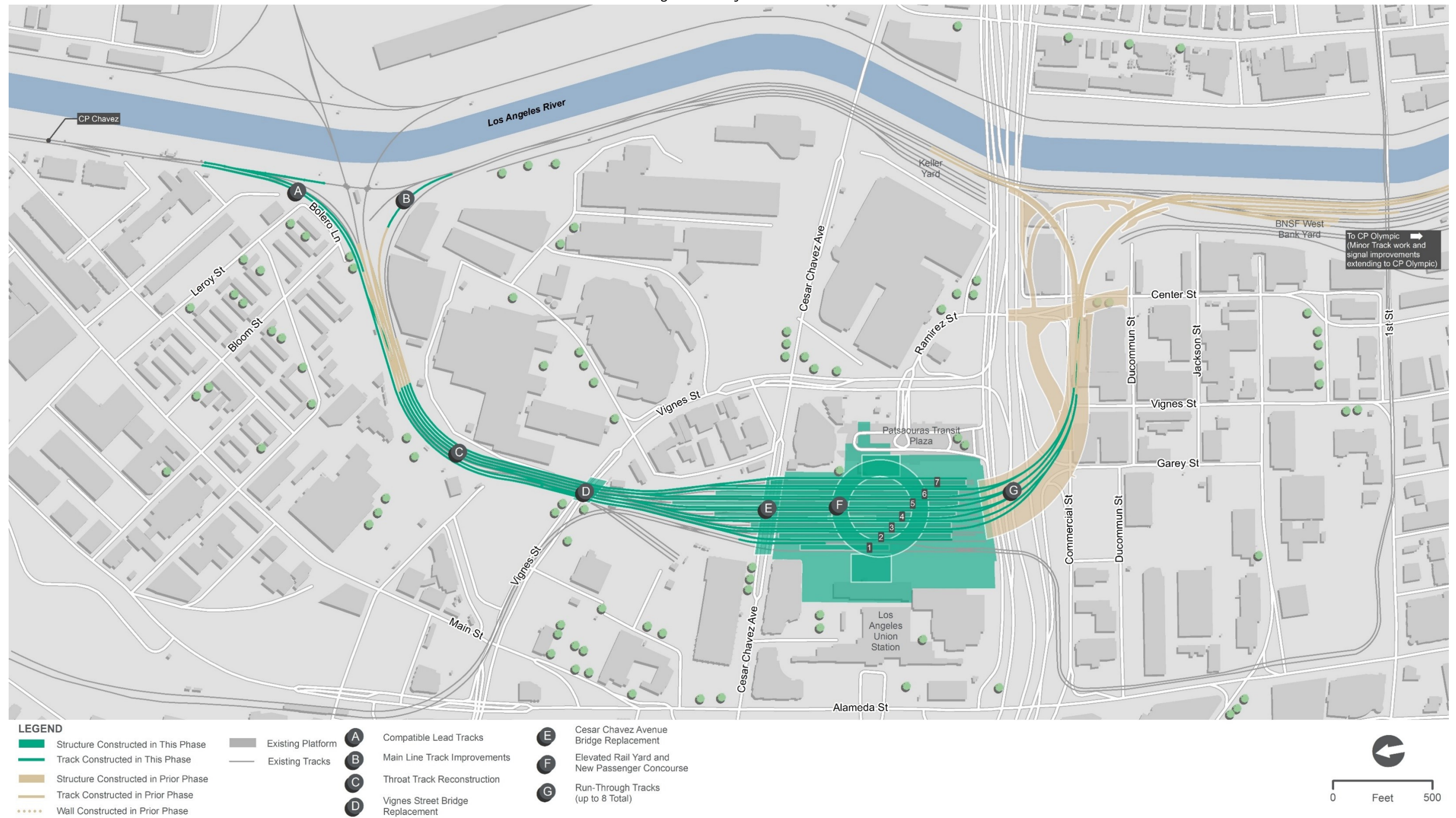
- M** Commercial Street/Center Street Realignment
- N** Center Street Bridge
- O** Regional/Intercity Rail Run-Through Track Embankments/Viaducts
- P** Division 20 Access Road

- Q** Loop Track
- R** New CP BNSF
- S** BNSF West Bank Yard Modifications



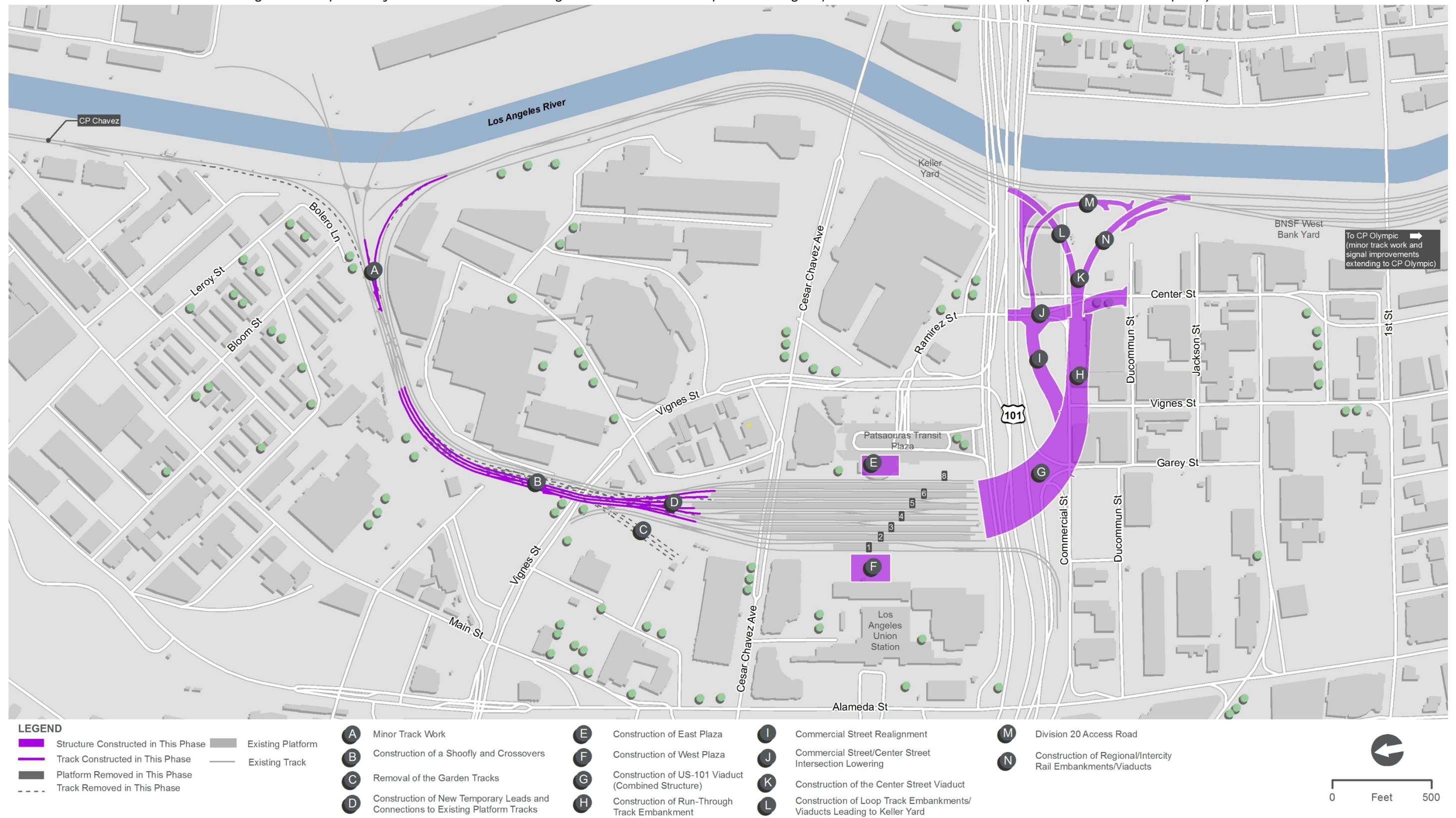
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Figure 7-5. Project Phase B



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Figure 7-6. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase I Construction Steps 1-6)



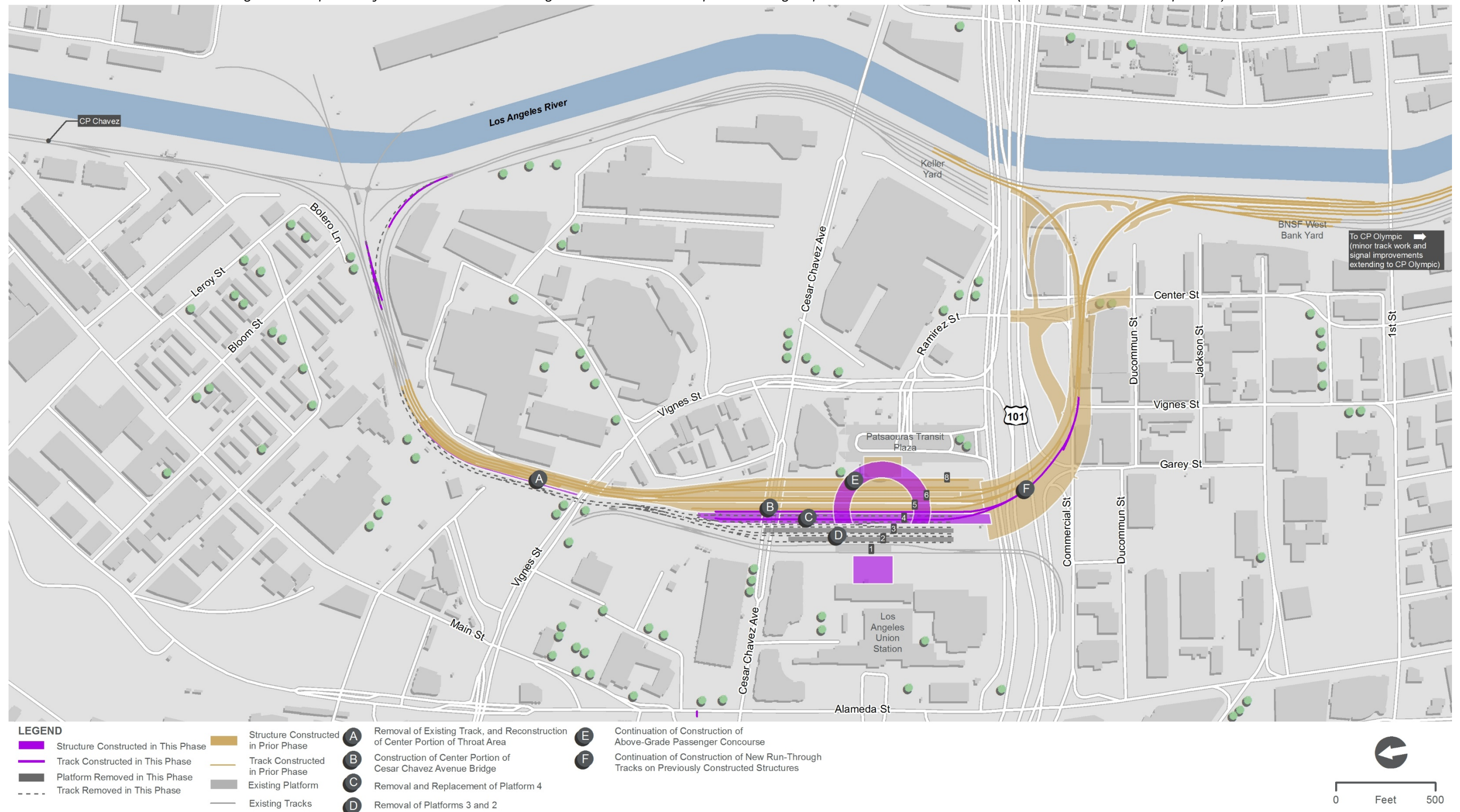
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Figure 7-7. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase II Construction Steps 7-12)



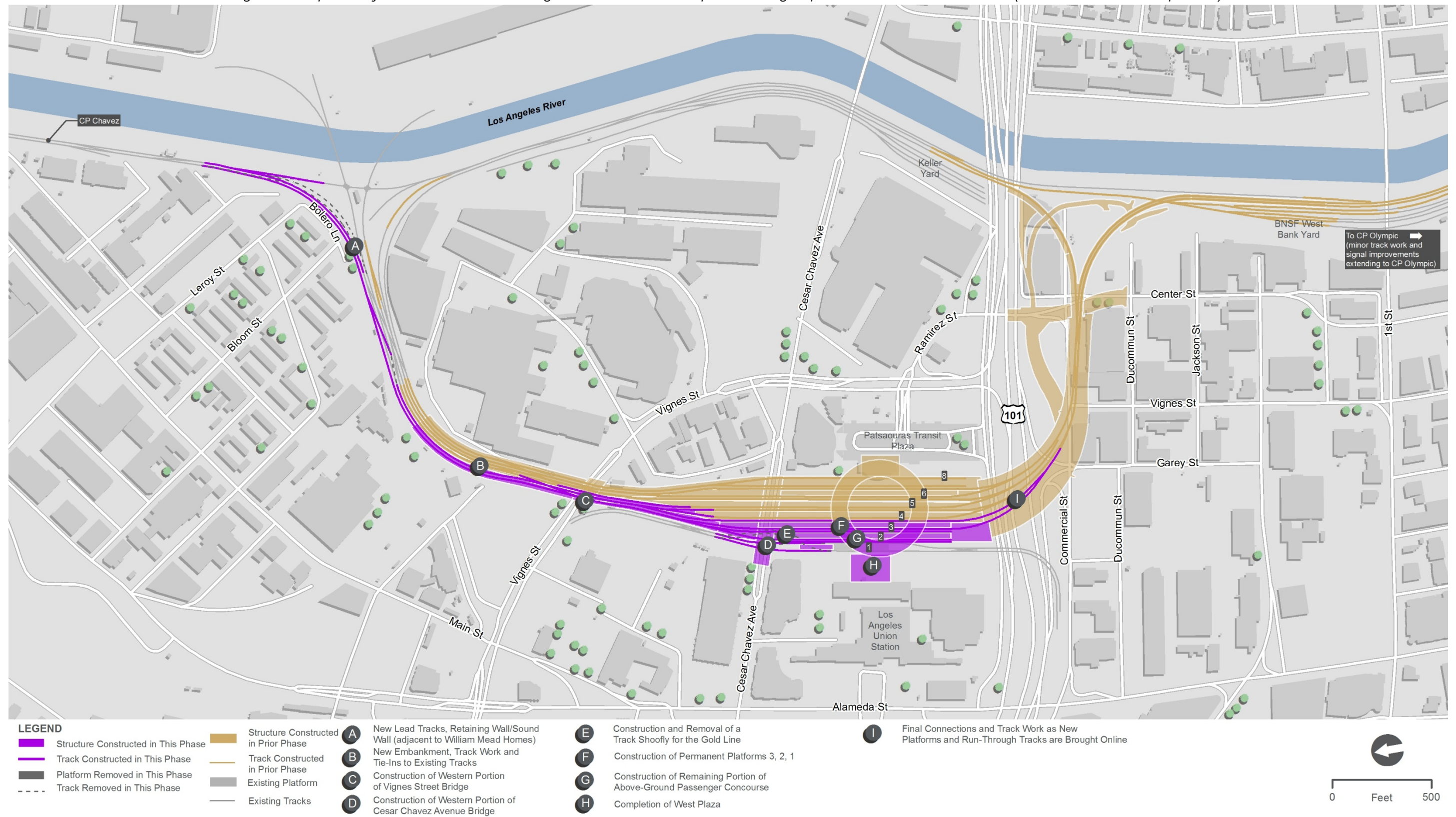
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Figure 7-8. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase III Construction Steps 13-17)



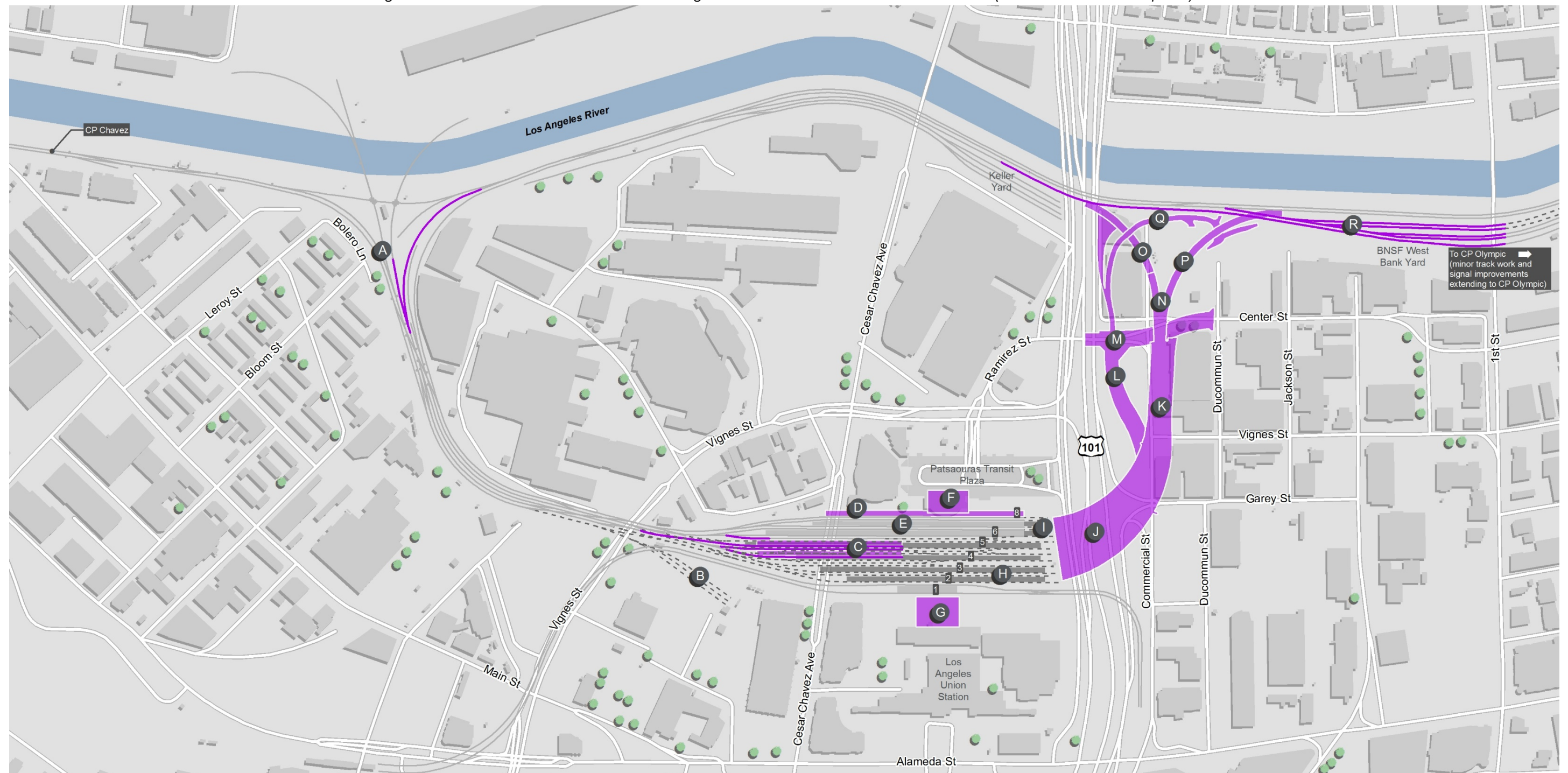
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Figure 7-9. Proposed Project with Above-Grade Passenger Concourse with New Expanded Passageway – Detailed Construction Scenario (Phase IV Construction Steps 18-22)



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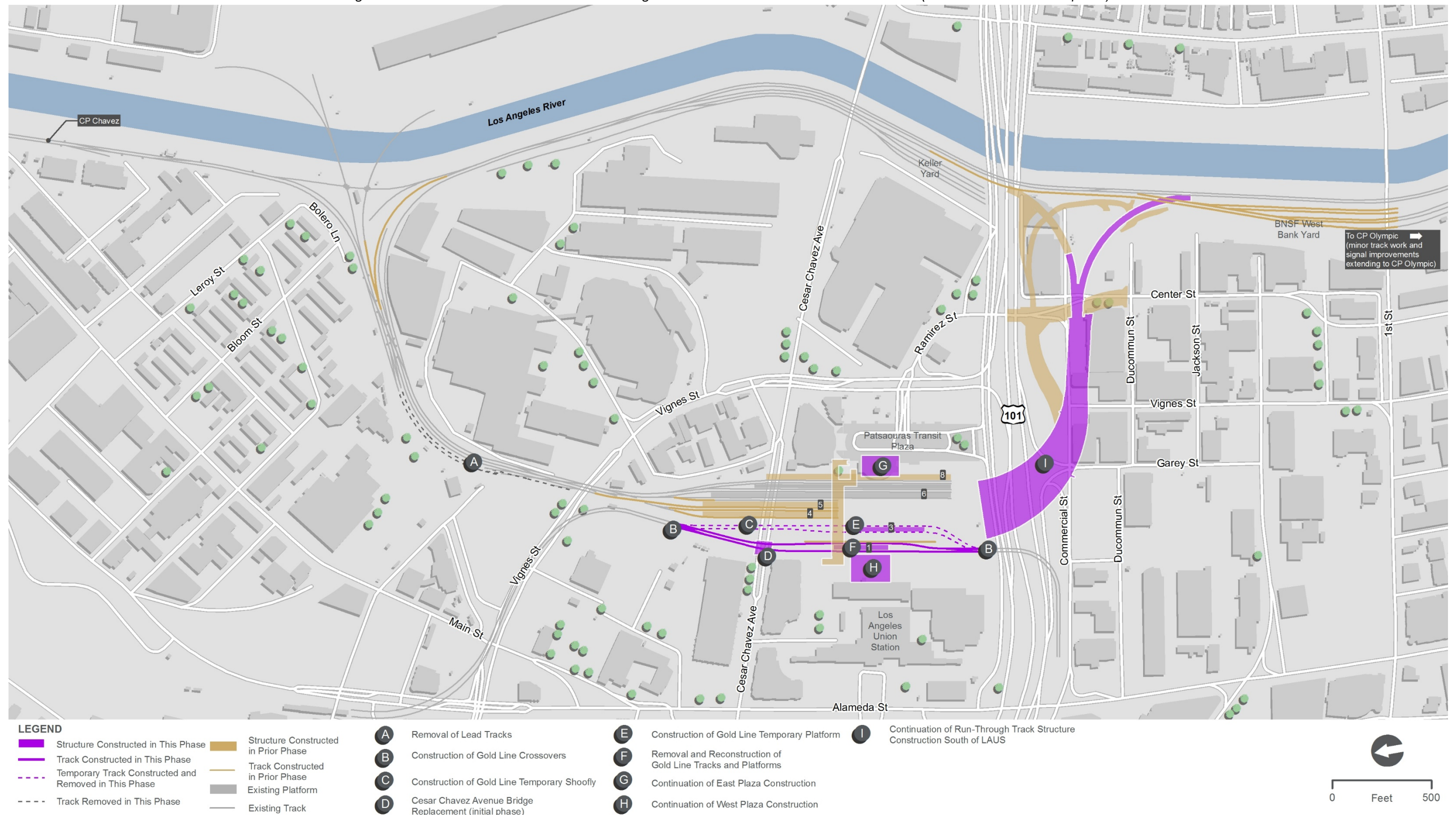
Figure 7-10. Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario (Phase I Construction Steps 1-4)



LEGEND		A	Construction of Retaining Wall/Sound Wall (adjacent to William Mead Homes)	E	Construction of Temporary Overhead Passenger Gantry	I	Removal of southernmost portion of Platforms 7 and 6	M	Commercial Street/Center Street Intersection Lowering	Q	Division 20 Access Road
	Structure Constructed in This Phase	B	Removal of Garden Tracks	F	Construction of East Plaza	J	Construction of US-101 Viaduct (Combined Structure)	N	Construction of Center Street Viaduct	R	Replacement of Existing Tracks at the BNSF West Bank Yard
	Track Constructed in This Phase	C	Removal of Platforms 5 and 4 / Construction of Temporary Platforms 5 and 4	G	Construction of West Plaza	K	Construction of Run-Through Track Embankment	O	Construction of Loop Track Embankments/Viaducts Leading to Keller Yard		
	Existing Platform	D	Construction of Temporary Platform 8	H	Removal of Platforms 3 and 2	L	Commercial Street Realignment	P	Construction of Regional/Intercity Rail Embankments/Viaducts		
	Track Removed in This Phase										

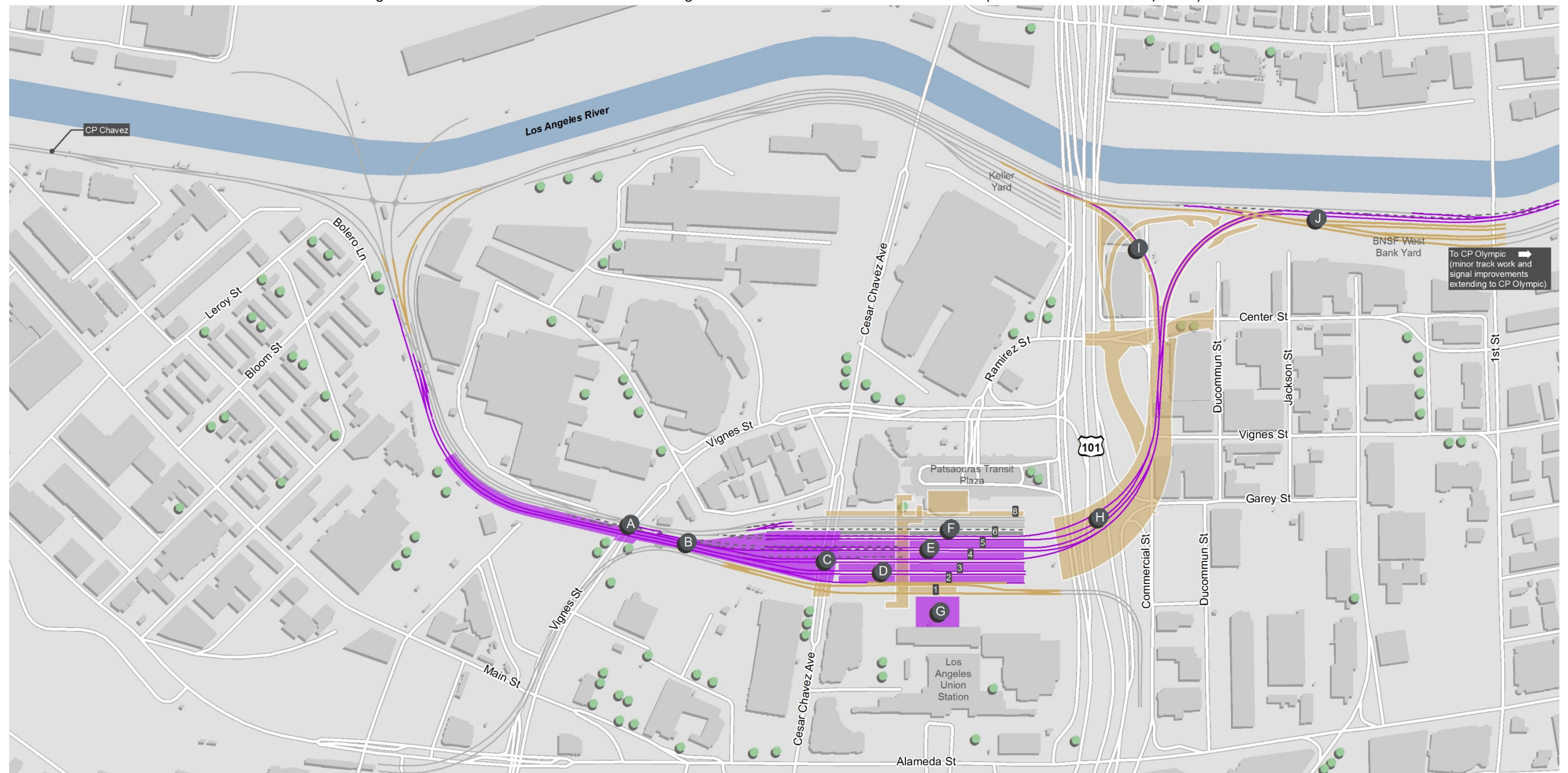
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Figure 7-11. Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario (Phase II Construction Steps 5-7)



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Figure 7-12. Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario (Phase III Construction Steps 8-12)



LEGEND

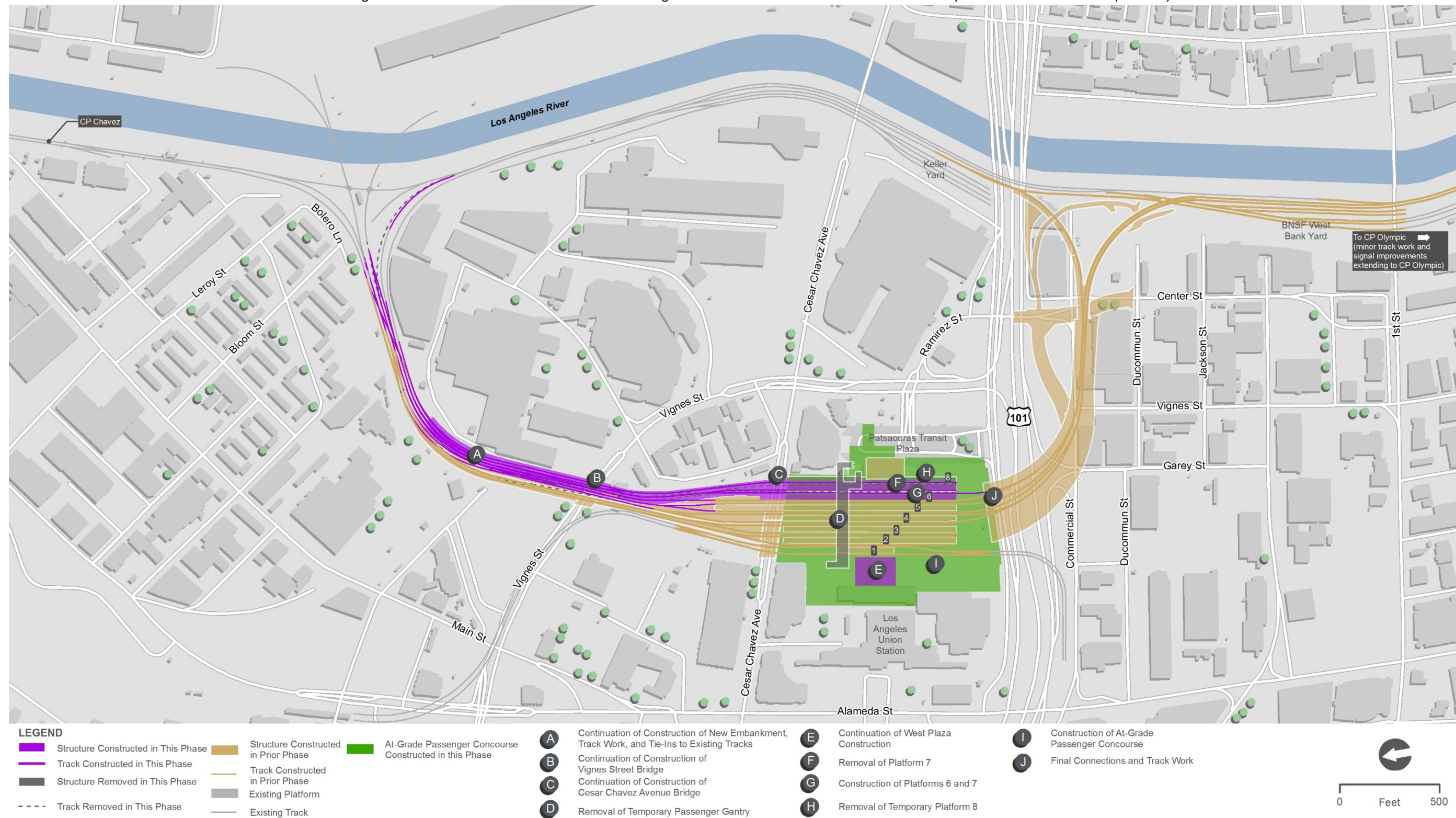
- Structure Constructed in This Phase
- Structure Constructed in Prior Phase
- Track Constructed in This Phase
- Track Constructed in Prior Phase
- Platform Removed in This Phase
- Existing Platform
- Track Removed in This Phase
- Existing Track

- A** Construction of Western Portions of Vignes Street Bridge
- B** Reconstruction of Southern Portion of the Throat with New Lead Tracks on an Embankment
- C** Continuation of Construction of Cesar Chavez Avenue Bridge
- D** Construction of New Platforms 2 and 3
- E** Construction of Platforms 4 and 5
- F** Removal of Platform 6
- G** Continuation of West Plaza Construction
- H** Construction of Run-Through Tracks
- I** Construction of Loop Track
- J** Track Work at BNSF West Bank Yard and Main Line



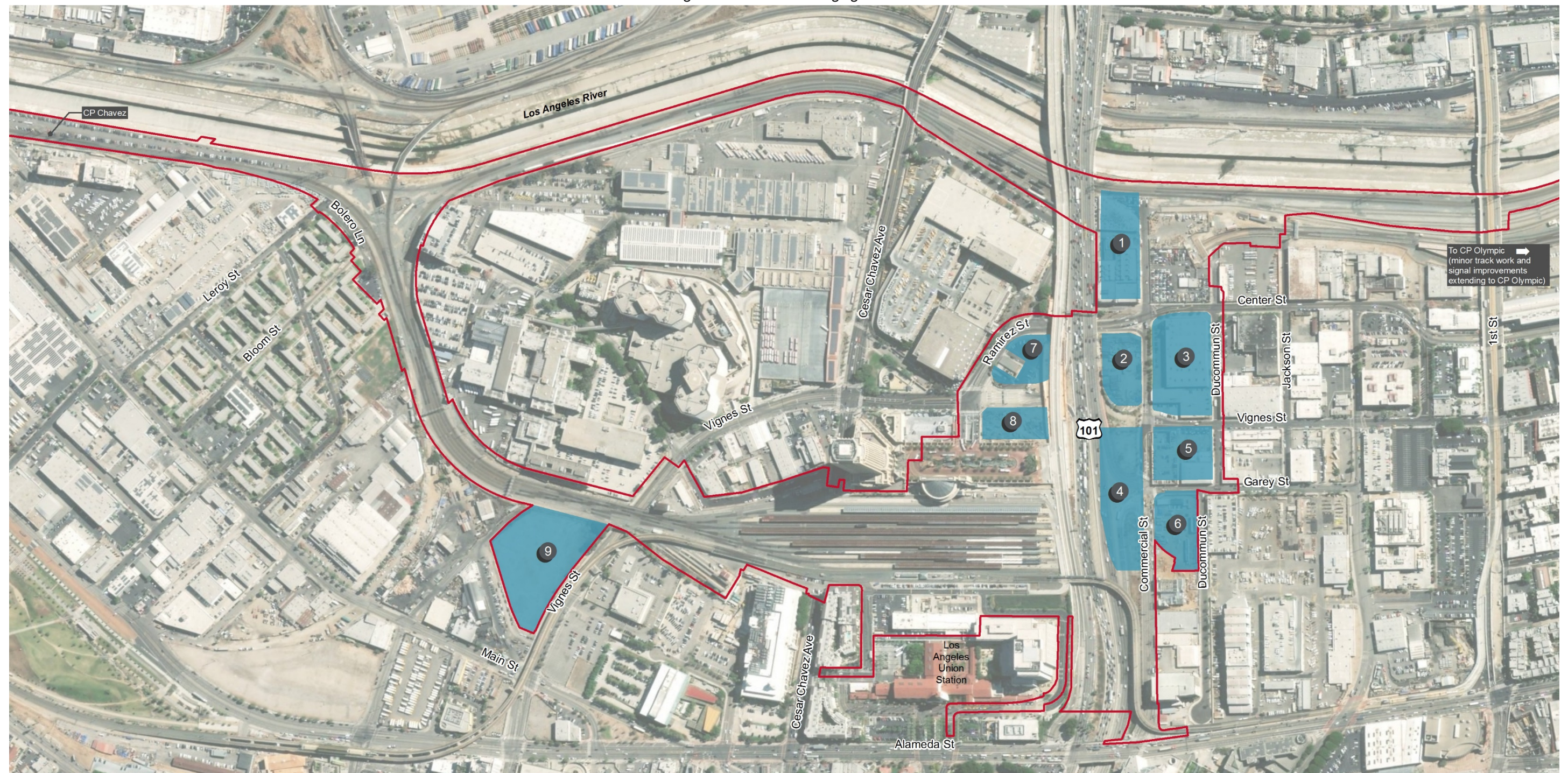
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Figure 7-13. Build Alternative with At-Grade Passenger Concourse – Detailed Construction Scenario (Phase IV Construction Steps 13-17)



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Figure 7-14. Potential Staging Areas



LEGEND
Maximum Extent of Physical Disturbance (Proposed Project and Build Alternative)
Construction Staging/Assembly Area

0 Feet 500

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7.4.2 Construction Detours and Street Closures

Construction of the build alternatives would require multiple phases and stages. Traffic detours for required street closures would be identified as part of a comprehensive traffic management plan. A summary of the detours and street closures in the project study area is provided below. Illustrations of the construction detours and street closures are shown on Figure 7-15, Figure 7-16, and Figure 7-17.

Segment 1: Throat Segment

The Vignes Street Bridge would be reconstructed in two portions: the westerly and easterly portions, resulting in closure of Vignes Street during the reconstruction of either portion. During this duration, traffic along Vignes Street would be rerouted along Cesar Chavez Avenue and Alameda Street, which would require a detailed traffic management plan prepared by the contractor to identify site-specific mitigation for temporary access restrictions on affected roadways.

Segment 2: Concourse Segment

A new Cesar Chavez Avenue Bridge would be constructed at the same location as the existing bridge, resulting in closure of Cesar Chavez Avenue during the demolition of the existing bridge. During this duration, traffic along Cesar Chavez Avenue would be rerouted along Vignes Street and Alameda Street, which would require a detailed traffic management plan prepared by the contractor to identify site-specific mitigation.

Segment 3: Run-Through Segment

During the lowering of the existing Center Street/Commercial Street intersection and construction of run-through track infrastructure south of US-101, the portion of Commercial Street between the US-101 ramp/Garey Street and Center Street would be subject to full closure. During this duration, traffic would be rerouted along Ducommun Street and Center Street, or Ducommun Street, Vignes Street, and the portion of Commercial Street west of the US-101 ramp/Garey Street intersection. This closure would require a detailed traffic management plan prepared to identify site-specific mitigation. Center Street would be lowered in halves so that one lane of traffic is maintained in each direction. Center Street at the superbent location would then be closed during bent construction. Metro may also consider building a temporary Center Street detour alignment east of the proposed superbent to maintain traffic and circulation.

All existing traffic lanes along the El Monte Busway and US-101 would be maintained during the peak hour throughout construction of run-through track infrastructure, although short-term overnight closures of the El Monte Busway, US-101 main line, and southbound ramps at Commercial Street would be necessary to erect and dismantle falsework during construction of the US-101 viaduct.

The US-101 main line would be closed temporarily during the night (10:00 PM to 6:00 AM) in one direction at a time during construction of the bridge superstructure. These night closures are expected to last up to 20 consecutive days. The southbound ramps at Commercial Street may be either partially or fully restricted for extended periods during construction of the US-101 viaduct over the existing on- and off-ramps.

Construction Traffic Management Plan

Prior to construction, a comprehensive construction management plan should be prepared that includes applicable diagrams, documents, drawings, and specifications that identify the steps that would be taken to demonstrate how the impacts on the local traffic mobility and circulation would be minimized to avoid significant traffic impacts during construction.

Traffic Demand Management Program

A traffic demand management program should be implemented during construction to provide a variety of additional transportation access choices in order to promote non-auto travel for construction workers. The traffic demand management program should demonstrate that the project has minimized the number of construction worker vehicles traveling to the construction areas. The traffic demand management program may consist of a project-sponsored vanpool, project shuttle, carpool program, transit fare subsidy, and other applicable programs.

7.4.3 Construction Trips

Construction of the build alternatives would require large numbers of workers and materials with equipment working simultaneously in multiple locations. The additional traffic generated during construction would consist of construction equipment, construction employee vehicles, and construction material deliveries and hauling of landfill materials in trucks. The 2031 plus project construction condition traffic volumes were developed based on the projected distribution of construction traffic between four construction phases for the build alternatives with an at-grade or above-grade passenger concourse with new expanded passageway (worst-case scenarios). The four construction phases do not consider implementation of interim improvements because these scenarios include simultaneous work in all project segments—throat, concourse, and run-through—based on the full build-out condition. Further details of the construction phases are provided in Section 7.4.4.

Construction Workers' Trips

Construction workers would arrive at and depart from the construction site during early AM peak and early PM peak hours, respectively. As a result, construction worker traffic has been added to the AM and PM peak hour traffic volumes for the 2031 plus project construction condition.

As discussed in Section 4.0, the impact evaluation provided in this traffic impact assessment is conservative, and identifies the greatest potential for project-related traffic impacts. The evaluation is based on detailed construction phasing plans for concurrent construction of new lead tracks and an elevated rail yard, the passenger concourse, and run-through track infrastructure south of LAUS with the highest daily and AM and PM peak hour project-related construction workers' trips that could occur. The average numbers of construction workers per day were taken from construction estimate information in Appendix H.

Construction Vehicle Trips

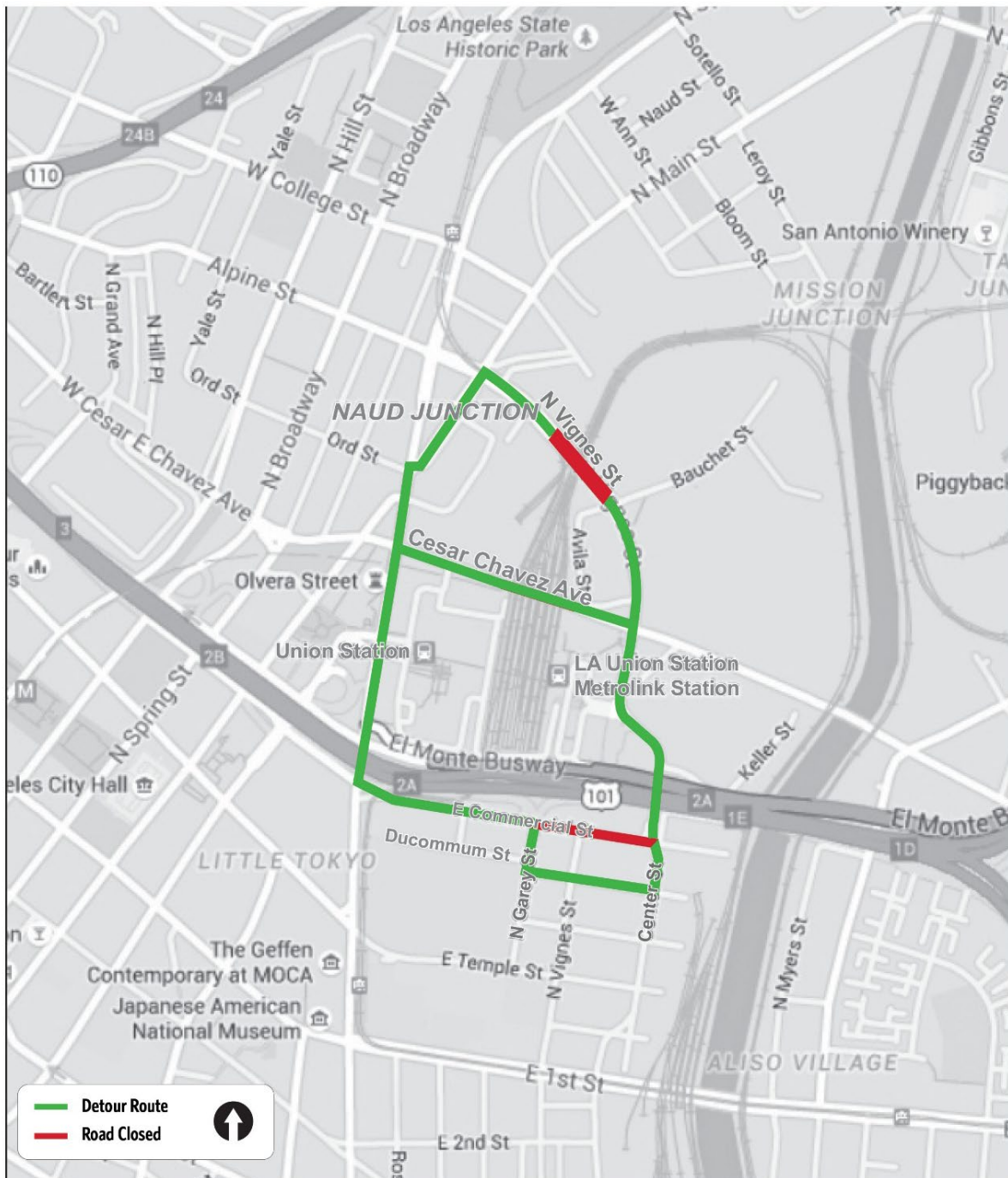
This analysis assumes that trucks would arrive and depart the construction site throughout the workday. The truck trips included in the evaluation are associated with delivery of supplies/equipment and hauling of soil/materials to the landfill site, and vary substantially between the two build alternatives and associated concourse options evaluated.

- If an at-grade passenger concourse is constructed, this traffic impact assessment assumes that a maximum of 63 trucks (or 315 passenger car equivalent) would cycle in and out of the study area and project staging areas on any given day for each construction phase. Based on this estimate, it is assumed that during the construction peak, 40 trucks would arrive or depart during the AM peak hour, and 16 trucks would arrive or depart during the PM peak hour (Table 7-2).
- If an above-grade passenger concourse with new expanded passageway is constructed, this traffic impact assessment assumes that a maximum of 35 trucks (or 175 passenger car equivalent) would cycle in and out of the study area and project staging areas on any given day for each construction phase. Based on this estimate, it is assumed that during the peak hour of construction, 22 trucks would arrive or depart during the AM peak hour, and 8 trucks would arrive or depart during the PM peak hour (Table 7-3).

The particular purposes and distribution of the truck trips would depend on the phase of construction being undertaken. Truck trips would likely occur along Mission Road, Cesar Chavez Avenue, Alameda Street, and Vignes Street between construction sites, staging areas, and concrete facilities north of the project study area, and at the landfill located outside of the project study area. Figure 7-18 presents the truck haul routes. The greatest numbers of construction vehicle trips, both daily and for the AM and PM peak hour conditions, were included as part of the traffic analysis. The numbers of trucks were taken from construction estimate information in Appendix H. Construction vehicle trips for early action/interim improvements that would occur during Phase A would not exceed the estimates provided herein.

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Figure 7-15. Construction Detours and Street Closures



Construction Detours and Street Closures
 LINK UNION STATION (LINK US)

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Figure 7-16. Construction Detours and Vignes Street Closure



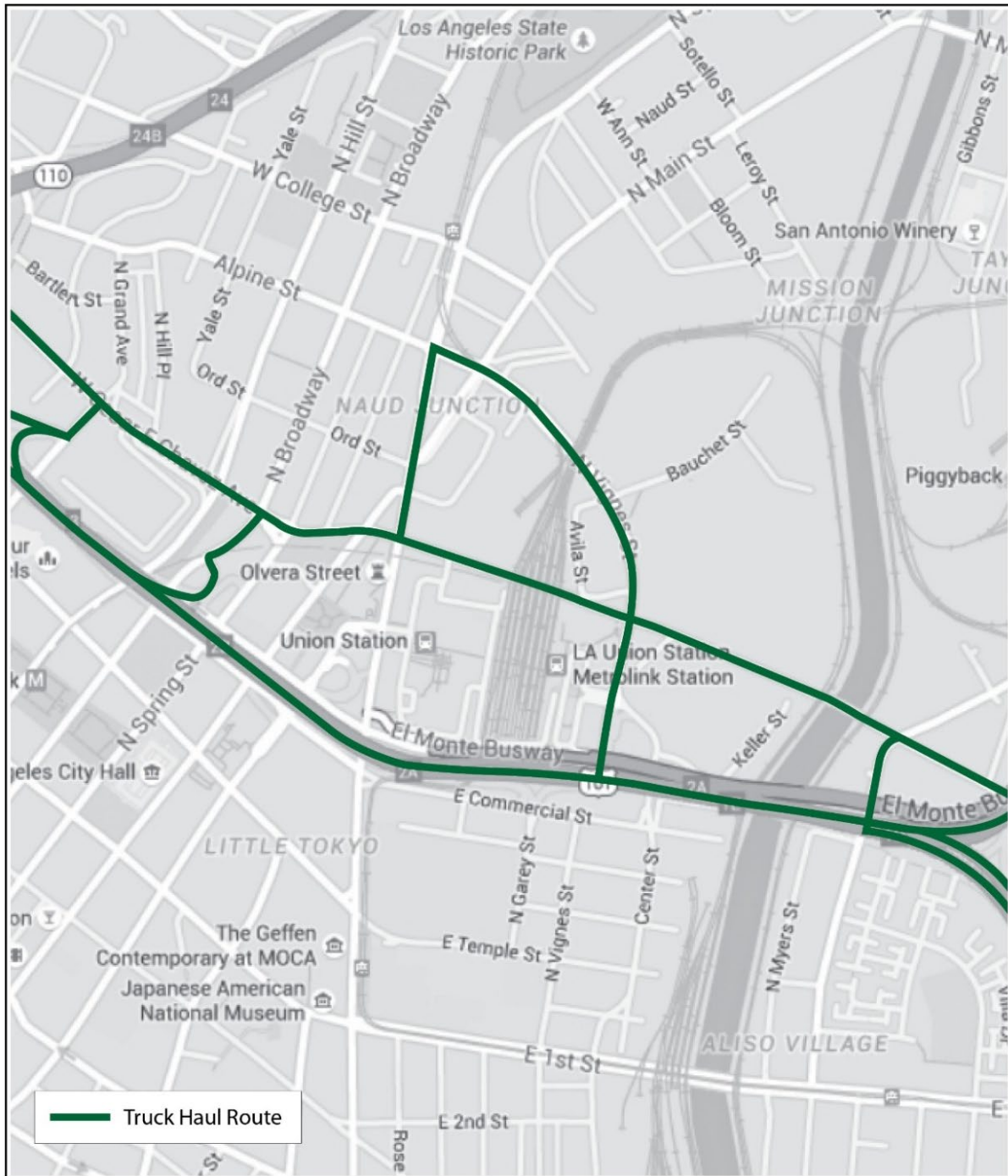
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Figure 7-17. Construction Detours and Cesar Chavez Avenue Closure



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Figure 7-18. Truck Haul Routes



		<p>Truck Haul Routes LINK UNION STATION (LINK US)</p>
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Table 7-3 and Table 7-2 summarize the construction-related trips that would be generated based on the detailed construction phasing plans, and staging, and projections for required materials and labor force for construction of the proposed project with an above-grade passenger concourse with new expanded passageway and build alternative with an at-grade passenger concourse, respectively.

Table 7-2. Construction Trip Generation –Above-Grade Passenger Concourse with New Expanded Passageway									
Trip Type	Number Required per day	Unit	Daily Trips (PCE)	AM Peak Hour (PCE)			PM Peak Hour (PCE)		
				In	Out	Total	In	Out	Total
Phase 1									
Employee Vehicles/ Construction Worker Trips	234	workers	468	234	0	234	0	94	94
Trucks	35	trucks	175	11	11	22	4	4	8
<i>Total Trips - Phase 1</i>	—	—	643	245	11	256	4	98	102
Phase 2									
Employee Vehicles/ Construction Worker Trips	143	workers	286	143	0	143	0	57	57
Trucks	27	trucks	135	9	9	18	4	4	8
<i>Total Trips - Phase 2</i>	—	—	421	152	9	161	4	61	65
Phase 3									
Employee Vehicles/ Construction Worker Trips	154	workers	308	154	0	154	0	62	62
Trucks	30	trucks	150	10	10	20	4	4	8
<i>Total Trips - Phase 3</i>	—	—	458	164	10	174	4	66	70
Phase 4									
Employee Vehicles/ Construction Worker Trips	174	workers	348	174	0	174	0	70	70
Trucks	8	trucks	40	3	3	6	1	1	2
<i>Total Trips - Phase 4</i>	—	—	388	177	3	180	1	71	72

Table 7-2. Construction Trip Generation –Above-Grade Passenger Concourse with New Expanded Passageway

Trip Type	Number Required per day	Unit	Daily Trips (PCE)	AM Peak Hour (PCE)			PM Peak Hour (PCE)		
				In	Out	Total	In	Out	Total
Total Construction Traffic in PCE (Worst Phase)			643	245	11	256	4	98	102

Notes:

PCE of 2.5 for truck trips.

Number of trucks was taken from construction estimate tables in Appendix H.

As a worst-case scenario, assumed all employees would arrive during the AM peak hour. Assumed that PM peak hour trips will be 40 percent of AM peak hour trips.

For AM peak hour truck trips, hourly average of daily truck trips was split equally for inbound and outbound. Assumed that PM peak hour truck trips will be 40 percent of AM peak hour trips.

Assumed 8-hour workday.

PCE=Passenger Car Equivalent

Table 7-3. Construction Trip Generation – Build Alternative with At-Grade Passenger Concourse

Trip Type	Number Required per day	Unit	Daily Trips (PCE)	AM Peak Hour (PCE)			PM Peak Hour (PCE)		
				In	Out	Total	In	Out	Total
Phase 1									
Employee Vehicles/ Construction Worker Trips	610	workers	1,220	610	0	610	0	244	244
Trucks	63	trucks	315	20	20	40	8	8	16
<i>Total Trips - Phase 1</i>	—	—	1,535	630	20	650	8	252	260
Phase 2									
Employee Vehicles/ Construction Worker Trips	374	workers	748	374	0	374	0	150	150
Trucks	49	trucks	245	16	16	32	6	6	12
<i>Total Trips - Phase 2</i>	—	—	993	390	16	406	6	156	162
Phase 3									
Employee Vehicles/ Construction Worker Trips	401	workers	802	401	0	401	0	160	160
Trucks	55	trucks	275	18	18	36	7	7	14
<i>Total Trips - Phase 3</i>	—	—	1,077	419	18	437	7	167	174

Table 7-3. Construction Trip Generation – Build Alternative with At-Grade Passenger Concourse

Trip Type	Number Required per day	Unit	Daily Trips (PCE)	AM Peak Hour (PCE)			PM Peak Hour (PCE)		
				In	Out	Total	In	Out	Total
Phase 4									
Employee Vehicles/ Construction Worker Trips	454	workers	908	454	0	454	0	182	182
Trucks	12	trucks	60	4	4	8	2	2	4
<i>Total Trips - Phase 4</i>	—	—	968	458	4	462	2	184	186
Total Construction Traffic in PCE (Worst Phase)			1,535	630	20	650	8	252	260

Notes:

PCE of 2.5 for truck trips.

Number of trucks was taken from construction estimate tables in Appendix H.

As a worst-case scenario, assumed all employees would arrive during the AM peak hour. Assumed that PM peak hour trips will be 40 percent of AM peak hour trips.

For AM peak hour truck trips, hourly average of daily truck trips was split equally for inbound and outbound. Assumed that PM peak hour truck trips will be 40 percent of AM peak hour trips.

Assumed 8-hour workday.

PCE=Passenger Car Equivalent

7.4.4 Project Construction Trip Distribution and Assignment

Project construction trip distribution assumptions for the project study area were developed using the SCAG regional traffic model as a guide and considering the project site access, surrounding land uses, and the roadway network. Trip distribution percentages and peak hour intersection volumes that were discussed and approved by LADOT as part of the MOU process are shown in the Appendix A.

7.4.5 2031 plus Project Construction Trip Projections

Project Construction Trip Distributions

Trip distribution is the process of identifying the probable origins, destinations, and directions or traffic routes that will be utilized by construction traffic. The potential interaction between the proposed construction staging areas per corresponding phases and surrounding regional access routes is considered to identify the route where the traffic will distribute.

It was assumed that the majority of the construction workers would travel to and from the construction staging areas via US-101, utilizing the Vignes Street and Commercial Street ramps. Other construction workers would travel to and from the construction staging areas from the north via Main Street and Spring Street and from the south via Los Angeles Street and Alameda Street.

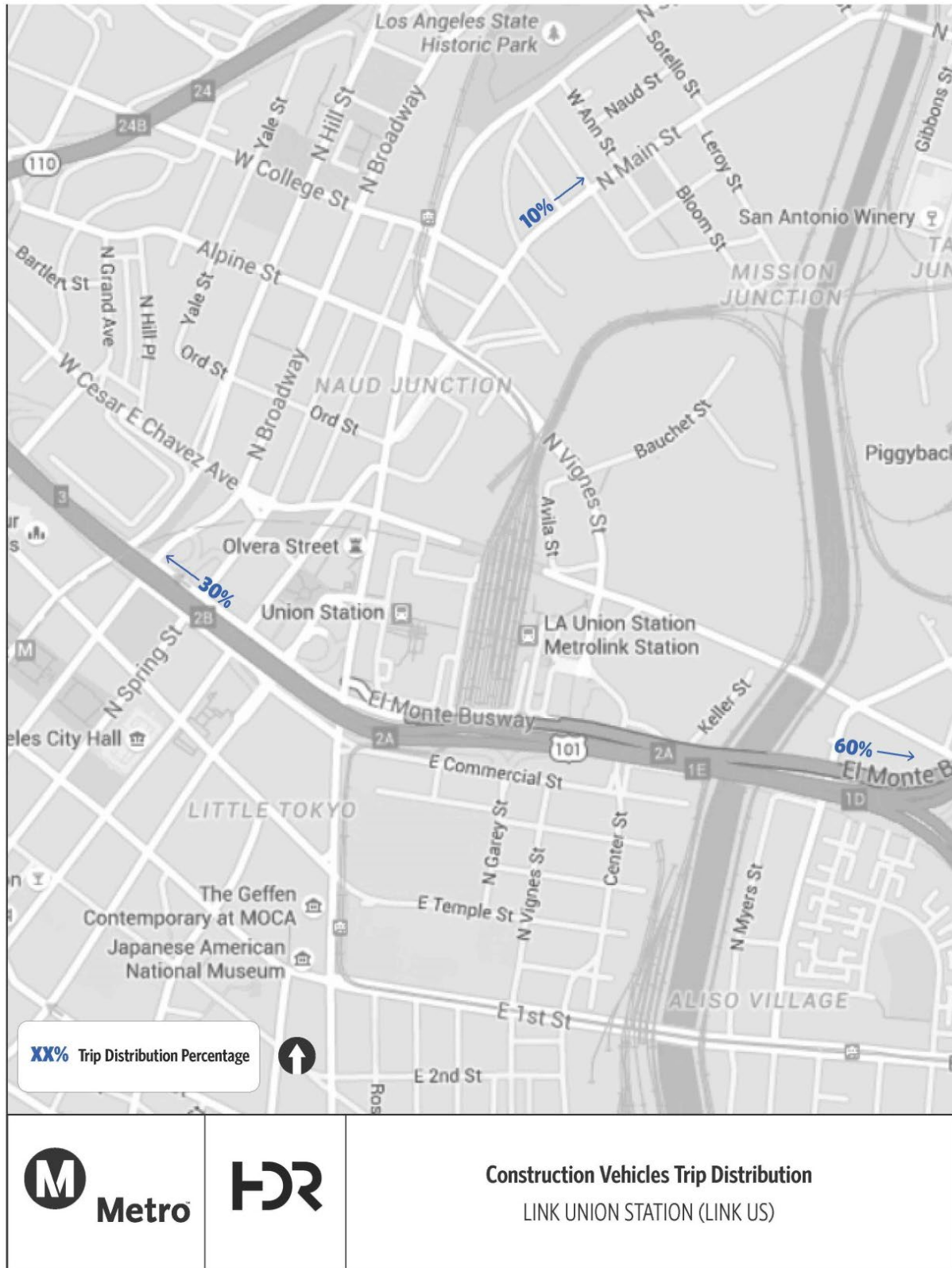
It was also assumed that trucks would travel on surrounding designated truck routes (Mission Road, Cesar Chavez Avenue, Alameda Street, and Vignes Street) to and from the construction staging areas. A majority of the trucks would travel to and from the construction staging areas via US-101, utilizing the Mission Road and Vignes Street ramps. Other trucks would travel to and from the construction staging areas via Main Street.

Construction vehicles' and workers' trip distribution percentages are depicted on Figure 7-19 and Figure 7-20, respectively. Illustrations of the construction workers, vehicles, and 2031 plus project construction (with an above-grade passenger concourse with new expanded passageway) peak hour traffic volumes are shown on Figure 7-21, Figure 7-22, and Figure 7-23, respectively.

Illustrations of the construction workers, vehicles, and 2031 plus project construction (with an at-Grade passenger concourse) peak hour traffic volumes are depicted on Figure 7-24, Figure 7-25, and Figure 7-26, respectively.

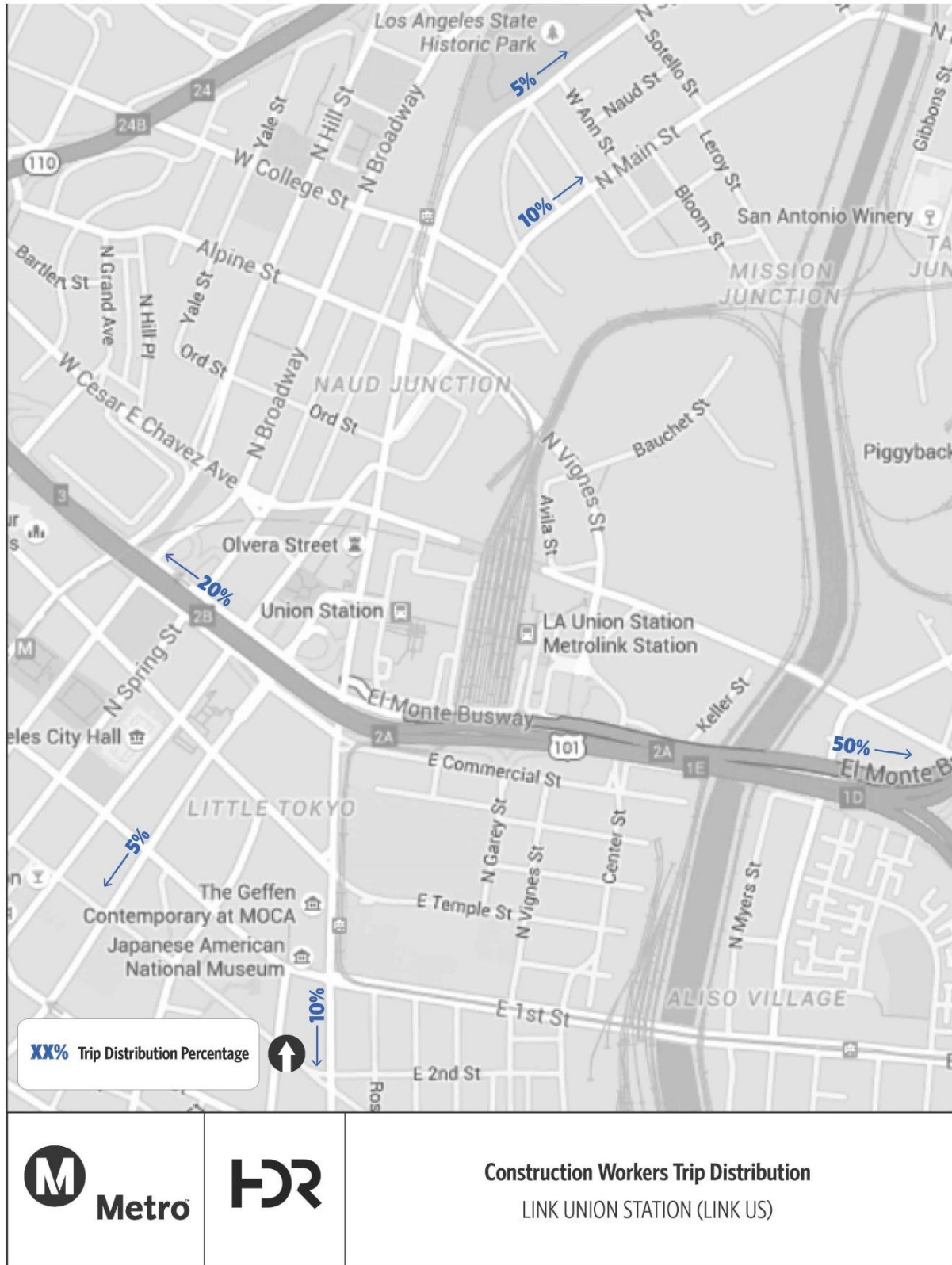
Projected peak hour traffic volume distributions during construction activity in 2031 are included in Appendix J.

Figure 7-19. Construction Vehicles' Trip Distribution



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Figure 7-20. Construction Workers' Trip Distribution



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Figure 7-21. 2031 plus Project Construction – Construction Workers' Peak Hour Traffic Volumes (Above-Grade Passenger Concourse with New Expanded Passageway)



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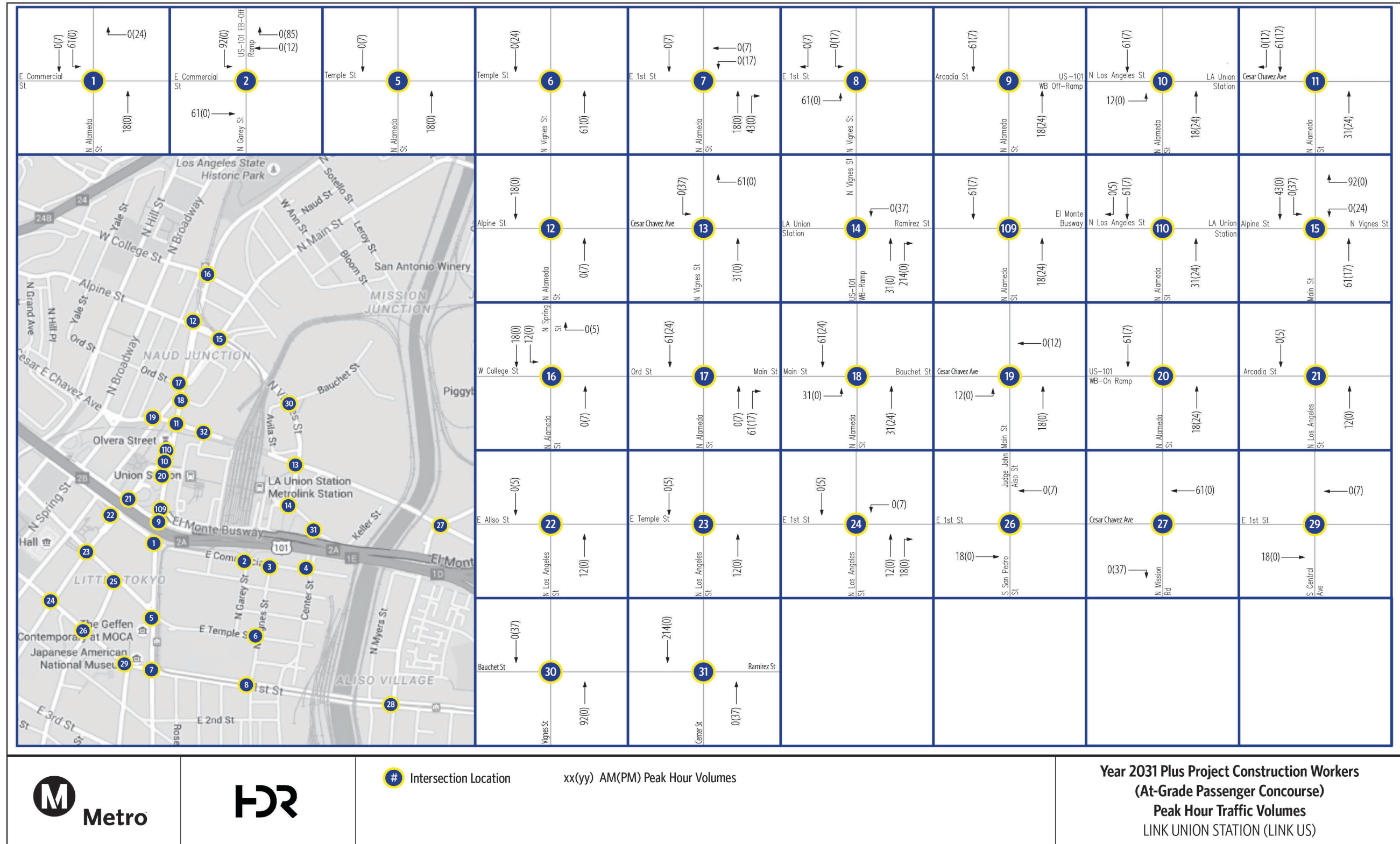
Figure 7-22. 2031 plus Project Construction – Construction Vehicles' Peak Hour Traffic Volumes (Above-Grade Passenger Concourse with New Expanded Passageway)



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Figure 7-24. 2031 plus Project Construction – Construction Workers' Peak Hour Traffic Volumes (At-Grade Passenger Concourse)



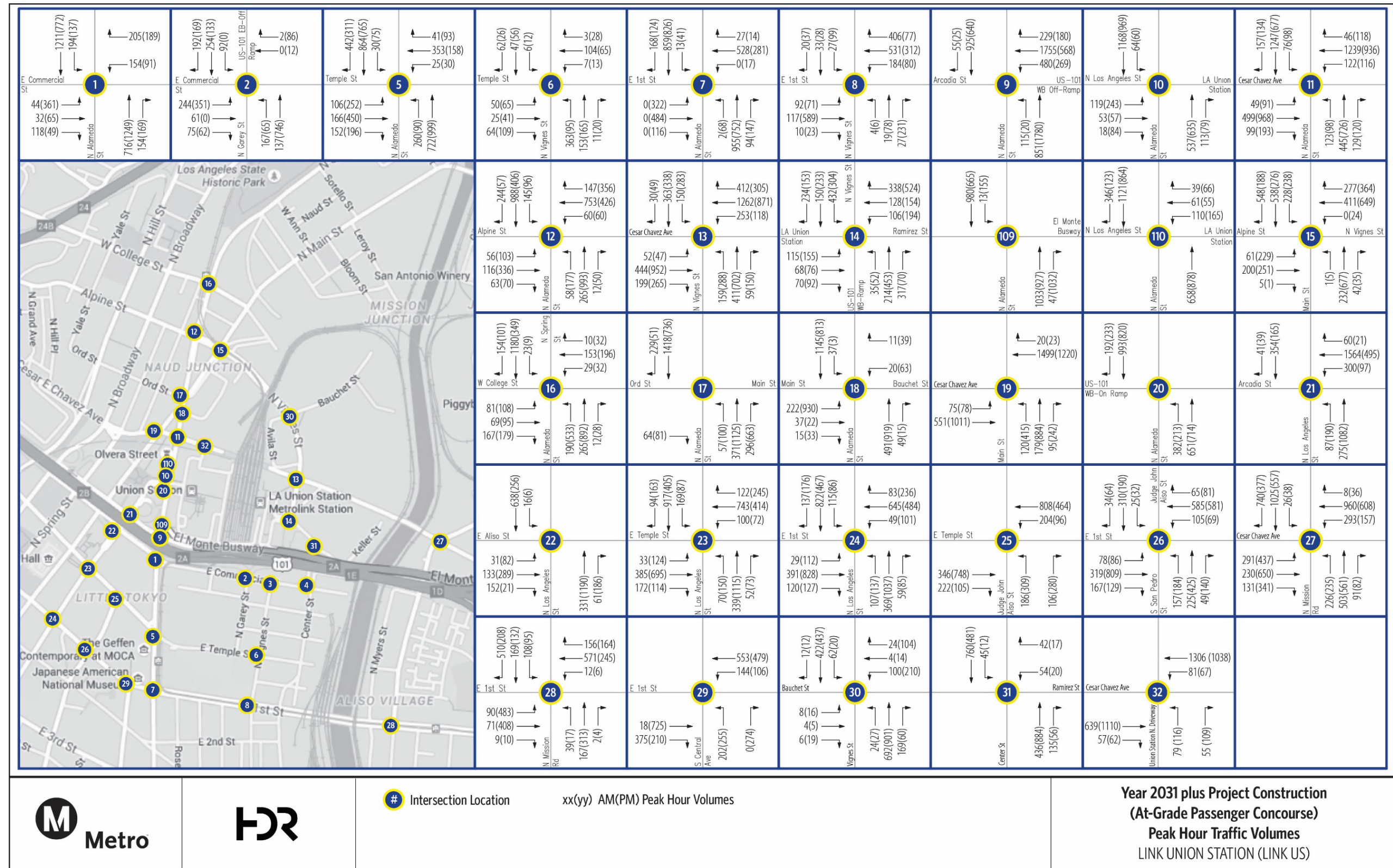
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Figure 7-25. 2031 plus Project Construction – Construction Vehicles' Peak Hour Traffic Volumes (At-Grade Passenger Concourse)



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Figure 7-26. 2031 plus Project Construction – Peak Hour Traffic Volumes (At-Grade Passenger Concourse)



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7.5 Project Traffic Generation

The project-related trip generation is based on trip generation rates approved by LADOT.

The trip generation consists of three elements:

1. Growth in background traffic due to increased non-project-related activity at LAUS
2. Growth in traffic from new retail/commercial land uses at LAUS
3. Growth in passengers ridership from increased bus/train activity at LAUS

7.5.1 Growth in Background Traffic Due to Increased Non-Project-Related Activity at Los Angeles Union Station

This trip generation methodology takes into consideration non-project-related background traffic that would already be in place if the project were not implemented. The background traffic growth rate of 0.2 percent per year (Section 7.1) is applied for the time period between 2016 and 2040. With a background traffic growth rate of 0.2 percent per year, a 4.8 percent growth in traffic levels is anticipated between 2016 and 2040. These trips are background traffic because they are related to the increased non-project-related activities that would occur in the vicinity of the project in the near future.

7.5.2 Growth in Traffic from New Retail/Commercial Land Uses at Los Angeles Union Station

This trip generation methodology takes into consideration the additional trips and associated travel demand for new land uses proposed as part of the project. The project includes up to 160,000 square feet (SF) of transit-oriented retail space and approximately 30,400 SF of office/commercial space within the new passenger concourse. As discussed below, the majority of the customers to this retail space are assumed to be transit passengers and, thus, would be arriving/departing the retail space as pedestrians. The additional vehicle trips associated with this retail space would be limited to vendors, deliveries, and employees required to serve the transit riders at this retail space.

The scale and size of the proposed retail and office/commercial space within the new passenger concourse are based on a 2016 market study conducted for Metro (The Concord Group 2016). The market study indicated that up to 189,800 SF of retail and commercial space could be supported by transit passengers coming through LAUS; it further identified the types of retail and commercial uses that could be supported without generating outside visitors who could result in additional vehicular traffic to and from LAUS. Therefore, for the purposes of this project-related trip generation methodology, all customers using the proposed 160,000 SF of retail space and 30,400 SF of office/commercial space are assumed to be traveling to and from LAUS using bus or transit, and their trips would not be made by automobiles. However, the employees in the retail and commercial space would arrive by automobile, and customers would be existing transit passengers coming to and from LAUS. The 80 percent transit mode split for the employees in the

retail and office/commercial space is a reasonable assumption for the project, given the results of the 2016 market study and the mode split surveys conducted at LAUS, as discussed below.

7.5.3 Growth in Passengers/Increased Ridership from Increased Bus/Train Activity at Los Angeles Union Station

Ridership growth at LAUS is expected due to the operational efficiencies realized by the proposed project-related capacity enhancements that would allow for increased future rail/transit services.

In 2011, Metro conducted a system-wide onboard survey of passengers at LAUS to determine the ridership mode splits. A total of 20,200 passengers in the AM peak period, 24,400 passengers in the mid-day peak period, and 26,600 passengers in the PM peak period were surveyed. The mode split of passengers to and from LAUS is presented on Figure 7-27 (inbound trips) and Figure 7-28 (outbound trips). As shown, the trips in and out of LAUS consist of 93 to 97 percent of the AM trips, 94 to 90 percent of the mid-day trips, and 94 to 95 percent of the PM trips transferred from one form of transit to another (and did not include an automobile trip to and from LAUS). The remaining 10 percent trips in and out of LAUS consist of passengers walking. This indicates that the majority of passengers who arrive at LAUS transfer from one mode of transit to another. Therefore, for the purposes of this project-related trip generation methodology, vehicular trips generated due to the increased ridership resulting from project-related capacity enhancements at LAUS are negligible. The passengers walking to and from LAUS constitute primarily local trips that originate and end within 1 mile of LAUS (first mile to last mile). Figure 7-29 presents the walking trip distribution of passengers to and from LAUS.

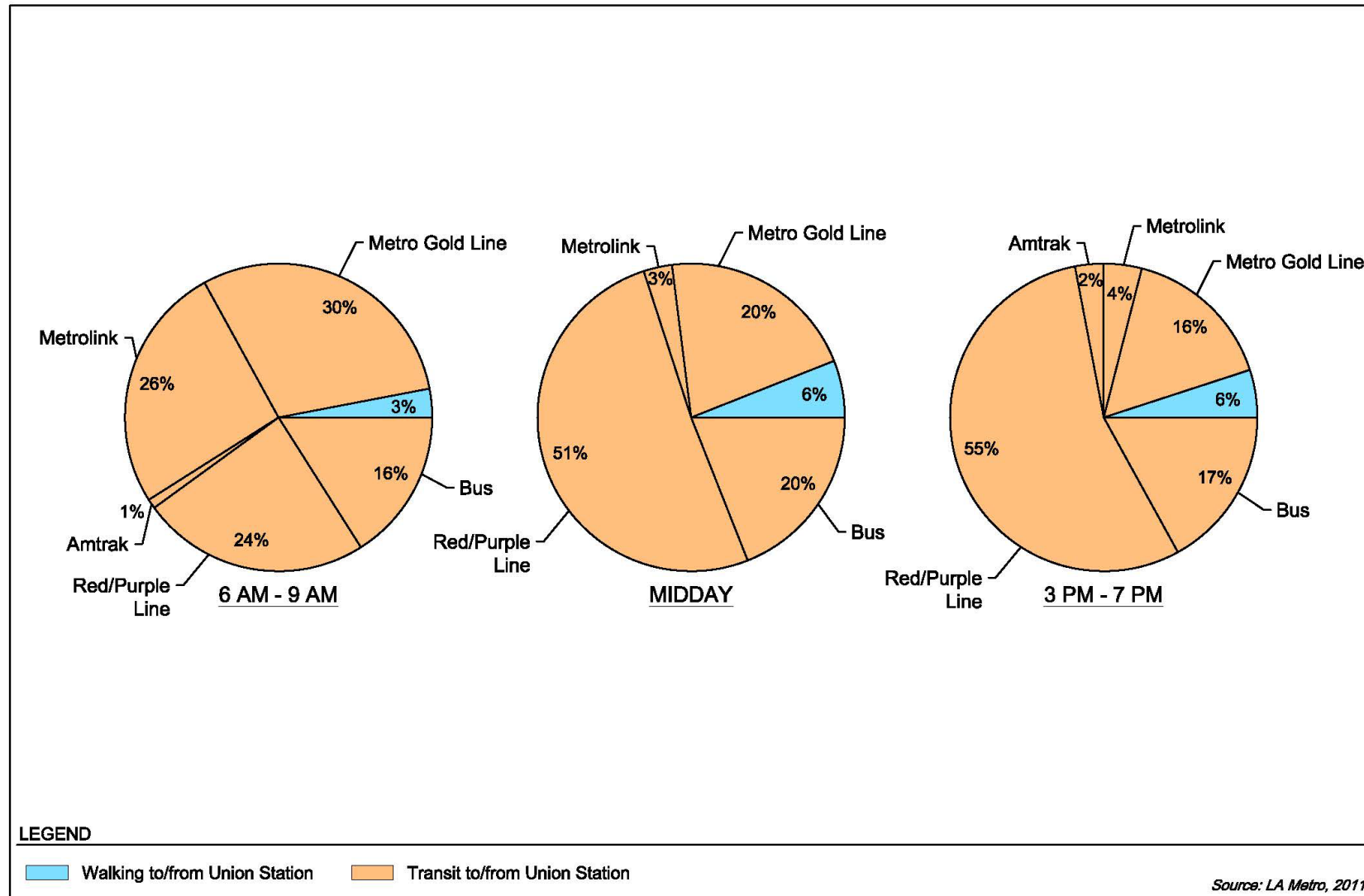
While the background traffic growth is not part of the project trip increment, the background traffic growth and the project-related traffic combine to illustrate the total trips to/from LAUS. The project-related traffic impact may appear low because the actual number of trips associated with the transit-oriented retail and office/commercial space are low, given the transit capture of these trips.

7.5.4 Project Trip Generation

The project is anticipated to have a positive impact on regional transportation and circulation through increased efficiency and enhanced capacity of the regional/intercity rail network and increased transportation services at LAUS.

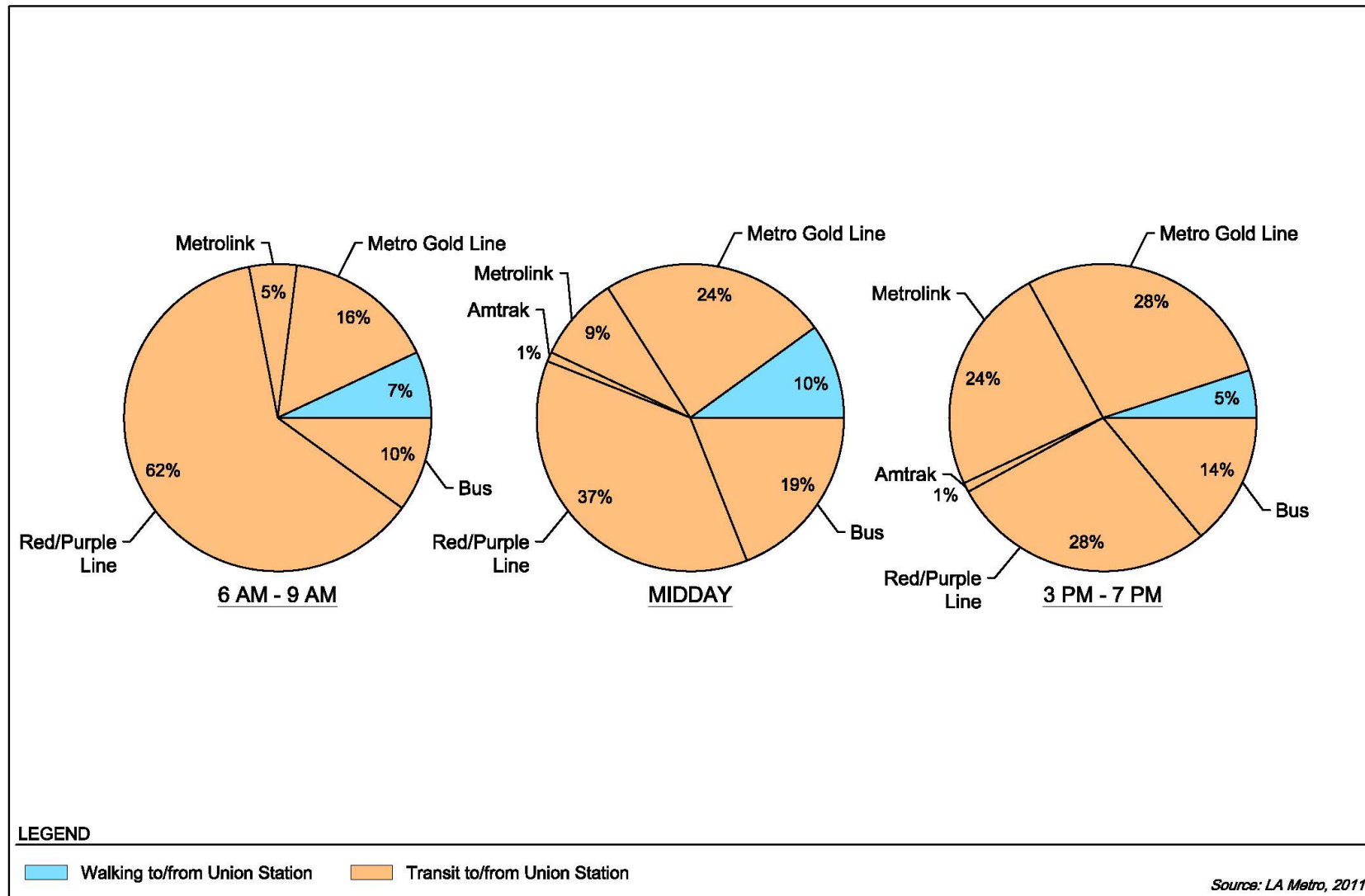
Table 7-4 summarizes the projected trip generation in 2031 and 2040. As shown, the project is anticipated to generate a net of 40 additional vehicular trips during the AM peak hour, and 127 additional vehicular trips during the PM peak hour.

Figure 7-27. Mode Split for Inbound Trips



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Figure 7-28. Mode Split for Outbound Trips



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Figure 7-29. Walking Trip Distribution



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7.5.5 Land Use Equivalency Program

A project land use equivalency program was developed to maintain flexibility of project uses and floor areas so Metro could respond to the dynamic and evolving needs of the Southern California economy. This program, which was submitted to and approved by LADOT, defines a framework within which the proposed mix of land uses, discussed in Section 7.5.2, could be modified within the development footprint as defined by the approved entitlements without resulting in any new significant impacts on the local transportation network. The program directs how development would be implemented within the project footprint(s) for the proposed project and the build alternative, and allows for flexibility so that existing land uses could be exchanged for other permitted land uses such that no additional trips would result from any exchange that is consistent with the program.

In the context of traffic circulation and impacts, this relates to the overall number of trips generated by the project and allows land use exchanges as long as the total number of peak hour trips generated does not exceed the totals identified in this traffic impact assessment. Table 7-5 shows the land use trip equivalencies developed for the project. These are based on the PM peak hour trips, as this is the higher of the peak periods studied, and reflect the highest street system traffic volumes.

Table 7-5 identifies the conversion factor for the land use exchange. For example, to exchange 30,400 SF of office/commercial space to retail space, the amount of office/commercial square footage (30,400 SF) would be multiplied by the exchange rate of 0.40 ($30,400 \times 0.40$), which would equate to 12,160 SF of retail space.

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Table 7-4. Project Trip Generation																		
Land Use ^a	Size	Units	ITE Land Use Code	Trip Generation Rates (a)						Trip Generation								
				Daily Rate	AM Peak Hour			PM Peak Hour			Daily Trips	AM Peak Hour			PM Peak Hour			
					Rate	In	Out	Rate	In	Out		Total	In	Out	Total	In	Out	
East Plaza																		
Transit-Oriented Retail	69.22	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	2,956	66	41	25	257	123	134	
Office/Commercial	30.40	KSF	710	11.03	1.56	88%	12%	1.49	17%	83%	335	47	42	6	45	8	38	
Concourse																		
Transit-Oriented Retail	40.00	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	1,708	38	24	15	148	71	77	
West Plaza																		
Transit-Oriented Retail (Plaza)	17.7	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	756	17	11	6	66	32	34	
Transit-Oriented Retail (Terrace)	32.48	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	1,387	31	19	12	121	58	63	
Shared Transit Trip Reduction											5713	160	109	51	509	233	276	
											<i>80% Transit mode split reduction</i>							
Subtotal New Trips due to Link US											1,428	40	27	13	127	58	69	
Existing Union Station Vehicular Trips (b)											22,111	1,573	930	643	1,698	670	1,028	

Table 7-4. Project Trip Generation

Land Use ^a	Size	Units	ITE Land Use Code	Trip Generation Rates (a)						Trip Generation							
				Daily Rate	AM Peak Hour			PM Peak Hour			Daily Trips	AM Peak Hour			PM Peak Hour		
					Rate	In	Out	Rate	In	Out		Total	In	Out	Total	In	Out
TOTAL NEW TRIPS									1,428	40	27	13	127	58	69		
<i>Percentage of existing traffic</i>									6%	3%	3%	2%	7%	9%	7%		

Notes:

^a Project land uses based on build alternative descriptions as of September 14, 2018.

Trip generation rates/fitted curve equations from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012.

Existing 2015 driveway counts collected by Fehr and Peers on November 19, 2015

ITE=Institute of Transportation Engineers; Link US=Link Union Station; KSF=units of 1,000 square feet

Table 7-5. Land Use Equivalency – PM Peak Hour Traffic						
Donor Land Use ^a	Recipient Lane Use ^b					
	Retail (KSF)	Office / Commercial (KSF)	Restaurant (KSF)	Apartments (DU)	Condominium (DU)	Hotel (Rooms)
Retail (KSF)	—	2.49	0.50	5.98	7.13	6.18
Office / Commercial (KSF)	0.40	—	0.20	2.40	2.87	2.48
Restaurant (KSF)	2.02	5.03	—	12.08	14.40	12.48
Apartments (DU)	0.17	0.42	0.08	—	1.19	1.03
Condominiums (DU)	0.14	0.35	0.07	0.84	—	0.87
Hotel (Rooms)	0.16	0.40	0.08	0.97	1.15	—

Source: Trip generation rates/fitted curve equations from Trip Generation, 9th Edition, Institute of Transportation Engineers 2012

Notes:

^a Land use change from

^b Land use change to

DU=dwelling units; ITE=Institute of Transportation Engineers; KSF=units of 1,000 square feet

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7.5.6 Project Trip Distribution and Assignment

Project trip distribution assumptions for the project study area were developed using the SCAG regional traffic model as a guide and considered the project site access, surrounding land uses, and the roadway network. Figure 7-30 shows the trip distribution percentages discussed and approved by LADOT as part of the MOU process. Appendix K presents the allocation of project-related traffic volumes at each study intersection.

7.6 2031 and 2040 plus Project Traffic Projections

For 2031, the full build-out of the major project elements is assumed to be complete and the concourse is assumed to be in operation generating traffic. The plus project traffic conditions for this year are a combination of the traffic associated with the 2031 no project condition with the addition of project-related traffic. For 2031, the following project-related roadway modifications are assumed to be in place:

- Commercial Street (west of Center Street) would be realigned north toward US-101.
- Commercial Street (east of Center Street) would be vacated.
- A new Division 20 access road would be in place with a new intersection at Center Street.

The 2031 plus project conditions peak hour intersection turning movement volumes are illustrated on Figure 7-31.

For 2040, project-related traffic was added to the 2040 no project condition projection to obtain the 2040 plus project traffic forecast. 2040 plus project condition peak hour intersection turning movement volumes are illustrated on Figure 7-32.

7.7 US-101 Main line 2031 and 2040 Traffic Projections and Geometry

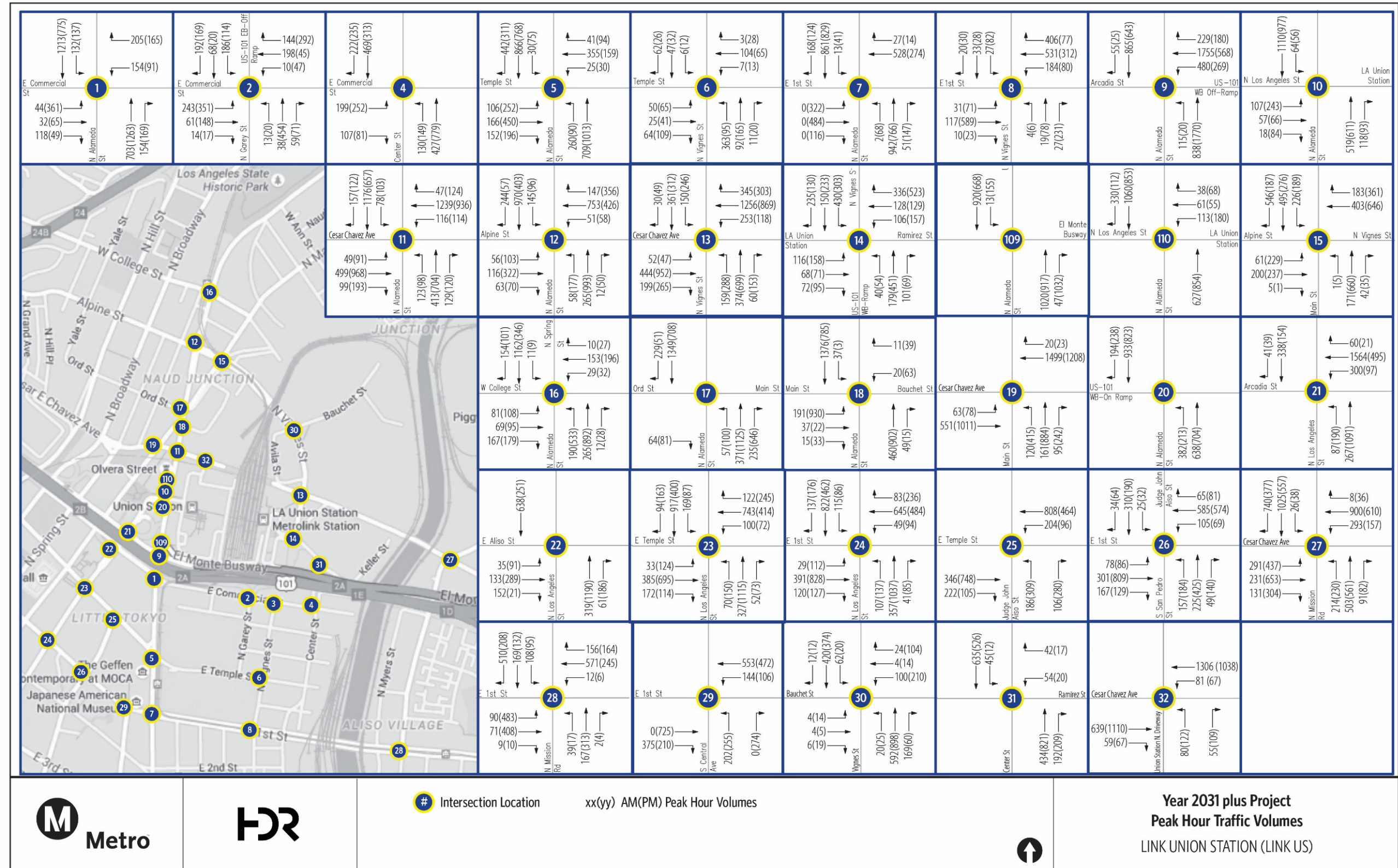
Traffic conditions on the portion of the US-101 main line north of Vignes Street were studied for traffic impacts associated with implementation of the proposed project or the build alternative. Currently, there are four northbound and four southbound lanes at this location. The existing lane configuration is assumed to be present in 2031 and 2040, consistent with the SCAG 2016 RTP/SCS model. Traffic projections for 2031 and 2040 for the US-101 main line were developed using the methodology from the previous study as indicated in the regional model.

No project forecasts were developed by adding background traffic growth to the existing volumes obtained from the SCAG 2016 RTP/SCS model. An annual growth rate of 0.2 percent per year was conservatively assumed in the development of the 2031 and 2040 no project forecasts based on the SCAG 2016 RTP/SCS model. For the purposes of this analysis, it has been assumed that run-through tracks infrastructure south of LAUS would not impact US-101 on- and off-ramp operations because these ramps would be retained through 2040.

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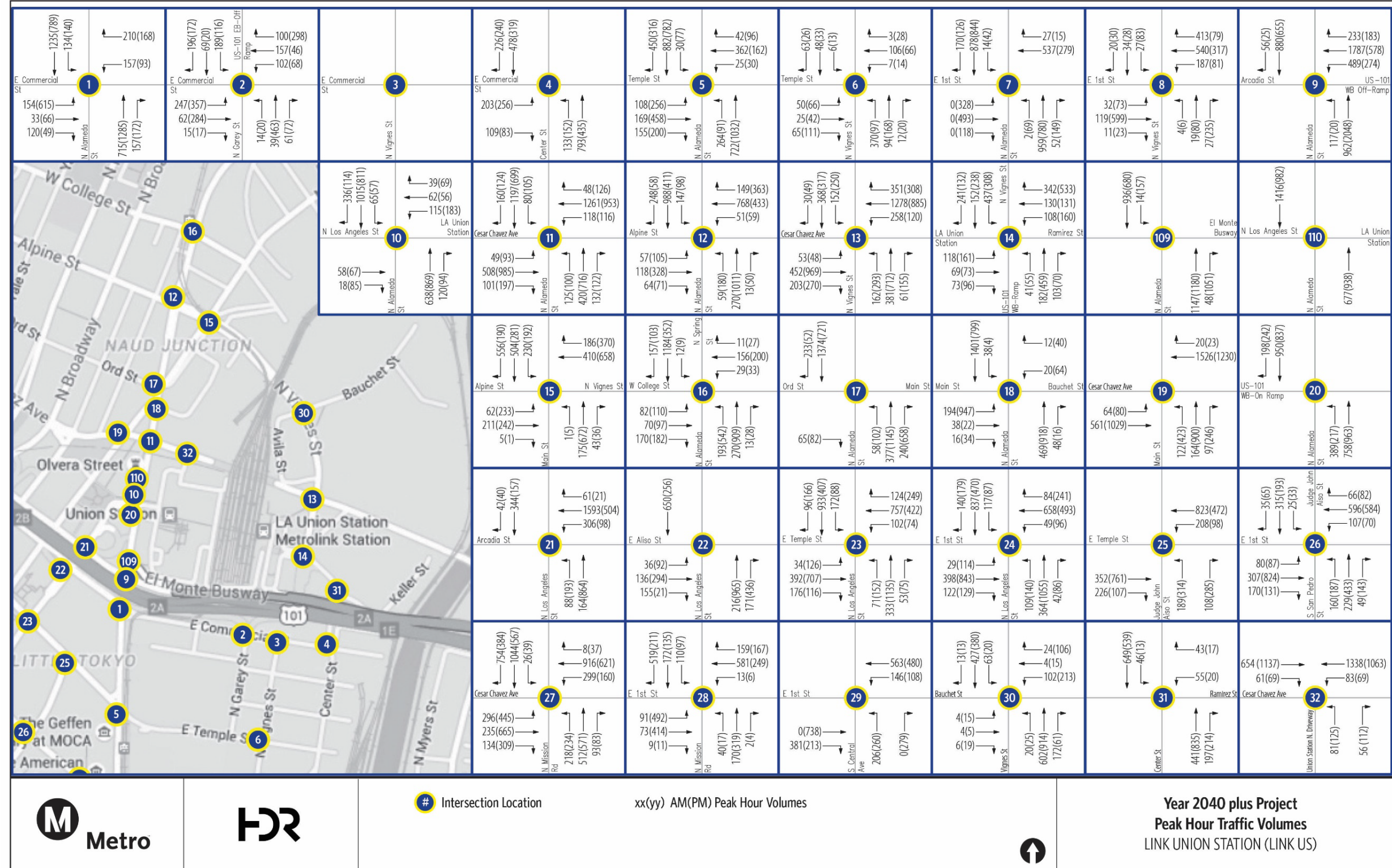
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Figure 7-31. 2031 plus Project - Peak Hour Traffic Volumes



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Figure 7-32. 2040 plus Project - Peak Hour Traffic Volumes



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8.0 Traffic Impact Analysis

This section provides a description of the analysis methodology and projected 2031 and 2040 traffic conditions both with and without the project. The analysis scenarios include:

- 2031 no project condition
- 2040 no project condition
- 2031 plus project construction (proposed project with an above-grade passenger concourse with new expanded passageway)
- 2031 plus project construction (build alternative with an at-grade passenger concourse)
- 2031 plus project condition
- 2040 plus project condition

8.1 2031 No Project Condition

For the purpose of the study, 2031 corresponds to “opening year” when construction of the new lead tracks, elevated rail yard and new passenger concourse, and run-through track infrastructure are complete. The no project traffic condition is analyzed to determine conditions without the project. The 2031 no project condition also assumes that the *Connect US Action Plan* (Metro 2015) has not been implemented. Therefore, the same roadway network conditions would exist in 2031 as the existing condition (2016).

The no project condition consists of the cumulative base traffic conditions that reflect the background traffic growth. The cumulative traffic growth rate in the study area is 0.2 percent for each future year. This growth rate was confirmed during a meeting with LADOT on May 25, 2016, and is incorporated as part of the approved MOU by LADOT. The cumulative base forecasts were developed by applying the annual 0.2 percent traffic growth rate to the existing (base year 2016) volumes and adding the cumulative project-related trips to the ambient growth.

Table 8-1 summarizes 2031 no project Condition LOS during the AM and PM peak hours for the study intersections, and Appendix L presents the Synchro worksheets for each study intersection. Most intersections operate at a good to excellent LOS, LOS C or better, during both AM and PM peak hours. The analysis shows that the following intersections perform at LOS E during the PM peak hour:

- Intersection 4: Center Street and Commercial Street
- Intersection 15: Vignes Street and Main Street
- Intersection 27: Mission Road and Cesar Chavez Avenue

8.2 2040 No Project Conditions

The 2040 no project condition assumes the completion of the proposed LAUS Forecourt and Esplanade Improvements project. This would result in following modifications in the study area:

- Reduction of one through lane in northbound and southbound direction along Alameda Street
- Addition of a curb-side drop-off zone on the east side of Alameda Street
- Wider sidewalks on the west side of Alameda Street
- Reconfiguration of driveway into LAUS, which would result in merging of entrance and exit into a single leg (east leg) of the intersection of Los Angeles Street at Alameda Street
- Restricted left turn from Los Angeles Street to Alameda Street

Table 8-2 summarizes the 2040 no project condition LOS during the AM and the PM peak hours for the study intersections, and Appendix L presents the Synchro worksheets for each study intersection.

Table 8-1. 2031 No Project Condition Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1	Alameda Street and Commercial Street	29.1	0.57	C	35.1	0.86	D
2	Garey Street and Commercial Street	31.3	0.39	C	34.1	0.49	C
3	Vignes Street and Commercial Street ^a	9.8	0.39	A	10.1	0.40	B
4	Center Street and Commercial Street ^a	17.2	0.71	C	57.5	1.18	F
5	Alameda Street and Temple Street	14.6	0.67	B	16.7	0.74	B
6	Vignes Street and Temple Street ^a	15.4	0.72	C	9.9	0.42	A
7	Alameda Street and First Street	18.3	0.54	B	17.3	0.61	B
8	Vignes Street and First Street	20.2	0.51	C	27.6	0.59	C
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	0.88	C	14.6	0.62	B
10	Alameda Street and Los Angeles Street EB	12.1	0.32	B	12.4	0.34	B
110	Alameda Street and Los Angeles Street WB	4.3	0.34	A	5.7	0.30	A
11	Alameda Street and Cesar Chavez Avenue	20.7	0.77	C	17.1	0.69	B
12	Alameda Street and Vignes Street/Alpine Street	11.6	0.58	B	13.8	0.62	B
13	Vignes Street and Cesar Chavez Avenue	18.5	0.78	B	25.1	0.86	C
14	Vignes Street and Ramirez Street	23.3	0.43	C	24.5	0.53	C
15	Vignes Street and Main Street	27.2	0.59	C	74.6	1.01	E
16	Alameda Street/Spring Street and College Street	16.5	0.61	B	17.7	0.71	B
17	Alameda Street and Main Street/Ord Street ^a	0.7	0.34	A	0.7	0.41	A
18	Alameda Street and Main Street/Bauchet Street	5.8	0.42	A	9.6	0.57	A
19	Main Street and Cesar Chavez Avenue	7.7	0.44	A	19.8	0.64	B
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	7.7	0.59	A	4.8	0.52	A
22	Los Angeles Street and Aliso Street	9.4	0.30	A	11.8	0.61	B
23	Los Angeles Street and Temple Street	15.2	0.61	B	17.6	0.78	B
24	Los Angeles Street and First Street	15.2	0.55	B	20.7	0.90	C
25	Judge John Aiso Street and Temple Street	8.3	0.40	A	8.0	0.43	A

Table 8-1. 2031 No Project Condition Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	0.44	B	15.3	0.66	B
27	Mission Road and Cesar Chavez Avenue	58.0	1.11	E	25.6	0.89	C
28	Mission Road and First Street	25.8	0.81	C	33.2	0.89	C
29	Central Avenue and First Street	8.8	0.33	A	11.3	0.49	B
30	Vignes Street and Bauchet Street	11.4	0.29	B	20.0	0.49	B
31	Ramirez Street and Center Street	1.7	0.24	A	0.6	0.35	A
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	0.54	B	14.0	0.51	B

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

V/C=volume to capacity; LOS=level of service; EB=eastbound; WB=westbound.

Table 8-2. 2040 No Project Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1	Alameda Street and Commercial Street	31.6	0.62	C	47.8	0.98	D
2	Garey Street and Commercial Street	31.3	0.39	C	34.6	0.49	C
3	Vignes Street and Commercial Street ^a	9.8	0.39	A	10.2	0.41	B
4	Center Street and Commercial Street ^a	18	0.73	C	62.5	1.22	F
5	Alameda Street and Temple Street	16.3	0.69	B	16.9	0.75	B
6	Vignes Street and Temple Street ^a	15.9	0.73	C	10	0.43	A
7	Alameda Street and First Street	18.5	0.55	B	16.2	0.63	B
8	Vignes Street and First Street	21.1	0.51	C	26.9	0.59	C
9	Alameda Street and El Monte Busway/Arcadia Street	90.3	0.89	F	15.7	0.69	B
10	Alameda Street and Union Station South	28.0	0.65	C	15.5	0.59	B

Table 8-2. 2040 No Project Intersection Level of Service

Intersection	Intersection	AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
110	Alameda Street and Union Station North ^a	0.1	0.45	A	0.2	0.31	A
11	Alameda Street and Cesar Chavez Avenue	19.5	0.87	B	14.1	0.75	B
12	Alameda Street and Vignes Street/Alpine Street	12.5	0.59	B	14.4	0.63	B
13	Vignes Street and Cesar Chavez Avenue	18.1	0.79	B	21	0.88	C
14	Vignes Street and Ramirez Street	23.3	0.43	C	26	0.54	C
15	Vignes Street and Main Street	18.8	0.60	B	62.8	1.04	E
16	Alameda Street/Spring Street and College Street	16.8	0.63	B	16.8	0.73	B
17	Alameda Street and Main Street/Ord Street ^a	0.7	0.35	A	0.7	0.42	A
18	Alameda Street and Main Street/Bauchet Street	5.3	0.42	A	14	0.60	B
19	Main Street and Cesar Chavez Avenue	7.1	0.45	A	19.6	0.67	B
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	8.9	0.62	A	5.9	0.44	A
22	Los Angeles Street and Aliso Street	10.1	0.30	B	12.1	0.64	B
23	Los Angeles Street and Temple Street	15.1	0.62	B	18	0.82	B
24	Los Angeles Street and First Street	14.1	0.56	B	21.9	0.97	C
25	Judge John Aiso Street and Temple Street	7.8	0.41	A	8.2	0.44	A
26	Judge John Aiso Street/San Pedro Street and First Street	16.1	0.45	B	15.4	0.67	B
27	Mission Road and Cesar Chavez Avenue	59.7	1.21	E	26.6	0.92	C
28	Mission Road and First Street	26.9	0.83	C	36.9	0.93	D
29	Central Avenue and First Street	9.1	0.33	A	11.4	0.50	B
30	Vignes Street and Bauchet Street	11.8	0.29	B	20.9	0.50	C
31	Ramirez Street and Center Street	1.8	0.25	A	0.7	0.36	A
32	Union Station North Driveway and Cesar Chavez Avenue	13.0	0.54	B	14.1	0.52	B

Note:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

V/C=volume to capacity; LOS=level of service

The following four intersections experience deficient LOS for the 2040 no project condition:

AM Peak Hour:

- Intersection #9: Alameda Street at El Monte Busway/Arcadia Street (LOS F)
- Intersection #27: Mission Road at Cesar Chavez Avenue (LOS E)

PM Peak Hour:

- Intersection #4: Center Street and Commercial Street (LOS F)
- Intersection #15: Vignes Street at Main Street (LOS E)

LOS F at Alameda Street at El Monte Busway/Arcadia Street (Intersection #9) is due to implementation of the LAUS Forecourt and Esplanade Improvements project, which includes a one-lane reduction on Alameda Street between Cesar Chavez Avenue and Arcadia Street. Finally, the intersections of Center Street at Commercial Street, Cesar Chavez Avenue at Mission Road, and Vignes Street at Main Street would perform at an LOS E or F without the project in 2040.

8.3 2031 plus Project Construction Condition

As discussed earlier, a full closure of the intersection of Center Street and Commercial Street would be required during construction, which would result in changes in traffic patterns through the study area and, thus, would require traffic detouring. Given that traffic would be diverted to intersections adjacent to Center Street at Commercial Street, the LOS of these adjacent intersections would be affected.

Table 8-4 and Table 8-3 summarizes peak hour LOS for all study locations for the 2031 plus project construction condition for the proposed project and build alternative, respectively. Appendix M presents the Synchro worksheets for each study intersection.

According to LADOT Guidelines, when utilizing the HCM methodology for signalized intersections for transportation infrastructure projects, a transportation impact shall be deemed “significant” in accordance with Table 5-4 (LADOT 2016).

The following three intersections are likely to be impacted during construction if the proposed project with an above-grade passenger concourse with new expanded passageway is constructed concurrent with other project-related infrastructure (lead tracks, elevated rail yard, and run-through track infrastructure):

- Intersection #2: Garey Street and Commercial Street (LOS E – AM and PM peaks)
- Intersection #10: Alameda Street and Los Angeles Street EB (LOS C – PM peak)
- Intersection #15: Vignes Street and Main Street (LOS E – PM peak; no impact on AM peak)

In the 2031 plus project construction conditions for the (build alternative with an at-grade passenger concourse, the following five intersections are likely to be impacted if all project-related infrastructure is constructed concurrently:

- Intersection #1: Alameda Street and Commercial Street (LOS D – PM peak)
- Intersection #2: Garey Street and Commercial Street (LOS E – AM peak)
- Intersection #10: Alameda Street and Los Angeles Street EB (LOS C – PM peak)
- Intersection #15: Vignes Street and Main Street (LOS F – PM peak; no impact on AM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (LOS E – AM peak)

Table 8-3. 2031 plus Project Construction (Above-Grade Passenger Concourse with New Expanded Passageway) Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?	2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
1	Alameda Street and Commercial Street	29.1	C	32.9	C	3.8	No	35.1	D	38.6	D	3.5	No
2	Garey Street and Commercial Street	31.3	C	63.5	E	32.2	Yes	34.1	C	38.2	D	4.1	Yes
3	Vignes Street and Commercial Street ^a	9.8	A	NA	NA	NA	NA	10.1	B	NA	NA	NA	NA
4	Center Street and Commercial Street ^a	17.2	C	NA	NA	NA	NA	57.5	F	NA	NA	NA	NA
5	Alameda Street and Temple Street	14.6	B	14.4	B	-0.2	No	16.7	B	15.6	B	-1.1	No
6	Vignes Street and Temple Street ^a	15.4	C	16.7	C	1.3	No	9.9	A	9.9	A	0.0	No
7	Alameda Street and First Street	18.3	B	18.0	B	-0.3	No	17.3	B	18.2	B	0.9	No
8	Vignes Street and First Street	20.2	C	22.2	C	2	No	27.6	C	25.4	C	-2.2	No
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	C	21.6	C	0.5	No	14.6	B	15.0	B	0.4	No
10	Alameda Street and Los Angeles Street EB	12.1	B	12.7	B	0.6	No	12.4	B	31.0	C	18.6	Yes
110	Alameda Street and Los Angeles Street WB	4.3	A	4.2	A	-0.1	No	5.7	A	7.0	A	1.3	No
11	Alameda Street and Cesar Chavez Avenue	20.7	C	21.0	C	0.3	No	17.1	B	20.0	C	2.9	No
12	Alameda Street and Vignes Street/Alpine Street	11.6	B	13.0	B	1.4	No	13.8	B	14.1	B	0.3	No
13	Vignes Street and Cesar Chavez Avenue	18.5	B	18.2	B	-0.3	No	25.1	C	26.3	C	1.2	No
14	Vignes Street and Ramirez Street	23.3	C	23.2	C	-0.1	No	24.5	C	24.6	C	0.1	No
15	Vignes Street and Main Street	27.2	C	23.9	C	-3.3	No	74.6	E	78.9	E	4.3	Yes
16	Alameda Street/Spring Street and College Street	16.5	B	16.5	B	0	No	17.7	B	17.5	B	-0.2	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.6	A	-0.1	No	0.7	A	0.7	A	0.0	No
18	Alameda Street and Main Street/Bauchet Street	5.8	A	5.9	A	0.1	No	9.6	A	10.5	B	0.9	No
19	Main Street and Cesar Chavez Avenue	7.7	A	7.9	A	0.2	No	19.8	B	19.9	B	0.1	No
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	7.7	A	7.3	A	-0.4	No	4.8	A	4.8	A	0.0	No
22	Los Angeles Street and Aliso Street	9.4	A	9.5	A	0.1	No	11.8	B	11.9	B	0.1	No
23	Los Angeles Street and Temple Street	15.2	B	15.4	B	0.2	No	17.6	B	17.5	B	-0.1	No
24	Los Angeles Street and First Street	15.2	B	15.0	B	-0.2	No	20.7	C	21.7	C	1.0	No
25	Judge John Aiso Street and Temple Street	8.3	A	8.1	A	-0.2	No	8.0	A	8.0	A	0.0	No

Table 8-3. 2031 plus Project Construction (Above-Grade Passenger Concourse with New Expanded Passageway) Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?	2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	B	15.8	B	0.2	No	15.3	B	14.2	B	-1.1	No
27	Mission Road and Cesar Chavez Avenue	58.0	E	57.3	E	-0.7	No	25.6	C	26.3	C	0.7	No
28	Mission Road and First Street	25.8	C	29.5	C	3.7	No	33.2	C	32.8	C	-0.4	No
29	Central Avenue and First Street	8.8	A	8.1	A	-0.7	No	11.3	B	12.1	B	0.8	No
30	Vignes Street and Bauchet Street	11.4	B	11.4	B	0	No	20.0	B	19.1	B	-0.9	No
31	Ramirez Street and Center Street	1.7	A	1.7	A	0	No	0.6	A	0.7	A	0.1	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	B	13.6	B	0	No	14.0	B	14.0	B	0.0	No

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

EB=eastbound; LOS=level of service; NA=not applicable; Sec=seconds; WB=westbound

Table 8-4. 2031 plus Project Construction (Build Alternative with At-Grade Passenger Concourse) Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?	2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
1	Alameda Street and Commercial Street	29.1	C	34.0	C	4.9	No	35.1	D	39.5	D	4.4	Yes
2	Garey Street and Commercial Street	31.3	C	60.6	E	29.3	Yes	34.1	C	37.8	D	3.7	No
3	Vignes Street and Commercial Street	9.8	A	NA	NA	NA	NA	10.1	B	NA	NA	NA	NA
4	Center Street and Commercial Street ^a	17.2	C	NA	NA	NA	NA	57.5	F	NA	NA	NA	NA
5	Alameda Street and Temple Street	14.6	B	14.6	B	0	No	16.7	B	15.6	B	-1.1	No
6	Vignes Street and Temple Street ^a	15.4	C	19.6	C	4.2	No	9.9	A	10.0	B	0.1	No
7	Alameda Street and First Street	18.3	B	17.9	B	-0.4	No	17.3	B	18.4	B	1.1	No
8	Vignes Street and First Street	20.2	C	22.5	C	2.3	No	27.6	C	26.1	C	-1.5	No
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	C	21.8	C	0.7	No	14.6	B	15.0	B	0.4	No
10	Alameda Street and Los Angeles Street EB	12.1	B	12.7	B	0.6	No	12.4	B	31.1	C	18.7	Yes
110	Alameda Street and Los Angeles Street WB	4.3	A	4.1	A	-0.2	No	5.7	A	6.9	A	1.2	No
11	Alameda Street and Cesar Chavez Avenue	20.7	C	21.5	C	0.8	No	17.1	B	20.2	C	3.1	No
12	Alameda Street and Vignes Street/Alpine Street	11.6	B	13.1	B	1.5	No	13.8	B	14.0	B	0.2	No
13	Vignes Street and Cesar Chavez Avenue	18.5	B	18.1	B	-0.4	No	25.1	C	26.7	C	1.6	No
14	Vignes Street and Ramirez Street	23.3	C	23.2	C	-0.1	No	24.5	C	24.9	C	0.4	No
15	Vignes Street and Main Street	27.2	C	25.0	C	-2.2	No	74.6	E	90.8	F	16.2	Yes
16	Alameda Street/Spring Street and College Street	16.5	B	16.5	B	0	No	17.7	B	17.6	B	-0.1	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.6	A	-0.1	No	0.7	A	0.7	A	0	No
18	Alameda Street and Main Street/Bauchet Street	5.8	A	6.1	A	0.3	No	9.6	A	10.5	B	0.9	No
19	Main Street and Cesar Chavez Avenue	7.7	A	8.1	A	0.4	No	19.8	B	20.0	B	0.2	No
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	7.7	A	7.4	A	-0.3	No	4.8	A	4.8	A	0	No
22	Los Angeles Street and Aliso Street	9.4	A	9.6	A	0.2	No	11.8	B	11.9	B	0.1	No
23	Los Angeles Street and Temple Street	15.2	B	15.5	B	0.3	No	17.6	B	17.5	B	-0.1	No
24	Los Angeles Street and First Street	15.2	B	15.0	B	-0.2	No	20.7	C	22.1	C	1.4	No
25	Judge John Aiso Street and Temple Street	8.3	A	8.1	A	-0.2	No	8.0	A	8.0	A	0	No

Table 8-4. 2031 plus Project Construction (Build Alternative with At-Grade Passenger Concourse) Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?	2031 (No Project)		2031 (with Project Construction)		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	B	15.9	B	0.3	No	15.3	B	14.2	B	-1.1	No
27	Mission Road and Cesar Chavez Avenue	58.0	E	62.0	E	4	Yes	25.6	C	26.3	C	0.7	No
28	Mission Road and First Street	25.8	C	29.5	C	3.7	No	33.2	C	32.9	C	-0.3	No
29	Central Avenue and First Street	8.8	A	8.5	A	-0.3	No	11.3	B	12.2	B	0.9	No
30	Vignes Street and Bauchet Street	11.4	B	11.3	B	-0.1	No	20.0	B	19.1	B	-0.9	No
31	Ramirez Street and Center Street	1.7	A	1.6	A	-0.1	No	0.6	A	0.7	A	0.1	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	B	13.6	B	0	No	14.0	B	14.0	B	0	No

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

EB=eastbound; LOS=level of service; NA=not applicable; Sec=seconds; WB=westbound

8.4 2031 and 2040 plus Project Conditions

For 2031 and 2040, the proposed project and the build alternative would generate traffic in the vicinity of LAUS. As part of the early action/interim improvements that could be implemented as early as 2026, roadway modifications on Commercial Street and Center Street, to facilitate construction of the run-through track infrastructure south of LAUS, would occur. In consideration of the potential mitigation required for traffic-related and land-use-related impacts, the reduction of one vehicular lane in the westbound direction of Commercial Street from Garey Street to Alameda Street and addition of a bicycle lane is also included in the traffic impact evaluation. For 2031 and 2040, this improvement is assumed to be in place because it affects the traffic impact evaluation.

The following safety improvements are proposed along US-101 as part of this project, and would also be in place in the 2031 and 2040 conditions:

- US-101 Main line:
 - o Increased median width and shoulder widths for enhanced horizontal clearance
 - o Increased horizontal stopping sight distance
 - o Restriping main line for enhanced curvature
 - o Increased lane widths
 - o Increased weaving distance with maximized lengths between southbound Los Angeles Street on-ramp and southbound Commercial Street off-ramp
 - o Increased tangent length between reversing curves for improved drivability (greater distance between curves allows the driver to see the upcoming horizontal curve, prepare for the curve ahead, and adjust driving/steering accordingly)
- Alameda Street Off-Ramp (northbound):
 - o Increased deceleration length
 - o Standard ramp exit with diverge angle (provides a safety zone for drivers making last-minute decisions)
 - o Increased shoulder width for enhanced horizontal clearance
- Commercial Street Off-Ramp and On-Ramp (southbound):
 - o Increased shoulder widths for enhanced horizontal clearance

Additionally, the project includes safety improvements at the Main Street at-grade crossing to facilitate future implementation of a quiet zone by the City of Los Angeles. The implementation of a quiet zone is subject to review and approval by the California Public Utilities Commission. North of CP Chavez, the project would include the following safety improvements:

- An 8-foot-wide median on Main Street extending up to 100 feet on either side of the tracks
- Restriping to accommodate the median
- New signals with advance flashing beacons
- Wire mesh fencing along the rail ROW
- Replacement of the existing single-gate system with pedestrian and vehicular gate systems
- Pedestrian crossing arms and swing gates
- Modification to the west bridge wingwalls to accommodate pedestrian access

ADA-compliant improvements would include bulb-outs with curb ramps and a striped crosswalk at a driveway on the north side of Main Street, and an approximately 25-foot sidewalk with curb and gutter east of the driveway.

Intersection peak hour LOS for 2031 plus project condition is presented in Table 8-5, and Appendix L presents the Synchro worksheets for each study intersection. When compared to the 2031 no project condition, the following intersections are likely to be impacted due to implementation of the proposed project or the build alternative:

- Intersection #2: Garey Street and Commercial Street (AM and PM peaks)
- Intersection #4: Center Street and Commercial Street (AM and PM peaks)

Intersection peak hour LOS for 2040 plus project conditions is presented in Table 8-6, and Appendix L presents the Synchro worksheets for each study intersection. When compared to the 2040 no project conditions, the same two intersections would likely to be impacted due to implementation of the proposed project or the build alternative:

- Intersection #2: Garey Street and Commercial Street (AM and PM peaks)
- Intersection #4: Center Street and Commercial Street (AM and PM peaks)

8.4.1 Impacts of Construction-Related Traffic on US-101 Main line

The proposed project or the build alternative would generate additional construction traffic on US-101, thereby increasing the traffic volumes for both the AM and PM peak hours. As discussed in Section 7.4.2, all existing traffic lanes along the El Monte Busway and US-101 would be maintained during the peak hour throughout construction of run-through track infrastructure, although short-term overnight closures of the El Monte Busway, the US-101 main line, and the southbound ramps at Commercial Street would be

necessary to erect and dismantle falsework during construction of the US-101 viaduct. The US-101 main line would be closed temporarily during the night (10:00 PM to 6:00 AM) in one direction at a time during construction of the bridge superstructure. These night closures are expected to last up to 20-consecutive days. The southbound ramps at Commercial Street may either be partially or fully restricted for extended periods during construction of the US-101 viaduct over the existing on- and off-ramps.

For the US-101, the threshold for determining a significant impact is when a project increases the traffic demand by 2 percent of the capacity (D/C greater than or equal to 0.02). The volumes are affected on the northbound side during both AM and PM peak hours. During the 2031 plus project construction condition, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and LOS F(3) during the AM and PM peak hours, respectively. Table 8-7 summarizes the freeway main line D/C ratio and LOS during 2031 plus project construction condition. As shown in Table 8-7, the freeway operates at deficient LOS during both peak hours in both directions but does not exceed the threshold for significant impact. Therefore, the freeway would be impacted during construction but the impacts are not significant, and it is considered to be a short-term. These impacts would be minimized by closures during the off-peak hours and detours during the peak hours, as stated in the transportation management plan.

8.4.2 Impacts of Project-Related Traffic on US-101 Main line

The existing US-101 has a 30- to 40-foot-wide center median that would accommodate the support piers for the new run-through track structure over US-101. The final run-through track structure pier location would be determined during the final design phase. Traffic handling would be determined in accordance with the final design. As discussed above, the US-101 on- and off-ramps are assumed to remain in place through 2040.

During 2031 no project and plus project conditions, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during the AM and PM peak hours, respectively. Table 8-8 summarizes the freeway main line LOS during 2031 no project and plus project conditions.

During 2040 no project and plus project conditions, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during the AM and PM peak hours, respectively. Table 8-9 summarizes the freeway main line LOS during 2040 no project and plus project conditions.

8.5 Intersection Traffic Mitigation Measures

8.5.1 Construction

For the proposed project with an above-grade passenger concourse with new expanded passageway, the following three intersections would experience significant impacts per LADOT Guidelines (LADOT 2016) during construction:

- Intersection # 2: Garey Street and Commercial Street
- Intersection #10: Alameda Street and Los Angeles Street EB
- Intersection #15: Vignes Street and Main Street

The traffic impact analysis determined the following five intersections would experience significant impacts per LADOT Guidelines (LADOT 2016) during construction of the build alternative with an at-grade passenger concourse:

- Intersection # 1: Alameda Street and Commercial Street
- Intersection # 2: Garey Street and Commercial Street
- Intersection # 10: Alameda Street and Los Angeles Street EB
- Intersection #15: Vignes Street and Main Street
- Intersection #27: Mission Road and Cesar Chavez Avenue

According to LADOT Guidelines (LADOT 2016), these intersections would require mitigation. Mitigation measures are discussed in Section 12.0, although the optimizations and potential for reduced impacts are discussed herein. Changes to signal phasing and timing would mitigate the temporary impacts of traffic shifts caused by the construction detour. In addition to the signal phasing and timing, temporary closed-circuit television cameras would also mitigate temporary impacts by allowing for real-time monitoring of traffic during construction. Proposed locations of the closed-circuit television would need to be coordinated with the City of Los Angeles. Proposed changes to signal phasing and timing are identified at the following intersections:

- Intersection #1: Alameda Street and Commercial Street
 - Optimized intersection cycle lengths and splits to 60 seconds and 100 seconds during AM and PM peaks, respectively
- Intersection #2: Garey Street and Commercial Street
 - Optimized intersection cycle lengths and splits to 70 seconds and 90 seconds during AM and PM peaks, respectively
- Intersection #10: Alameda Street and Los Angeles Street WB

- o Optimized intersection cycle lengths and splits to 60 seconds and 90 seconds during AM and PM peaks, respectively
- Intersection #15: Vignes Street and Main Street
 - o Optimized intersection cycle lengths and splits to 75 seconds and 150 seconds during AM and PM peaks, respectively
- Intersection #27: Mission Road and Cesar Chavez Avenue
 - o Optimized intersection cycle lengths and splits to 90 seconds during both AM and PM peaks

The proposed construction traffic management plan would further reduce the impacts of construction-related traffic on local intersections. A comparison of the intersections for 2031 plus project construction condition traffic with and without mitigation is presented in Table 8-10, and detailed Synchro analysis worksheets are presented in Appendix M.

Operations

The traffic impact analysis determined that the 2031 and 2040 plus project conditions would result in significant impacts on the two intersections below; hence, mitigation in the form of a traffic signal for Intersection #4: Center Street and Commercial Street is required.

- Intersection #2: Garey Street and Commercial Street
- Intersection #4: Center Street and Commercial Street

Due to limitations in the ROW, there are no feasible mitigation measures to minimize the operational traffic delay at Intersection #2: Garey Street and Commercial Street, and the project-related increased delays would continue to exceed LADOT Guidelines (LADOT 2016) in 2031 and 2040.

A comparison of the intersections for 2031 and 2040 plus project conditions traffic with and without mitigation is presented in Table 8-11 and Table 8-12, respectively. Detailed Synchro analysis worksheets are presented in Appendix L.

In addition to the above-mentioned mitigation measures, mitigation is also proposed in the form of transportation demand management improvements that may be implemented along Commercial Street. Based on the LADOT Guidelines (LADOT 2016), the City of Los Angeles encourages implementation of mitigation measures that would focus on minimizing the demand for trips by single-occupant vehicles through trip reduction strategies and encouraging other modes of transportation, such as public transit and bicycles. As mentioned previously, active transportation improvements, such as bicycle lanes along Commercial Street between Garey Street and Alameda Street are proposed to reduce significant impacts. These improvements would enhance non-motorized connectivity, facilitate a pedestrian and bicycle-friendly environment in the study area, and encourage the use of alternate modes of transportation, consistent with LADOT Guidelines (LADOT 2016) and Metro's Active Transportation Program.

Table 8-5. 2031 plus Project Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2031 No Project		2031 Plus Project		Delta	Significant Impact?	2031 No Project		2031 Plus Project		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
1	Alameda Street and Commercial Street	29.1	C	29.5	C	0.4	No	35.1	D	35.4	D	0.3	No
2	Garey Street and Commercial Street	31.3	C	62.9	E	31.6	Yes	34.1	C	62.9	E	28.8	Yes
3	Vignes Street and Commercial Street ^a	9.8	A	NA	NA	NA	NA	10.1	B	NA	NA	NA	NA
4	Center Street and Commercial Street ^a	17.2	C	83.0	F	65.8	Yes	57.5	F	157.4	F	99.9	Yes
5	Alameda Street and Temple Street	14.6	B	14.7	B	0.1	No	16.7	B	15.8	B	-0.9	No
6	Vignes Street and Temple Street ^a	15.4	C	15.4	C	0.0	No	9.9	A	9.9	A	0	No
7	Alameda Street and First Street	18.3	B	18.3	B	0.0	No	17.3	B	17.9	B	0.6	No
8	Vignes Street and First Street	20.2	C	20.2	C	0.0	No	27.6	C	27.5	C	-0.1	No
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	C	21.2	C	0.1	No	14.6	B	14.5	B	-0.1	No
10	Alameda Street and Los Angeles Street EB	12.1	B	11.7	B	-0.4	No	12.4	B	12.6	B	0.2	No
110	Alameda Street and Los Angeles Street WB	4.3	A	4.4	A	0.1	No	5.7	A	7.0	A	1.3	No
11	Alameda Street and Cesar Chavez Avenue	20.7	C	20.9	C	0.2	No	17.1	B	16.9	B	-0.2	No
12	Alameda Street and Vignes Street/Alpine Street	11.6	B	13.7	B	2.1	No	13.8	B	18.1	B	4.3	No
13	Vignes Street and Cesar Chavez Avenue	18.5	B	19.9	B	1.4	No	25.1	C	25.9	C	0.8	No
14	Vignes Street and Ramirez Street	23.3	C	23.4	C	0.1	No	24.5	C	24.8	C	0.3	No
15	Vignes Street and Main Street	27.2	C	17.6	B	-9.6	No	74.6	E	50.7	D	-23.9	No
16	Alameda Street/Spring Street and College Street	16.5	B	16.5	B	0.0	No	17.7	B	17.9	B	0.2	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.7	A	0.0	No	0.7	A	0.7	A	0	No
18	Alameda Street and Main Street/Bauchet Street	5.8	A	5.7	A	-0.1	No	9.6	A	9.8	A	0.2	No
19	Main Street and Cesar Chavez Avenue	7.7	A	7.7	A	0.0	No	19.8	B	19.8	B	0	No
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	7.7	A	7.8	A	0.1	No	4.8	A	5.1	A	0.3	No
22	Los Angeles Street and Aliso Street	9.4	A	9.5	A	0.1	No	11.8	B	11.7	B	-0.1	No
23	Los Angeles Street and Temple Street	15.2	B	15.2	B	0.0	No	17.6	B	17.6	B	0	No
24	Los Angeles Street and First Street	15.2	B	15.2	B	0.0	No	20.7	C	20.7	C	0	No
25	Judge John Aiso Street and Temple Street	8.3	A	8.2	A	-0.1	No	8.0	A	7.7	A	-0.3	No

Table 8-5. 2031 plus Project Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2031 No Project		2031 Plus Project		Delta	Significant Impact?	2031 No Project		2031 Plus Project		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	B	15.6	B	0.0	No	15.3	B	15.3	B	0	No
27	Mission Road and Cesar Chavez Avenue	58.0	E	58.1	E	0.1	No	25.6	C	25.7	C	0.1	No
28	Mission Road and First Street	25.8	C	25.8	C	0.0	No	33.2	C	33.2	C	0	No
29	Central Avenue and First Street	8.8	A	8.8	A	0.0	No	11.3	B	11.3	B	0	No
30	Vignes Street and Bauchet Street	11.4	B	11.1	B	-0.3	No	20.0	B	20.0	B	0	No
31	Ramirez Street and Center Street	1.7	A	1.7	A	0.0	No	0.6	A	0.6	A	0	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	B	13.6	B	0.0	No	14.0	B	14.0	B	0	No

Notes:

a Non-signalized intersection

b Freeway on-ramp, neither signalized nor STOP-sign controlled

EB=eastbound; LOS=level of service; NA=not applicable; Sec=seconds; WB=westbound

Table 8-6. 2040 plus Project Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2040 No Project		2040 Plus Project		Delta	Significant Impact?	2040 No Project		2040 Plus Project		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
1	Alameda Street and Commercial Street	31.6	C	32.0	C	0.4	No	47.8	D	49.2	D	1.4	No
2	Garey Street and Commercial Street	31.3	C	55.5	D	24.2	Yes	34.6	C	42.3	D	7.7	Yes
3	Vignes Street and Commercial Street ^a	9.8	A	NA	NA	NA	NA	10.2	B	NA	NA	NA	NA
4	Center Street and Commercial Street ^a	18.0	C	90.7	F	72.7	Yes	62.5	F	166.5	F	104	Yes
5	Alameda Street and Temple Street	16.3	B	16.3	B	0	No	16.9	B	16.9	B	0	No
6	Vignes Street and Temple Street ^a	15.9	C	15.9	C	0	No	10	A	10	A	0	No
7	Alameda Street and First Street	18.5	B	18.5	B	0	No	16.2	B	16.2	B	0	No
8	Vignes Street and First Street	21.1	C	21.1	C	0	No	26.9	C	26.6	C	-0.3	No
9	Alameda Street and El Monte Busway/Arcadia Street	90.3	F	90.0	F	0	No	15.7	B	15.6	B	-0.1	No
10	Alameda Street and Los Angeles Street EB	28.0	C	28.1	A	0.1	No	15.5	B	14.2	B	-1.3	No
110	Alameda Street and Los Angeles Street WB	0.1	A	0.1	A	0	No	0.2	A	0.2	A	0	No
11	Alameda Street and Cesar Chavez Avenue	29.7	C	29.7	C	0	No	21.1	C	21.2	C	0.1	No
12	Alameda Street and Vignes Street/Alpine Street	12.5	B	12.5	B	0	No	14.4	B	14.5	B	0.1	No
13	Vignes Street and Cesar Chavez Avenue	18.1	B	18.1	B	0	No	21	C	21.1	C	0.1	No
14	Vignes Street and Ramirez Street	23.3	C	23.3	C	0	No	26	C	25.9	C	-0.1	No
15	Vignes Street and Main Street	18.8	B	18.8	B	0	No	62.8	E	63.8	E	1	No
16	Alameda Street/Spring Street and College Street	16.8	B	16.8	B	0	No	16.8	B	17.1	B	0.3	No
17	Alameda Street and Main Street/Ord Street ^a	0.7	A	0.7	A	0	No	0.7	A	0.7	A	0	No
18	Alameda Street and Main Street/Bauchet Street	5.3	A	5.3	A	0	No	14	B	14.3	B	0.3	No
19	Main Street and Cesar Chavez Avenue	7.1	A	7.1	A	0	No	19.6	B	19.4	B	-0.2	No
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	8.9	A	9.0	A	0.1	No	5.9	A	6	A	0.1	No
22	Los Angeles Street and Aliso Street	10.1	B	10.2	B	0.1	No	12.1	B	12.2	B	0.1	No
23	Los Angeles Street and Temple Street	15.1	B	15.1	B	0	No	18	B	18	B	0	No
24	Los Angeles Street and First Street	14.1	B	14.1	B	0	No	21.9	C	21.9	C	0	No
25	Judge John Aiso Street and Temple Street	7.8	A	7.8	A	0	No	8.2	A	8.1	A	-0.1	No
26	Judge John Aiso Street/San Pedro Street and First Street	16.1	B	16.1	B	0	No	15.4	B	15.3	B	-0.1	No
27	Mission Road and Cesar Chavez Avenue	59.7	E	59.7	E	0	No	26.6	C	26.6	C	0	No
28	Mission Road and First Street	26.9	C	26.9	C	0	No	36.9	D	36.9	D	0	No
29	Central Avenue and First Street	9.1	A	9.1	A	0	No	11.4	B	11.3	B	-0.1	No

Table 8-6. 2040 plus Project Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		2040 No Project		2040 Plus Project		Delta	Significant Impact?	2040 No Project		2040 Plus Project		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
30	Vignes Street and Bauchet Street	11.8	B	11.9	B	0.1	No	20.9	C	20.5	C	-0.4	No
31	Ramirez Street and Center Street	1.8	A	1.7	A	0	No	0.7	A	0.7	A	0	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.0	B	13.0	B	0	No	14.1	B	14.1	B	0	No

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

EB=eastbound; LOS=level of service; NA=not applicable; Sec=second; WB=westbound

Table 8-7. 2031 plus Construction Freeway Main line Level of Service									
Freeway Analysis Location	Peak	Northbound				Southbound			
		Demand	Capacity	D/C	LOS	Demand	Capacity	D/C	LOS
US-101 North of Vignes Street	AM	13,549	8,000	1.69	F(3)	9,152	8,000	1.14	F(0)
PM 0.45	PM	13,179	8,000	1.65	F(3)	13,506	8,000	1.69	F(3)

Notes:

D/C=demand to capacity; LOS=level of service; PM=post mile

Table 8-8. 2031 Freeway Main line Level of Service									
Freeway Analysis Location	Peak	Northbound				Southbound			
		Demand	Capacity	D/C	LOS	Demand	Capacity	D/C	LOS
No Project Condition									
US-101 North of Vignes Street	AM	13,298	8,000	1.66	F(3)	9,150	8,000	1.14	F(0)
PM 0.45	PM	13,176	8,000	1.65	F(3)	13,420	8,000	1.68	F(3)
Plus Project Condition									
US-101 North of Vignes Street	AM	13,300	8,000	1.66	F(3)	9,150	8,000	1.14	F(0)
PM 0.45	PM	13,188	8,000	1.65	F(3)	13,420	8,000	1.68	F(3)

Notes:

D/C=demand to capacity; LOS=level of service; PM=post mile

Table 8-9. 2040 Freeway Main line Level of Service									
Freeway Analysis Location	Peak	Northbound				Southbound			
		Demand	Capacity	D/C	LOS	Demand	Capacity	D/C	LOS
No Project Condition									
US-101 North of Vignes Street	AM	14,279	8,000	1.78	F(3)	9,825	8,000	1.23	F(0)
PM 0.45	PM	14,148	8,000	1.77	F(3)	14,410	8,000	1.80	F(3)
Plus Project Condition									
US-101 North of Vignes Street	AM	14,281	8,000	1.79	F(3)	9,825	8,000	1.23	F(0)
PM 0.45	PM	14,160	8,000	1.77	F(3)	14,410	8,000	1.80	F(3)

Notes:

D/C=demand to capacity; LOS=level of service; PM=post mile

Table 8-10. 2031 Construction Condition with and without Mitigation Level of Service

Intersection	Intersection	AM Peak					PM Peak				
		2028 with Construction		2028 Construction with Mitigation		Delta	2028 with Construction		2028 Construction with Mitigation		Delta
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)
1	Alameda Street and Commercial Street	34.0	C	19.8	B	-14.2	39.1	D	33.5	C	-5.6
2	Garey Street and Commercial Street	59.6	E	34.3	C	-25.3	37.5	D	35.8	D	-1.7
10	Alameda Street and Los Angeles Street WB	12.5	B	6.4	A	-6.1	31.1	C	16.2	B	-14.9
15	Vignes Street and Main Street	24.9	C	19.3	B	-5.6	89.1	F	76.7	E	-12.4
27	Mission Road and Cesar Chavez Avenue	60.3	E	54.1	D	-6.2	26.0	C	25.7	C	-0.3

Notes:
LOS=level of service; Sec=seconds; WB=westbound

Table 8-11. 2031 plus Project with and without Mitigation Level of Service

Intersection	Intersection	AM Peak					PM Peak				
		2031 plus Project		2031 plus Project with Mitigation		Delta	2031 plus Project		2031 plus Project with Mitigation		Delta
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)
4	Center Street and Commercial Street	83.0	F	13.2	B	-69.8	157.4	F	15.0	B	-142.4

Notes:
LOS=level of service; Sec=seconds

Table 8-12. 2040 plus Project with and without Mitigation Level of Service

Intersection	Intersection	AM Peak					PM Peak				
		2040 plus Project		2040 plus Project with Mitigation		Delta	2040 plus Project		2040 plus Project with Mitigation		Delta
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)
4	Center Street and Commercial Street	90.7	F	13.7	B	-77	166.5	F	15.5	B	-151

Notes:
LOS=level of service; Sec=seconds

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9.0 Congestion Management Program Transportation Impact Analysis

9.1 Congestion Management Program Traffic Impact Analysis

Following are CMP monitoring locations closest to the project study area:

- Alameda Street and Washington Boulevard (a CMP arterial monitoring intersection)
- Alvarado Street and Sunset Boulevard (a CMP arterial monitoring intersection)
- Wilshire Boulevard and Alvarado Street (a CMP arterial monitoring intersection)
- US-101 north of Vignes Street (a CMP freeway monitoring location)

The traffic projections from Section 7.0, Future Traffic Predictions and Roadway Characteristics, were used to determine the locations where project-related trips might exceed these thresholds.

Based on the project trip assignments that were developed, the project is not expected to add traffic to exceed the arterial intersection analysis criteria or the freeway analysis criteria at the nearest monitoring locations or at any location. Since project traffic during either AM or PM peak hours is projected to be less than the minimum criteria of 50 vehicles per hour for arterial intersections and 150 vehicles per hour for freeway locations, no further analysis of CMP arterial monitoring intersections or freeway monitoring locations is required.

9.2 Congestion Management Program Transit Impact Analysis

Per the CMP, project-related impacts on public transit services would be considered significant if the proposed project or the build alternative resulted in a substantial increase in ridership on the existing public transit system, creating capacity shortages on the system and thereby necessitating system improvements to accommodate additional transit service.

The project would facilitate a substantial increase in rail operational capacity for the region, reduced train idling time at LAUS, and improved on-time performance for trains using LAUS. The project would also contribute indirectly to other cumulative benefits for the region, including a regional reduction of VMT and associated greenhouse gases, as demonstrated by the operational analysis provided in the *2016 Regional Transportation Plan/Sustainable Communities Strategy Environmental Impact Report* (see Program EIR Table 3.3.4-4; SCAG 2016). While the project would provide the largest possible “operating envelope” to increase capacity within the existing station footprint, future service scenarios would depend on ongoing negotiations between the railroad operators, available infrastructure (e.g., corridor, maintenance facility), and available operating funding. The project, by itself, does not enable regional/intercity rail providers to meet their service goals, primarily because other infrastructure improvements on the entire system are required to meet the forecasted service levels by 2040; however, the project is a critical component to

providing capacity enhancements to fulfill the statewide mandates and regional objectives. Therefore, no significant impacts on the transit system are anticipated.

10.0 Signal Warrant Analysis

Peak hour signal warrant analysis was conducted at Intersection #4: Center Street and Commercial Street for the 2031 and 2040 Conditions. As shown in Table 10-1 to Table 10-4, peak hour signal warrant is met at Intersection #4: Center Street and Commercial Street in the 2031 and 2040 Conditions.

Appendix N presents the peak hour signal warrant worksheets.

Table 10-1. 2031 No Project Conditions Signal Warrant Analysis

Intersection Number	Intersection Name	Peak Hour Warrant Satisfied?	
		AM	PM
4	Center Street and Commercial Street	Yes	Yes

Table 10-2. 2031 plus Project Conditions Signal Warrant Analysis

Intersection Number	Intersection Name	Peak Hour Warrant Satisfied?	
		AM	PM
4	Center Street and Commercial Street	Yes	Yes

Table 10-3. 2040 No Project Conditions Signal Warrant Analysis

Intersection Number	Intersection Name	Peak Hour Warrant Satisfied?	
		AM	PM
4	Center Street and Commercial Street	Yes	Yes

Table 10-4. 2040 plus Project Conditions Signal Warrant Analysis

Intersection Number	Intersection Name	Peak Hour Warrant Satisfied?	
		AM	PM
4	Center Street and Commercial Street	Yes	Yes

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11.0 On-Street Parking Impact Analysis

On-street parking availability and impacts during construction and operation were considered as part of this traffic analysis. Locations where encroachment on public parking spaces may occur were identified and the number of on-street parking spaces that might be affected were estimated from field observations and aerial research.

Existing on-street parking in the project study area was inventoried in September 2014. A total of 274 general spaces and 12 loading spaces were identified. Most parking within the study area is metered (242 spaces). The meters and a 10-hour parking limit are effective weekdays between 6:00 AM and 4:00 PM.

During construction of the run-through track infrastructure, the proposed project or the build alternative would directly impact eight parking spaces on the south side of Commercial Street between Vignes Street and Center Street. Additionally, two loading spaces in the north side of Commercial Street east of Center Street would be impacted. The uses these parking spaces serve would be eliminated as part of the Commercial Street realignment and therefore would have no impacts. The south side of Commercial Street between Alameda Street and Vignes Street is signed to prohibit parking; therefore, there are no existing parking spaces along this segment to be impacted. Parking along Bolero Lane may also be affected temporarily during construction of the lead tracks and supporting retaining wall associated with the proposed project or the build alternative.

Throughout operations, up to ten parking spaces may be impacted within the William Mead Homes Complex upon implementation of the build alternative.

Table 11-1 summarizes the number of existing and impacted parking spaces on Commercial Street, Ducommun Street, Jackson Street, Temple Street, Hewitt Street, Garey Street, Vignes Street, Center Street, and Bolero Lane.

Location	Existing Parking Spaces			Potential Affected Parking Spaces		
	Metered	Open	Loading	Metered	Open	Loading
Commercial Street (between Alameda Street and east of Center Street)	8	0	0	8	0	0
Commercial Street (east of Center Street)	0	0	3	0	0	2
Ducommun Street (between Alameda Street and east of Center Street)	79	8	2	0	0	0

Table 11-1. Existing and Potentially Impacted On-Street Parking						
Location	Existing Parking Spaces			Potential Affected Parking Spaces		
	Metered	Open	Loading	Metered	Open	Loading
Jackson Street (between Alameda Street and east of Center Street)	32	0	0	0	0	0
Temple Street (between Alameda Street and east of Center Street)	19	0	5	0	0	0
Hewitt Street (between Commercial Street and Ducommun Street)	14	0	0	0	0	0
Garey Street (between Commercial Street and Temple Street)	27	0	0	0	0	0
Vignes Street (between Commercial Street and First Street)	51	0	2	0	0	0
Center Street (between Commercial Street and Temple Street)	13	0	0	0	0	0
Bolero Lane (between Bloom Street and Leroy Street)	0	24	0	0	10	0
Total	243	32	12	8	10	2

Source: FPL and Associates 2014

12.0 Conclusion

This traffic impact assessment was undertaken to analyze potential traffic and parking impacts of the proposed project and the build alternative. A summary of the 2031 and 2040 intersections LOS is shown in Table 12-1. The following summarizes the key findings of the study.

12.1 Construction

During construction of the project, the east and west legs of the Center Street and Commercial Street intersection would be closed at times while one lane of traffic in both directions of Center Street would be maintained. Detouring would be necessary, which would affect the other study intersections in the area. However, all impacts can be mitigated as discussed in Section 8.5.

In the 2031 plus project construction condition (proposed project with an above-grade passenger concourse with new expanded passageway), the following intersections are significantly impacted:

- Intersection #2: Garey Street and Commercial Street (AM and PM peaks)
- Intersection #10: Alameda Street and Los Angeles Street EB (PM peak)
- Intersection #15: Vignes Street and Main Street (PM peak)

In the 2031 plus project construction condition (build alternative with an at-grade passenger concourse), the following intersections are significantly impacted:

- Intersection #1: Alameda Street and Commercial Street (PM peak)
- Intersection #2: Garey Street and Commercial Street (AM peak)
- Intersection #10: Alameda Street and Los Angeles Street EB (PM peak)
- Intersection #15: Vignes Street and Main Street (PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

The project would reduce the number of available parking spaces on Commercial Street (between Alameda Street and Center Street) and Bolero Lane (between Bloom Street and Leroy Street) during construction closures as well as after completion of project-related improvements.

12.2 Operation

12.2.1 Existing Condition (2016)

All study intersections operate within LADOT-recommended acceptable LOS thresholds. Most intersections operate at LOS C or better during both peak hours, except the following intersections:

- Intersection #4: Center Street and Commercial Street (PM peak)
- Intersection #15: Vignes Street and Main Street (PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

Northbound US-101 operates at LOS F(2) and F(1) during AM and PM peak hours, respectively. Southbound US-101 operates at LOS E and F(2) during AM and PM peak hours, respectively.

12.2.2 2031 Conditions

Two intersections are significantly impacted by project-related traffic in the 2031 plus project condition due to operational traffic delay and would continue to exceed LADOT Guidelines (LADOT 2016).

- Intersection #2: Garey Street and Commercial Street (AM and PM peaks)
- Intersection #4: Center Street and Commercial Street (AM and PM peaks)

All study intersections operate at LOS D or better in the 2031 no project condition except the following intersections:

- Intersection #4: Center Street and Commercial Street (PM peak)
- Intersection #15: Vignes Street and Main Street (PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

All study intersections operate at LOS D or better in the year 2031 plus project condition except the following intersections:

- Intersection #4: Center Street and Commercial Street (AM and PM peaks)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

During 2031, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during AM and PM peak hours, respectively. These levels of service apply to both 2031 no project and 2031 plus project conditions.

12.2.3 2040 Conditions

Two intersections are significantly impacted by project-related traffic in the 2040 plus project condition due to operational traffic delay and would continue to exceed LADOT Guidelines (LADOT 2016).

- Intersection #2: Garey Street and Commercial Street (AM and PM peaks)
- Intersection #4: Center Street and Commercial Street (AM and PM peaks)

The majority of the study intersections operate at LOS D or better in the 2040 no project condition. The following intersections operate at LOS E or F during peak hours:

- Intersection #4: Center Street and Commercial Street (PM peak)
- Intersection #9: Alameda Street and El Monte Busway/Arcadia Street (AM peak)
- Intersection #15: Vignes Street and Main Street (PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

The majority of the study intersections operate at LOS D or better under 2040 plus project condition. The following intersections operate at LOS E or F during peak hours:

- Intersection #4: Center Street and Commercial Street (AM and PM peaks)
- Intersection #9: Alameda Street and El Monte Busway/Arcadia Street (AM peak)
- Intersection #15: Vignes Street and Main Street (PM peak)
- Intersection #27: Mission Road and Cesar Chavez Avenue (AM peak)

During 2040, northbound US-101 operates at LOS F(3) during both AM and PM peak hours. Southbound US-101 operates at LOS F(0) and F(3) during AM and PM peak hours, respectively. These levels of service apply to both 2040 no project and 2040 plus project conditions.

The project would not significantly impact the CMP arterial, freeway, or transit networks.

12.3 Mitigation

The significant impacts identified during construction shall be mitigated using temporary measures such as signing and maintenance of traffic strategies, adjusting the signal timing at the affected intersections, providing alternate routes for commuter traffic, and installing the closed circuit television cameras. A detailed construction traffic management plan (short-term construction impacts) shall be prepared during the final engineering phase of the project and shall be approved by the City of Los Angeles and California Department of Transportation at least 30 days prior to construction.

The significant impacts identified under 2031 and 2040 plus project conditions shall be mitigated using measures such as traffic signal installation and adjusting the signal timing at affected intersections.

Transportation Demand Management improvements such as a dedicated pedestrian/bicycle bridge, or bicycle lanes along Commercial Street between Garey Street and Alameda Street is also considered as a mitigation measure as per the LADOT Traffic Impact Study Guidelines.

Table 12-1. Level of Service Summary

Intersection	Intersection	2031 No Project						2031 Plus Project						2040 No Project						2040 Plus Project					
		AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
1	Alameda Street and Commercial Street	29.1	0.57	C	35.1	0.86	D	29.5	0.58	C	35.4	0.87	D	31.6	0.62	C	47.8	0.98	D	32.0	0.63	C	49.2	0.99	D
2	Garey Street and Commercial Street	31.3	0.39	C	34.1	0.49	C	62.9	0.63	E	62.9	0.73	E	31.3	0.39	C	34.6	0.49	C	55.5	0.65	E	42.3	0.73	D
3	Vignes Street and Commercial Street ^a	9.8	0.39	A	10.1	0.40	B	NA	NA	NA	NA	NA	NA	9.8	0.39	A	10.2	0.41	B	NA	NA	NA	NA	NA	NA
4	Center Street and Commercial Street ^a	17.2	0.71	C	57.5	1.18	F	83.0	1.27	F	157.4	1.62	F	18.0	0.73	C	62.5	1.22	F	90.7	1.3	F	166.5	1.65	F
5	Alameda Street and Temple Street	14.6	0.67	B	16.7	0.74	B	14.7	0.68	B	15.8	0.75	B	16.3	0.69	B	16.9	0.75	B	16.3	0.69	B	16.9	0.77	B
6	Vignes Street and Temple Street ^a	15.4	0.72	C	9.9	0.42	A	15.4	0.72	C	9.9	0.42	A	15.9	0.73	C	10	0.43	A	15.9	0.73	C	10	0.43	A
7	Alameda Street and First Street	18.3	0.54	B	17.3	0.61	B	18.3	0.55	B	17.9	0.63	B	18.5	0.55	B	16.2	0.63	B	18.5	0.56	B	16.2	0.64	B
8	Vignes Street and First Street	20.2	0.51	C	27.6	0.59	C	20.2	0.51	C	27.5	0.59	C	21.1	0.51	C	26.9	0.59	C	21.1	0.51	C	26.6	0.59	C
9	Alameda Street and El Monte Busway/Arcadia Street	21.1	0.88	C	14.6	0.62	B	21.2	0.88	C	14.5	0.62	B	90.3	0.89	F	15.7	0.69	B	90.0	0.90	F	15.6	0.69	B
10	Alameda Street and Los Angeles Street EB ^a	12.1	0.32	B	12.4	0.34	B	11.7	0.33	B	12.6	0.35	B	28.0	0.65	C	15.5	0.59	B	28.1	0.66	C	14.2	0.62	B
110	Alameda Street and Los Angeles Street WB ^a	4.3	0.34	A	5.7	0.30	A	4.4	0.34	A	7.0	0.33	A	0.1	0.45	A	0.2	0.31	A	0.1	0.45	A	0.2	0.32	A
11	Alameda Street and Cesar Chavez Avenue	20.7	0.77	C	17.1	0.69	B	20.9	0.77	C	16.9	0.69	B	29.7	0.87	C	21.1	0.75	C	29.7	0.87	C	21.2	0.75	C
12	Alameda Street and Vignes Street/Alpine Street	11.6	0.58	B	13.8	0.62	B	13.7	0.58	B	18.1	0.62	B	12.5	0.59	B	14.4	0.63	B	12.5	0.59	B	14.5	0.63	B
13	Vignes Street and Cesar Chavez Avenue	18.5	0.78	B	25.1	0.86	C	19.9	0.78	B	25.9	0.86	C	18.1	0.79	B	21	0.88	C	18.1	0.79	B	21.1	0.88	C
14	Vignes Street and Ramirez Street	23.3	0.43	C	24.5	0.53	C	23.4	0.43	C	24.8	0.54	C	23.3	0.43	C	26	0.54	C	23.3	0.43	C	25.9	0.55	C
15	Vignes Street and Main Street	27.2	0.59	C	74.6	1.01	E	17.6	0.60	B	50.7	0.99	D	18.8	0.6	B	62.8	1.04	E	18.8	0.6	B	63.8	1.07	E
16	Alameda Street/Spring Street and College Street	16.5	0.61	B	17.7	0.71	B	16.5	0.62	B	17.9	0.71	B	16.8	0.63	B	16.8	0.73	B	16.8	0.63	B	17.1	0.73	B
17	Alameda Street and Main Street/Ord Street ^a	0.7	0.34	A	0.7	0.41	A	0.7	0.34	A	0.7	0.41	A	0.7	0.35	A	0.7	0.42	A	0.7	0.35	A	0.7	0.42	A
18	Alameda Street and Main Street/Bauchet Street	5.8	0.42	A	9.6	0.57	A	5.7	0.42	A	9.8	0.58	A	5.3	0.42	A	14	0.6	B	5.3	0.42	A	14.3	0.6	B
19	Main Street and Cesar Chavez Avenue	7.7	0.44	A	19.8	0.64	B	7.7	0.44	A	19.8	0.64	B	7.1	0.45	A	19.6	0.67	B	7.1	0.45	A	19.4	0.67	B
20	Alameda Street and Northbound US-101 ^b	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
21	Los Angeles Street and Arcadia Street	7.7	0.59	A	4.8	0.52	A	7.8	0.59	A	5.1	0.52	A	8.9	0.62	A	5.9	0.44	A	9.0	0.62	A	6.0	0.44	A
22	Los Angeles Street and Aliso Street	9.4	0.30	A	11.8	0.61	B	9.5	0.30	A	11.7	0.62	B	10.1	0.3	B	12.1	0.64	B	10.2	0.3	B	12.2	0.64	B
23	Los Angeles Street and Temple Street	15.2	0.61	B	17.6	0.78	B	15.2	0.61	B	17.6	0.78	B	15.1	0.62	B	18	0.82	B	15.1	0.62	B	18	0.82	B

Table 12-1. Level of Service Summary

Intersection	Intersection	2031 No Project						2031 Plus Project						2040 No Project						2040 Plus Project					
		AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak			AM Peak			PM Peak		
		Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS	Delay (Sec)	V/C	LOS
24	Los Angeles Street and First Street	15.2	0.55	B	20.7	0.90	C	15.2	0.55	B	20.7	0.90	C	14.1	0.56	B	21.9	0.97	C	14.1	0.56	B	21.9	0.97	C
25	Judge John Aiso Street and Temple Street	8.3	0.40	A	8.0	0.43	A	8.2	0.40	A	7.7	0.43	A	7.8	0.41	A	8.2	0.44	A	7.8	0.41	A	8.1	0.44	A
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	0.44	B	15.3	0.66	B	15.6	0.44	B	15.3	0.66	B	16.1	0.45	B	15.4	0.67	B	16.1	0.45	B	15.3	0.67	B
27	Mission Road and Cesar Chavez Avenue	58.0	1.11	E	25.6	0.89	C	58.1	1.11	E	25.7	0.89	C	59.7	1.21	E	26.6	0.92	C	59.7	1.21	E	26.6	0.92	C
28	Mission Road and First Street	25.8	0.81	C	33.2	0.89	C	25.8	0.81	C	33.2	0.89	C	26.9	0.83	C	36.9	0.93	D	26.9	0.83	C	36.9	0.93	D
29	Central Avenue and First Street	8.8	0.33	A	11.3	0.49	B	8.8	0.33	A	11.3	0.49	B	9.1	0.33	A	11.4	0.5	B	9.1	0.33	A	11.3	0.5	B
30	Vignes Street and Bauchet Street	11.4	0.29	B	20.0	0.49	B	11.1	0.29	B	20.0	0.49	B	11.8	0.29	B	20.9	0.5	C	11.9	0.29	B	20.5	0.5	C
31	Ramirez Street and Center Street	1.7	0.24	A	0.6	0.35	A	1.7	0.2	A	0.6	0.35	A	1.8	0.21	A	0.7	0.36	A	1.7	0.28	A	0.7	0.37	A
32	Union Station North Driveway and Cesar Chavez Avenue	13.6	0.54	B	14.0	0.51	B	13.6	0.54	B	14.0	0.51	B	13.0	0.54	B	14.1	0.52	B	13.0	0.54	B	14.1	0.53	B

Notes:
^a Non-signalized intersection
^b Freeway on-ramp, neither signalized nor STOP-sign controlled
 EB=eastbound; NA=not applicable; LOS=level of service; Sec=Seconds; V/C=volume to capacity; WB=westbound

13.0 References

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- Kaku Associates, Inc. 2003. *Traffic Engineering Analysis*. Prepared for the Los Angeles Union Station Run-through Tracks Project Environmental Impact Report/Environmental Impact Statement.
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Appendix A: Memorandum of Understanding

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TRAFFIC STUDY – MEMORANDUM OF UNDERSTANDING (MOU)

This MOU acknowledges that the traffic study for the following project will be prepared in accordance with the latest version of LADOT’s Traffic Study Policies and Procedures:

Project Name: Link Union Station (formerly Southern California Regional Intermodal Project) DEIR
 Project Address: 800 N Alameda Street (Union Station), Los Angeles, CA 90012
 Project Description: See Attachment A for project description and site plans.

Geographic Distribution: **See Figure 1**
 Attach graphic illustrating project trip distribution percentages at the studied intersections.

Trip Generation Rate(s): ITE 9th Edition / Other: **See Table 1**
 Attach trip generation table with a description of the proposed land uses, ITE rates, estimated morning and afternoon peak hour volumes (ins/outs/totals), proposed trip credits, etc. ITE trip generation rates were calibrated to site specific conditions. For Link US, the proposed transit-oriented retail and office uses associated with the new passenger concourse will generate new vehicular traffic and is addressed in Table 1.

Project Buildout Year: **2040**
 Ambient Growth Rate: **0.20%** Per Yr.

Related Projects: HDR is recommending a growth rate based on the 2012/2035 SCAG RTP plus the traffic generated from a few specific projects nearby including LA County Men’s Jail, College Station, and High Speed Rail shown in **Table 2. Table 3** shows the comparison of the SCAG RTP land use growth and the LADOT’s October 2015 related project’s land use.

Subject to Freeway Impact Analysis in addition to CMP Analysis: YES NO
 (Mainline Freeway Segment Analysis will be performed on US-101 and the Commercial Street Ramps for construction impacts in all scenarios)

Study Intersections: Intersections listed below will be studied using CMA methodology. **Attachment B** lists selection of intersections that provide analysis coverage for the study area and include intersections listed below. All study intersections are shown in **Figure 1**.

Trip Credits: (Exact amount of credit subject to approval by LADOT)
 Note: ITE trip generation rates were calibrated to site specific conditions using information available to provide transit related credits.

	Yes	No
Transit Usage	X	
Transportation Demand Management		X
Existing Active Land Use	X	
Previous Land Use		X
Internal Trip	X	
Pass-By Trip		X

Consultant

Developer

Name: Tom Kim, PE, HDR

Jeanet Owens, PE, LA Metro

Address: 801 S. Grand, Suite 500, Los Angeles, CA 90017

One Gateway Plaza, Los Angeles, CA 90012

Phone Number: 213. 239. 5813

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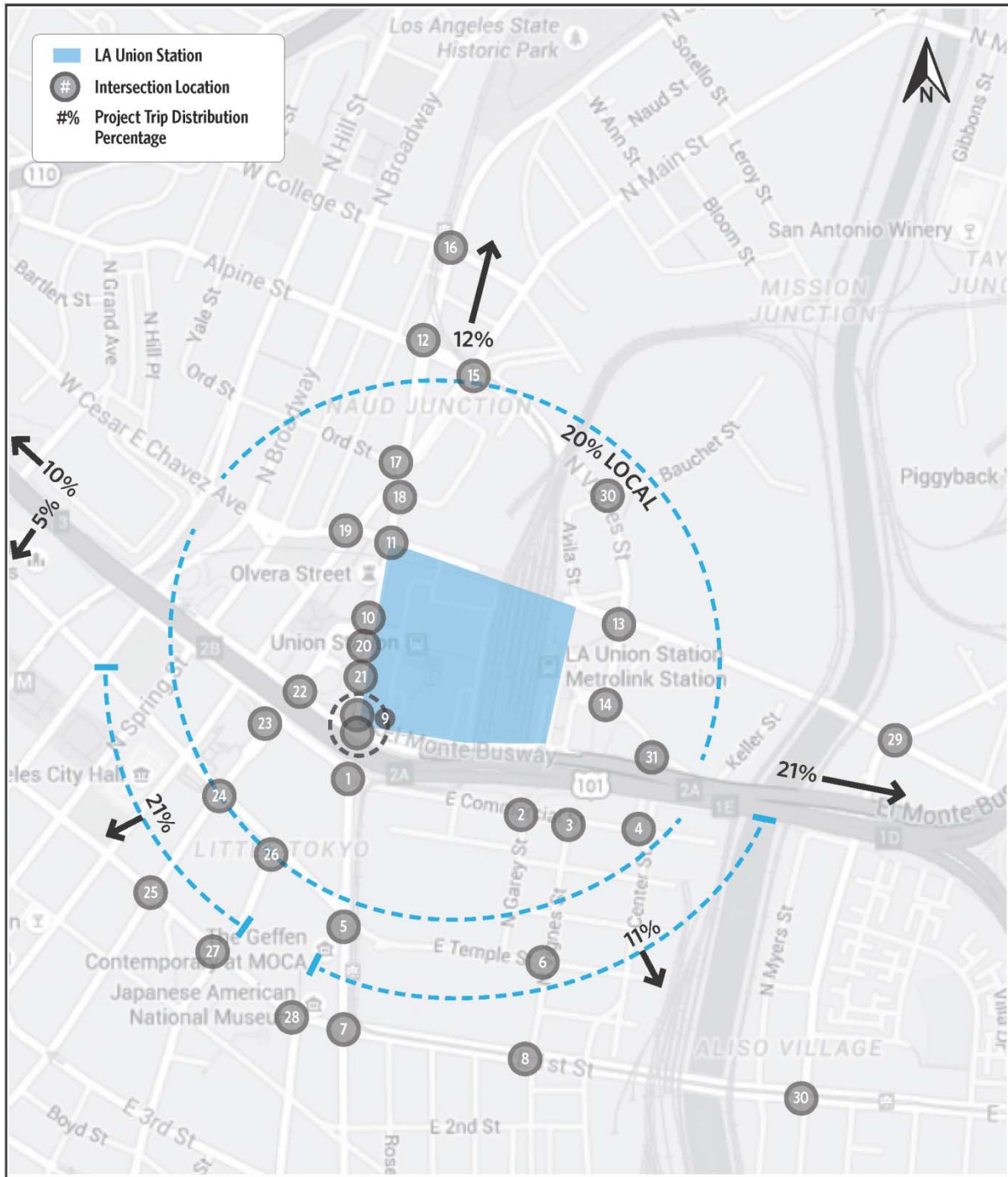
Approved By: _____

Approved By: _____

Date: _____

Date: _____

FIGURE 1 – GEOGRAPHIC DISTRIBUTION






 <p>Metro</p>		<p>Project-Related Trip Distribution LINK UNION STATION (LINK US)</p>
		

TABLE 1 - TRIP GENERATION ESTIMATES																	
Link Union Station (US) Draft EIR																	
Land Use*	SIZE	UNITS	ITE Land Use Code	Trip Generation Rates						Daily Trips	Trip Generation						
				Daily Rate	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			
					Rate	In	Out	Rate	In	Out		Total	In	Out	Total	In	Out
East Plaza																	
New Transit Oriented Retail Space	69.22	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	2,956	66	41	25	257	123	134
General Office Building	30.40	KSF	710	11.03	1.56	88%	12%	1.49	17%	83%	335	47	42	6	45	8	38
Concourse																	
New Transit Oriented Retail Space	40.00	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	1,708	38	24	15	148	71	77
West Plaza																	
New Transit Oriented Retail Space (Plaza)	17.7	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	756	17	11	6	66	32	34
New Transit Oriented Retail Space (Terrace)	32.48	KSF	820	42.70	0.96	62%	38%	3.71	48%	52%	1,387	31	19	12	121	58	63
Shared Transit Trip Reduction <i>80% Transit mode split reduction</i>											5713	160	109	51	509	233	276
Subtotal New Trips due to Link US											1,428	40	27	13	127	58	69
Existing Union Station Vehicular Trips																	
Existing Union Station Vehicular Trips											22,111	1,573	930	643	1,698	670	1,028
TOTAL NEW TRIPS																	
<i>Percentage of existing traffic</i>											6%	3%	3%	2%	7%	9%	7%

*Proposed project land uses based on alternative descriptions as of 7/1/16

[a] Trip generation rates/ fitted curve equations from Trip Generation, 9th Edition, Institute of Transportation Engineers, 2012.

[b] Existing 2015 driveway counts collected by Fehr & Peers on Thursday, November 19, 2015

TABLE 2 – RELATED PROJECTS TRIP GENERATION ESTIMATES

Project	Location	Description	Estimated Trip Generation						
			Daily Vehicular Trips	AM Peak Hour Trips			PM Peak Hour Trips		
				In	Out	Total	In	Out	Total
1	441 Bauchet Street	LA County Men's Jail		64	75	139	69	208	277
2	129 West College Street	College Station		169	290	459	307	201	508
3	800 N Alameda Street	High Speed Rail [a]	32% of 40,960 = 13,107	1,305	--870	--2,175	870	1,305	2,175

Notes:

[a] Trip generation from the California High Speed Rail will be included in the cumulative baseline scenario when information is received. These estimates are based on the most recent data shared by HSRA.

Table 3 – Cumulative Project List

Status	LADOT Project ID	Project Title	Address	Related Project Land Uses [a]										SCAG Model Categories			
				Apartments (units)	Condos (units)	Retail SF	Restaurant SF	Office SF	Other SF	Hotel Rooms	Industrial SF	Hospital Beds	Medical Office Employees	Number of Residents [a]	Number of Households [b]	Number of Employees [c]	
IC	30998	Blossom Plaza	900 N Broadway		223	25,000	15,000			7,000					446	223	94
IC	31507	DaVinci Apts	327 N Fremont Ave	1,200		25,000									2,400	1,200	50
C	31993	Ava Little Tokyo	200 S Los Angeles St	280	570	50,000									1,700	850	100
IC	32784	Bus Maintenance & Inspection Facility	454 E Commercial St								87,120				0	0	87
IC	32867	Eastern Columbia	215 W 9th St		210	9,000									420	210	18
IC	33110	Vibiana Lofts Mixed Use	225 S Los Angeles St		300	3,400									600	300	7
NS	33243	5th and Olive	427 W 5th St		600		13,872								1,200	600	28
NS	33305	1101 N Main Condos	1101 N Main St		300										600	300	0
IC	33546	Mixed-use project (Megatoys)	905 E 2nd St		320	18,712									640	320	37
NS	33596	Mixed Use	745 S Spring St		247	10,675									494	247	21
IC	33970	8th/Hope/Grand Project	609 W 8th St		225	30,000	320,000			200					450	225	825
IC	34450	MTA Bus Facility	920 Vignes St								534,655				0	0	535
NS	34779	Beverly + Lucas Project	1430 W Beverly Blvd	157											314	157	0
C	34803	Kawada Tower	250 S Hill St		330	12,000									660	330	24
IC	34975	Barlow Hospital Replacement & Master Plan	2000 Stadium Way		800	15,000						56			1,600	800	157
IC	35080	Wilshire Grand Project	900 W Wilshire Blvd			415,000		400,000		900					0	0	2,993
NS	35867	Mixed Use	710 S Grand Ave	700		27,000			5,000						1,400	700	64
C	40129	Grand Avenue	237 S Grand Ave	412	1,648	449,000		681,000							4,120	2,060	3,622
C	40175	ISAF retail/restaurant	201 S Broadway						27,765						0	0	56
NS	40338	LA Civic Center Office	150 N Los Angeles St			35,000		712,500	2,500						0	0	2,925
IC	40882	Mixed Use	534 S Main St	160		18,000	3,500		3,500						320	160	50
C	40927	Office	540 S Santa Fe Ave					65,812							0	0	263
IC	41068	Mixed Use	840 S Olive St		303	1,500	9,680								606	303	22
NS	41113	Camden Arts Mixed Use	1525 E Industrial St	240		7,165	4,110								480	240	23
NS	41228	Mixed Use	400 S Broadway	450		7,500	5,000								900	450	25
NS	41269	Apartments	1185 W Sunset Blvd	210											420	210	0
IC	41367	Mixed Use	801 S Olive St	331			10,000								662	331	20
NS	41460	Mixed Use	601 S Main St		45	25,000									90	45	50
NS	41492	Mixed Use	820 S Olive St	589		4,500									1,178	589	9
NS	41554	Mixed Use	700 W Cesar Chavez Ave	247		8,000									494	247	16
NS	41742	Mixed Use	1147 E Palmetto	120		20,000				141					240	120	128
C	41918	Mixed Use (Coca Cola)	963 E 4th St			25,000	20,000	78,600							0	0	404
NS	42089	Stadium Way & Chavez Ravine Apts	959 E Stadium Way	158											316	158	0
NS	42151	Metro Operations Control Center	410 N Center St					114,000							0	0	456
NS	42188	Kaiser Victor Heights	765 W College St					10,000							0	0	40
NS	42281	La Plaza Cultura Village Project	527 N Spring St	345		44,000	11,000								690	345	110
NS	42361	Mixed Use	1335 W 1st St	101		3,514									202	101	7
NS	42443	Residential	401 N Boylston St	101											202	101	0
NS	42499	Mixed Use	737 S Spring St	320					25,000						640	320	50
NS	42527	Mixed Use	340 S Hill St	428			6,700								856	428	13
IC	42563	Retail (Palmetto & Mateo)	555 S Mateo St		90	11,000	5,600								180	90	33
NS	42628	Mixed Use	1800 E 7th St	122				12,278							244	122	49
NS	42665	520 Mateo	520 S Mateo St	350		14,000	14,000								700	350	56
NS	42671	Sapphire Mixed Use	1111 W 6th St	362		18,959	4,980		1,866						724	362	52
NS	42698	Mixed Use	732 S Spring St	400					15,000						800	400	30
NS	42715	Apartments	118 S Astronaut E.S. Onizuka St	77											154	77	0
	42971	Alexan South Broadway	850 S Hill St	300		3,500	3,500								600	300	14
C	43026	Mixed Use	360 S Alameda St	55			2,500	6,300							110	55	30
	43247	Medallion Phase 2	300 S Main St	471		5,190	27,780								942	471	66
NS	43417	Restaurant	500 S Mateo St				12,682								0	0	25
NS	43554	Clinic at 7th and Wall	649 S Wall St								55	66			0	0	191
	34699	Office Building	1130 W Wilshire Blvd												0	0	0
	34779	Embassy Tower	848 S Grand Ave		420	38,500									840	420	77
	34802	Mixed Use (Formerly known as Glass Tower)	1050 S Grand Ave		151	3,472									302	151	7
	35556	1902 – 1901 Marengo Mixed-Use	1902 E Marengo St			4,415									0	0	9
	31989	2005-CEN-1989 (Apex Ph 1)	900 S Figueroa St		629	27,000									1258	629	54

Table 3 – Cumulative Project List

Status	LADOT Project ID	Project Title	Address	Related Project Land Uses [a]										SCAG Model Categories			
				Apartments (units)	Condos (units)	Retail SF	Restaurant SF	Office SF	Other SF	Hotel Rooms	Industrial SF	Hospital Beds	Medical Office Employees	Number of Residents [a]	Number of Households [b]	Number of Employees [c]	
	32870	TenTen Wilshire Expansion (The Icon)	1027 W Wilshire Blvd		402	4,728									804	402	9
	33242	Amacon Project	1133 S Hope St	208	5,029										10474	5237	0
	33243	5th and Olive (formerly Park Fifth)	437 S Hill St	615			16,309								1230	615	33
	33969	11th and Hill Project	1115 S Hill St		172		6,850								344	172	14
	34168	Stanford Regency Plaza	810 E Pico Blvd			181,620									0	0	363
	34520	Bixel & Lucas	1102 W 6th St	648		39,996									1296	648	80
	34561	Warehouse/Office/Manufacturing	1115 S Boyle Ave					76,576							0	0	306
	34656	Condominiums	742 S Hartford Ave		58										116	58	0
	34659	Mixed-use	1924 W Temple St	46	205										502	251	0
	35849	Medical Office Expansion	1828 E Cesar Chavez St					49,542							0	0	198
	40002	Linda Vista Senior Housing and Medical Office	610 S St. Louis St		97			33,000							194	97	132
	40016	Mixed-use	1435 W 3rd St	122		5,000									244	122	10
	40311	2012 Olympic & Hill MU Project	301 W Olympic Blvd	300		14,500	8,500								600	300	46
	40371	Metropolis Mixed-use	899 S Francisco St		836	46,000		988,225							1672	836	4045
	40665	Apartments	1027 S Olive St	100											200	100	0
	40692	Mixed-use (Valencia Project)	1501 W Wilshire Blvd	217		2,400	4,450								434	217	14
	40712	G12 Mixed-use	1200 S Grand Ave	640		45,000									1280	640	90
	40746	Mixed-use	928 S Broadway	662		47,000		34,824	11,000						1324	662	255
	40903	The City Market (mixed-use)	1057 S San Pedro St	877	68	224,862		294,641							1890	945	1628
	40923	Mixed-use	1329 W 7th	94		2,000									188	94	4
	41004	Charter High School	1552 W Rockwood St												0	0	0
	41207	Mixed-use	1000 S Grand Ave	274					12,000						548	274	24
	41288	1001 Olive Street Project	1001 S Olive St	225					5,000						450	225	10
	41295	950 E 3rd St	950 E 3rd St	635		30,062									1270	635	60
	41320	Hill Street Mixed-Use	920 Hill St	239		5,400									478	239	11
	41321	Broadway Mixed-use	955 S Broadway	201		6,000									402	201	12
	41406	Flower (1212) Mixed-use	1212 W Flower St		730	10,500		70,465							1460	730	303
	41567	Olympic & Olive Mixed-use Project	960 S Olive St	263				14,500							526	263	58
	41568	Variety Arts (Mixed-use)	940 S Figueroa St				10,056	3,295							0	0	33
	41625	Mixed-use	2051 E 7th St	240		8,000	12,000								480	240	40
	41695	Mixed-use	1148 S Broadway	94		2,500									188	94	5
	41710	Mixed-use Project (Herald Examiner)	1111 S Broadway	391		49,000		39,725							782	391	257
	41713	Apartments	1247 S Grand Ave	118		5,125									236	118	10
	41742	Mixed-use	1147 E Palmetto	120			20,000			141					240	120	40
	41774	DTLA South Park Site 1	1120 S Grand Ave	666					20,690						1332	666	41
	41775	DTLA South Park Site 4	1230 S Olive St	362		4,000									724	362	8
	41864	Restaurant	1036 S Grand Ave						7,149						0	0	14
	42026	Mixed-use	2030 E 7th St			40,000		243,000							0	0	1052
	42208	Mixed-use	2407 E 1st St	50		3,400		8,500							100	50	41
	42273	Residential	459 S Hartford Ave	94											188	94	0
	42388	Hotel & Apartments	675 S Bixel St	425		4,874				126					850	425	10
	42406	Spring St Hotel	633 S Spring St						13,720						0	0	27
	42500	Mixed-use	826 S Mateo St		90	11,000	5,600								180	90	33
	42504	Mixed-use	1145 W 7th St	100	126	7,200									452	226	14
	42561	Mixed-use	1150 W Wilshire Blvd	80				4,589							160	80	9
	42718	Apartments	1218 W Ingraham St	90											180	90	0
	42816	Hotel	1030 N Soto St							81					0	0	0
	43060	Charter School	211 S Avenue 20												0	0	0
	43131	Grand Residence	1229 S Grand Ave		161		3,000								322	161	6
	43328	Apartments	340 N Patton St	43											86	43	0
	43378	400 S Alameda Hotel	400 S Alameda St			840	2,130			66					0	0	6
	43497	LUXE Hotel Mixed-Use Project	1020 S Figueroa St		650	40,000	40,000			300					1300	650	160
	43563	LA Hotel	1625 W Palo Alto St							89					0	0	0
	43608	Hotel + Retail	649 S Olive St							241					0	0	0
	43627	Mixed-use	2130 E Violet St			7,450		84,200							0	0	352
	43794	Apartments	740 S Hartford Ave	80											160	80	0

Table 3 – Cumulative Project List

Status	LADOT Project ID	Project Title	Address	Related Project Land Uses [a]										SCAG Model Categories			
				Apartments (units)	Condos (units)	Retail SF	Restaurant SF	Office SF	Other SF	Hotel Rooms	Industrial SF	Hospital Beds	Medical Office Employees	Number of Residents [a]	Number of Households [b]	Number of Employees [c]	
	43861	1322 Linwood Apls	1322 W Linwood Ave	84											168	84	0
	43871	Mixed-use	719 E 5 th St	160		10,057									320	160	20
	43880	Apex II Mixed-use	700 W 9 th St		629	27,000									1258	629	54
	44072	Mixed-use Project	929 E 2 nd St			41,019			7,843						0	0	98
	44145	Mixed-use (Lifan Tower)	1235 W 7 th St		303	5,959									606	303	12
	44220	940 S Hill MU	940 S Hill St	232			14,000								464	232	28
														TOTAL	71,000	36,000	25,000

Note: Complete projects were included as the SCAG RTP base year is 2008

[a] Multiplier for residents was 2 residents per dwelling unit

[b] Multiplier for households was 1 household per dwelling unit

[c] Multiplier for retail, restaurant, office, other, and industrial land uses were 500sf, 500sf, 250sf, 500sf, and 1000sf per employee.

Land Use Growth Comparison

Source	Number of Residents	Number of Households	Number of Employees
SCAG 2016 RTP Growth [a]			
LADOT Related Project Land Use			

Notes: [a] Represents growth within the TAZ's encompassed by LADOT's related projects

Attachment A

Link US - Project Description Summary

Link Union Station (Link US or Project) is located at Los Angeles Union Station (LAUS), at 800 North Alameda Street in the City of Los Angeles, California. LAUS is generally bounded by U.S. 101 to the south, Alameda Street to the west, Cesar E. Chavez Avenue to the north, and North Vignes Street to the east. Figure A-1 depicts the regional location and general vicinity of the Project.

Figure A-2 depicts the Project Study Area which encompasses the anticipated extent of environmental study associated with the Project. The general limits of the Project Study Area are North Main Street and the at-grade crossing just north of Control Point (CP) Chavez located on the Southern California Regional Rail Authority (SCRRA or Metrolink) River Subdivision – West Bank Line, the west bank of the Los Angeles River extending from North Main Street to CP Olympic south of the Interstate 10/State Route 60/U.S. 101 interchange, and North Alameda Street, Temple Street, Santa Fe Avenue, and the western edge of the railroad ROW.

The Project Study Area has a very dense street network ranging from major highways to local city streets. The roadways within the Project Study Area that could potentially be impacted by the Project include: the El Monte Busway, U.S. 101, Cesar E. Chavez Avenue, Commercial Street, Ducommun Street, Jackson Street, East Temple Street, Banning Street, First Street, Alameda Street, Garey Street, North Vignes Street, Aliso Street, Avila Street, Bauchet Street, and Center Street.

LAUS is a stub-ended terminal station dating from 1939 and is approaching its operational capacity at peak transit periods. Currently, arriving and departing trains at LAUS are forced to use a one way in, one way out system of tracks that reduces functionality, and limits Metro's ability to expand operations to meet the growing demands. At LAUS, according to data collected by Metro, there are approximately 110,000 passenger trips that currently travel through LAUS each weekday. Metro anticipates continued increases in population and employment will nearly double the demand on existing and planned modes of transportation; resulting in over 200,000 passenger trips through LAUS each weekday by 2040 (Transforming LAUS Summary Report, Metro 2015). The Link US project does not generate the forecasted increase in passenger trips; it only provides the additional rail infrastructure to meet the forecasted passenger trip increases. It is unknown when the regional rail operators will need to start incremental increases in passenger trips.

The Los Angeles County Metropolitan Transportation Authority (Metro) is proposing Link US, formerly known as the Southern California Regional Interconnector Project (SCRIP) to transform LAUS from a "stub-end tracks station" into a "run-through tracks station". Link US would result in enhanced operational capacity from CP Chavez to the north (near North Main Street) to CP Olympic to the south (near the Interstate 10/State Route 60/U.S. 101 interchange) and increased capacity within the proposed passenger concourse. Major project components are described below:

- **Throat and Elevated Rail Yard** – Link US includes new track and subgrade improvements in the throat segment to increase the elevation of the tracks leading to the LAUS rail yard (throat reconstruction). The throat would be reconstructed in the interim condition with a shared or dedicated track alignment for regional/intercity trains and High-Speed Rail trains north of LAUS. Link US also includes new passenger platforms and canopies on the elevated rail yard; with an underlying assumption that multiple track and platform configuration options could be implemented in the full build-out condition.
- **Proposed Passenger Concourse** – To meet the requirements of a multi-modal modern station, Link US includes a new passenger concourse that would include space dedicated for passenger circulation and waiting areas with ancillary support functions ("back of house" uses, baggage handling, etc.), transit-serving retail, office/commercial uses, and civic/cultural open spaces and terraces. The new passenger concourse would create an opportunity for an outdoor, community-oriented space and enhance Americans with Disabilities Act (ADA) accessibility at LAUS with new vertical circulation elements such as stairs, escalators, and elevators. The new passenger concourse would be constructed at-grade or above-grade.
- **Run-Through Tracks** – Link US includes up to ten new run-through tracks (including a new loop track) that would be constructed on a common structure/deck over US-101. Regional/intercity rail (Metrolink/Amtrak) run-through tracks would be constructed in the interim condition, and multiple run-through track configuration options that accommodate the planned HSR system (with a maximum of ten run-through tracks) could be implemented in the full build-out condition.

Link US would also require modifications to two (2) existing bridges at North Vignes Street and Cesar E. Chavez Avenue to accommodate new elevated tracks; modifications to U.S. 101 and local streets (including potential street closures and vacations) to accommodate the run-through tracks overhead viaducts; railroad signal, positive train control (PTC), and communications-related improvements; modifications to the Gold Line light rail platform and tracks; modifications to the SCRRA West Bank main line tracks; modifications to the BNSF Railway West Bank Yard; modifications to the Amtrak lead track; new access roadways to the railroad right-of-way (ROW); additional ROW; new utilities; and utility relocations, replacements, and abandonments.

Figure A-1. Project Location and Regional Vicinity

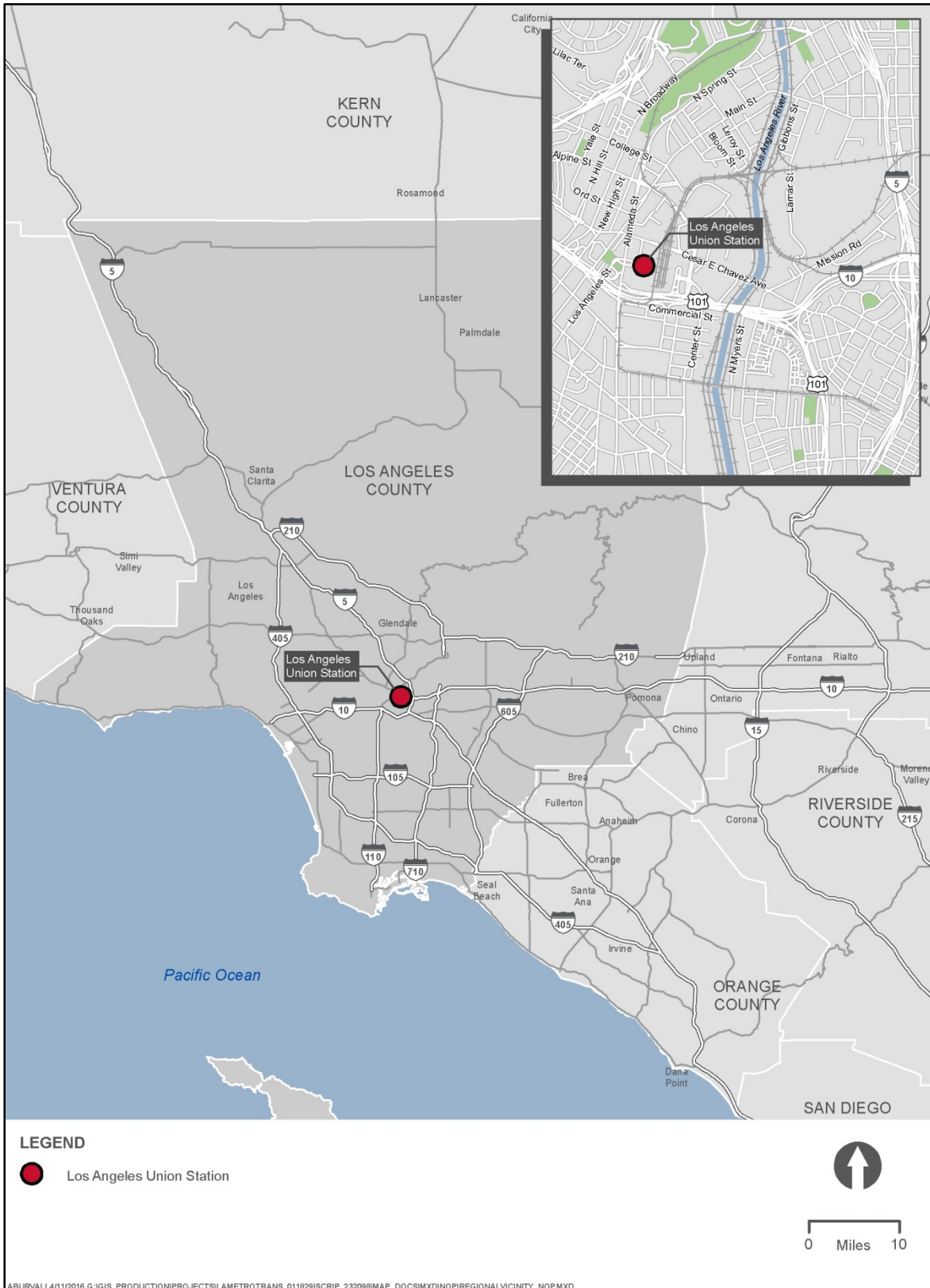
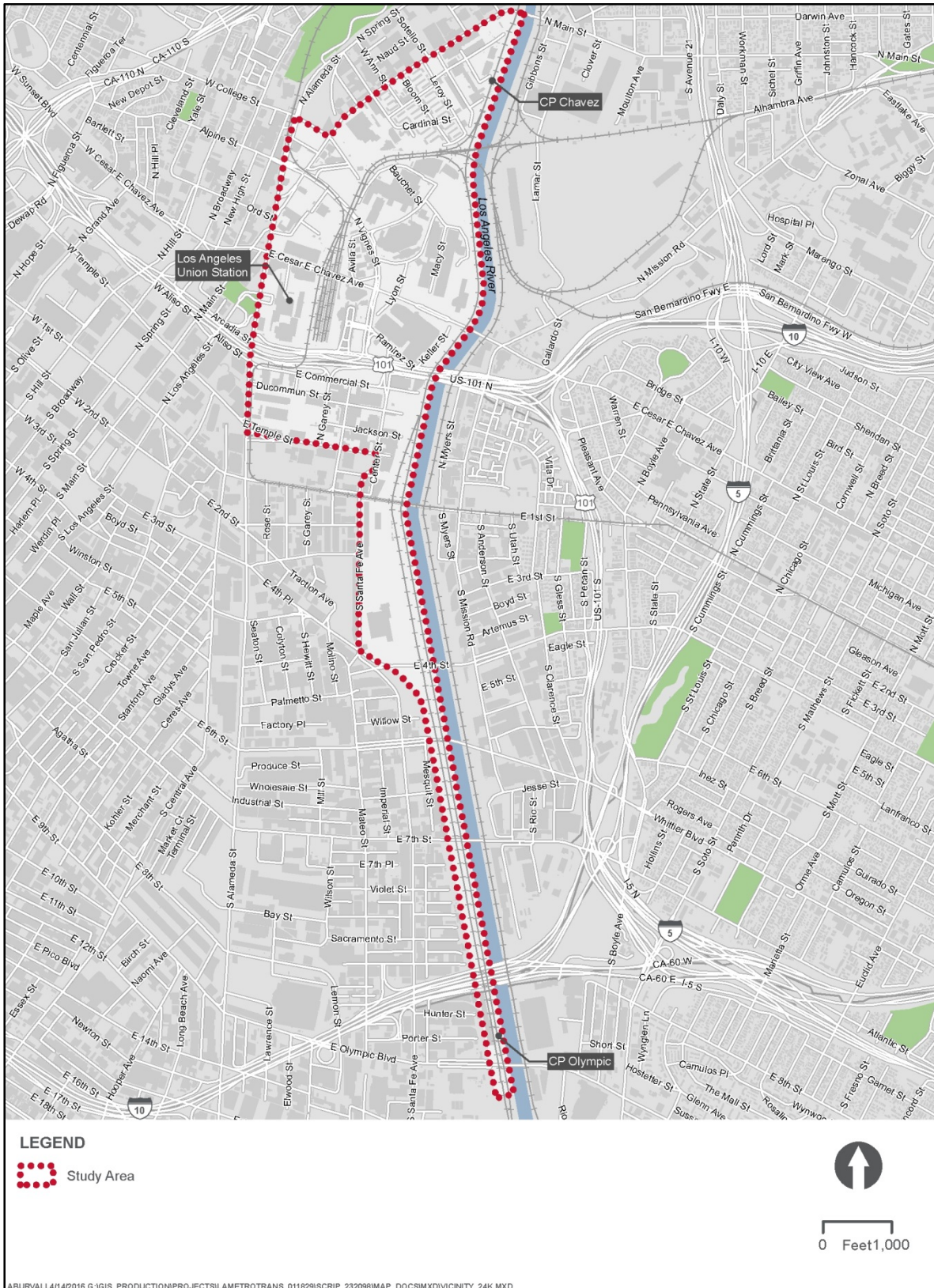


Figure A-2. Link US – Project Study Area



Attachment B
Link US Study Intersections – Impact Analysis Locations

Int #	North/South Street	East/West Street
Study Intersections		
1	N. Alameda Street	E. Commercial Street
2	N. Garey Street/US-101 SB Ramps	E. Commercial Street
3	N. Vignes Street	E. Commercial Street
4	Center Street	E. Commercial Street
5	N. Alameda Street	E. Temple Street
6	N. Vignes Street	E. Temple Street
7	N. Alameda Street	E. 1st Street
8	N. Vignes Street	E. 1st Street
9	N. Alameda Street	El Monte Busway (2)
10	N. Alameda Street	Los Angeles Street (2)
11	N. Alameda Street	Cesar E Chavez Avenue
12	N. Alameda Street	N. Vignes Street/Alpine Street
13	N. Vignes Street	Cesar E Chavez Avenue
14	N. Vignes Street	Ramirez Street
15	N. Vignes Street	N. Main Street
16	N. Alameda Street / N. Spring Street	W. College Street
17	N. Alameda Street	N. Main Street/Ord Street
18	N. Alameda Street	N. Main Street/Bauchet Street
19	N. Main Street	Cesar Chavez Avenue
20	N. Alameda Street	NB SR-101
21	N. Los Angeles Street	Arcadia Street
22	N. Los Angeles Street	E. Aliso Street
23	N. Los Angeles Street	Temple Street
24	N. Los Angeles Street	1st Street
25	Judge John Aiso Street/San Pedro	Temple Street
26	Judge John Aiso Street/San Pedro Street	1 st Street
27	Mission Road	Cesar Chavez Avenue
28	Mission Road	1 st Street
29	Central Avenue	1st Street
30	N. Vignes Street	Bauchet Street
31	Ramirez Street	Center Street

Appendix B: Intersection Peak Hour Turning Movement Counts

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City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Garey St

East/West E Commercial St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B		S/B		E/B		W/B	
DUAL-WHEELED BIKES	22		143		62		67	
BUSES	1		0		0		2	
BUSES	0		71		25		27	

	N/B TIME		S/B TIME		E/B TIME		W/B TIME	
<i>AM PK 15 MIN</i>	22	7.45	169	6.00	57	8.00	63	8.15
<i>PM PK 15 MIN</i>	142	17.15	95	15.00	135	15.00	108	16.00
<i>AM PK HOUR</i>	66	7.00	519	6.00	196	7.15	232	7.30
<i>PM PK HOUR</i>	477	16.30	329	15.00	477	15.45	350	16.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	3	32	0	35
7-8	11	47	8	66
8-9	13	32	3	48
15-16	5	224	11	240
16-17	12	332	16	360
17-18	22	418	24	464
TOTAL	66	1085	62	1213

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	240	65	214	519
7-8	181	47	182	410
8-9	214	60	197	471
15-16	127	23	179	329
16-17	103	13	146	262
17-18	115	22	149	286
TOTAL	980	230	1067	2277

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
554	4	0	0	1
476	2	0	0	0
519	1	0	0	0
569	5	0	0	0
622	4	0	0	0
750	6	0	0	0
3490	22	0	0	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	118	30	5	153
7-8	126	37	8	171
8-9	131	33	9	173
15-16	391	67	11	469
16-17	393	53	16	462
17-18	272	64	11	347
TOTAL	1431	284	60	1775

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	4	77	118	199
7-8	8	99	105	212
8-9	7	115	92	214
15-16	4	50	216	270
16-17	4	51	295	350
17-18	1	44	245	290
TOTAL	28	436	1071	1535

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
352	0	0	0	0
383	0	0	0	0
387	0	0	0	0
739	0	0	0	0
812	0	0	0	0
637	0	0	0	0
3310	0	0	0	0

ITM Peak Hour Summary

Prepared by:

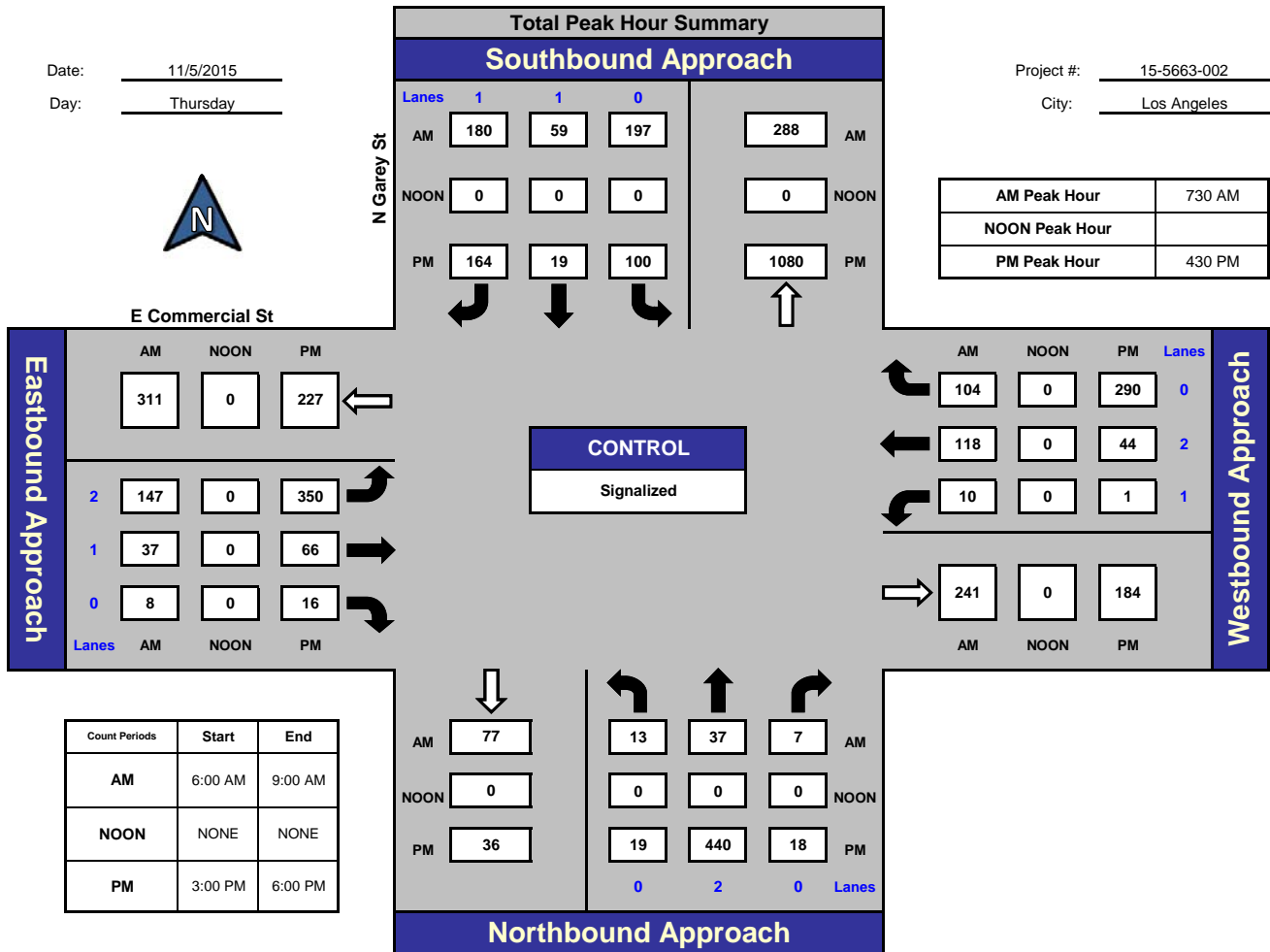


National Data & Surveying Services

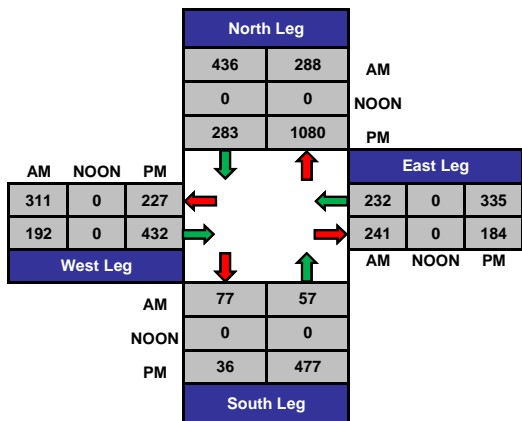
N Garey St and E Commercial St, Los Angeles

Date: 11/5/2015
Day: Thursday

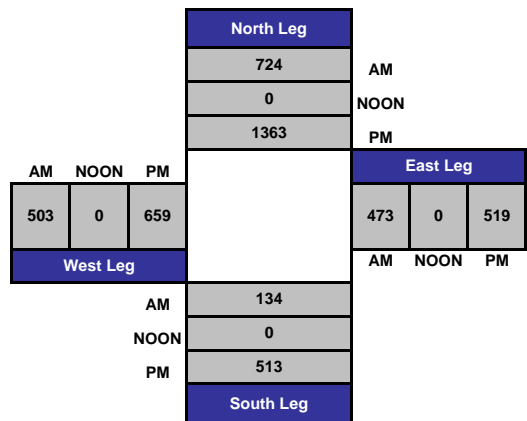
Project #: 15-5663-002
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
6:00 AM	0	6	0	76	20	73	34	9	1	1	21	34	275
6:15 AM	0	6	0	70	17	68	34	3	0	0	19	29	246
6:30 AM	0	13	0	50	20	37	23	9	1	2	18	36	209
6:45 AM	3	7	0	44	8	36	27	9	3	1	19	19	176
7:00 AM	2	13	1	48	14	49	18	9	5	2	20	21	202
7:15 AM	2	8	1	40	9	48	36	12	1	2	24	34	217
7:30 AM	6	9	2	48	11	49	34	4	1	1	29	27	221
7:45 AM	1	17	4	45	13	36	38	12	1	3	26	23	219
8:00 AM	4	8	0	54	20	45	39	12	6	1	33	26	248
8:15 AM	2	3	1	50	15	50	36	9	0	5	30	28	229
8:30 AM	6	10	1	46	12	49	32	6	1	1	33	17	214
8:45 AM	1	11	1	64	13	53	24	6	2	0	19	21	215
TOTAL VOLUMES :	27	111	11	635	172	593	375	100	22	19	291	315	2671
APPROACH %'s :	18.12%	74.50%	7.38%	45.36%	12.29%	42.36%	75.45%	20.12%	4.43%	3.04%	46.56%	50.40%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	13	37	7	197	59	180	147	37	8	10	118	104	917
PEAK HR FACTOR :	0.648			0.916			0.842			0.921			0.924

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
3:00 PM	1	40	5	33	6	56	109	21	5	1	15	48	340
3:15 PM	2	64	1	34	7	39	89	15	1	0	9	41	302
3:30 PM	1	66	2	28	5	42	99	18	2	2	12	70	347
3:45 PM	1	54	3	32	5	42	94	13	3	1	14	57	319
4:00 PM	2	83	4	28	1	37	109	14	1	3	18	87	387
4:15 PM	2	63	6	32	3	33	92	16	4	1	10	57	319
4:30 PM	4	88	6	23	5	41	109	14	8	0	9	91	398
4:45 PM	4	98	0	20	4	35	83	9	3	0	14	60	330
5:00 PM	5	127	3	21	7	41	96	25	4	1	17	66	413
5:15 PM	6	127	9	36	3	47	62	18	1	0	4	73	386
5:30 PM	6	82	9	26	6	28	64	9	5	0	11	54	300
5:45 PM	5	82	3	32	6	33	50	12	1	0	12	52	288
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	39	974	51	345	58	474	1056	184	38	9	145	756	4129
	3.67%	91.54%	4.79%	39.34%	6.61%	54.05%	82.63%	14.40%	2.97%	0.99%	15.93%	83.08%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	19	440	18	100	19	164	350	66	16	1	44	290	1527
PEAK HR FACTOR :	0.840			0.823			0.824			0.838			0.924

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
6:00 AM	0	6	0	72	19	68	33	9	1	1	21	33	263
6:15 AM	0	6	0	68	16	66	32	3	0	0	18	24	233
6:30 AM	0	13	0	42	20	35	18	7	1	2	17	35	190
6:45 AM	2	7	0	37	7	36	26	8	3	1	19	18	164
7:00 AM	1	12	0	41	13	49	18	7	5	2	18	19	185
7:15 AM	2	8	1	33	8	48	36	8	1	2	24	30	201
7:30 AM	5	8	1	42	10	48	28	2	1	1	28	24	198
7:45 AM	1	14	4	39	13	35	36	11	1	3	24	18	199
8:00 AM	3	8	0	45	19	40	35	9	6	1	31	22	219
8:15 AM	2	3	1	43	15	48	35	4	0	5	26	24	206
8:30 AM	5	10	1	36	12	40	30	5	1	1	31	16	188
8:45 AM	1	8	1	56	13	46	18	4	2	0	14	18	181
TOTAL VOLUMES :	22	103	9	554	165	559	345	77	22	19	271	281	2427
APPROACH %'s :	16.42%	76.87%	6.72%	43.35%	12.91%	43.74%	77.70%	17.34%	4.95%	3.33%	47.46%	49.21%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	11	33	6	169	57	171	134	26	8	10	109	88	822
PEAK HR FACTOR :	0.658			0.936			0.840			0.941			0.938

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
3:00 PM	1	38	5	28	5	52	107	20	5	1	14	47	323
3:15 PM	2	63	1	29	5	37	86	13	1	0	7	40	284
3:30 PM	1	66	2	25	4	38	94	15	2	2	9	68	326
3:45 PM	1	54	3	29	5	41	94	13	3	1	13	55	312
4:00 PM	2	83	4	22	1	34	108	13	1	2	18	84	372
4:15 PM	2	63	6	26	3	31	91	16	3	1	10	52	304
4:30 PM	4	87	5	16	3	39	109	14	8	0	9	88	382
4:45 PM	4	98	0	17	4	33	82	9	3	0	14	57	321
5:00 PM	5	126	3	17	7	40	93	20	4	0	17	64	396
5:15 PM	6	127	9	30	3	46	60	18	1	0	4	70	374
5:30 PM	6	82	9	19	6	26	63	9	5	0	11	52	288
5:45 PM	5	81	3	25	6	33	50	10	1	0	11	49	274
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	39	968	50	283	52	450	1037	170	37	7	137	726	3956
	3.69%	91.58%	4.73%	36.05%	6.62%	57.32%	83.36%	13.67%	2.97%	0.80%	15.75%	83.45%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	19	438	17	80	17	158	344	61	16	0	44	279	1473
PEAK HR FACTOR :	0.835			0.807			0.803			0.832			0.930

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Vignes St

East/West E Commercial St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	37	0	102	78
BUSES	5	0	1	5
BUSES	80	0	81	95

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	38	7.45	0	0.00	86	6.00	75	6.00
PM PK 15 MIN	76	17.30	0	0.00	60	17.15	102	16.00
AM PK HOUR	115	7.45	0	0.00	271	6.00	258	7.15
PM PK HOUR	267	17.00	0	0.00	204	15.00	325	15.30

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	25	0	51	76
7-8	51	0	51	102
8-9	51	0	58	109
15-16	41	0	77	118
16-17	79	0	105	184
17-18	96	0	171	267
TOTAL	343	0	513	856

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
76	5	0	0	0
102	4	0	1	0
109	1	0	0	0
118	5	0	0	0
184	5	0	1	0
267	7	0	0	0
856	27	0	2	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	245	26	271
7-8	0	193	26	219
8-9	0	223	26	249
15-16	0	171	33	204
16-17	1	157	13	171
17-18	0	183	18	201
TOTAL	1	1172	142	1315

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	69	177	0	246
7-8	86	161	0	247
8-9	75	165	0	240
15-16	47	231	0	278
16-17	41	273	0	314
17-18	45	195	0	240
TOTAL	363	1202	0	1565

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
517	0	0	1	0
466	0	0	2	0
489	0	0	2	0
482	0	0	1	0
485	0	0	4	0
441	0	0	2	0
2880	0	0	12	0

ITM Peak Hour Summary

Prepared by:

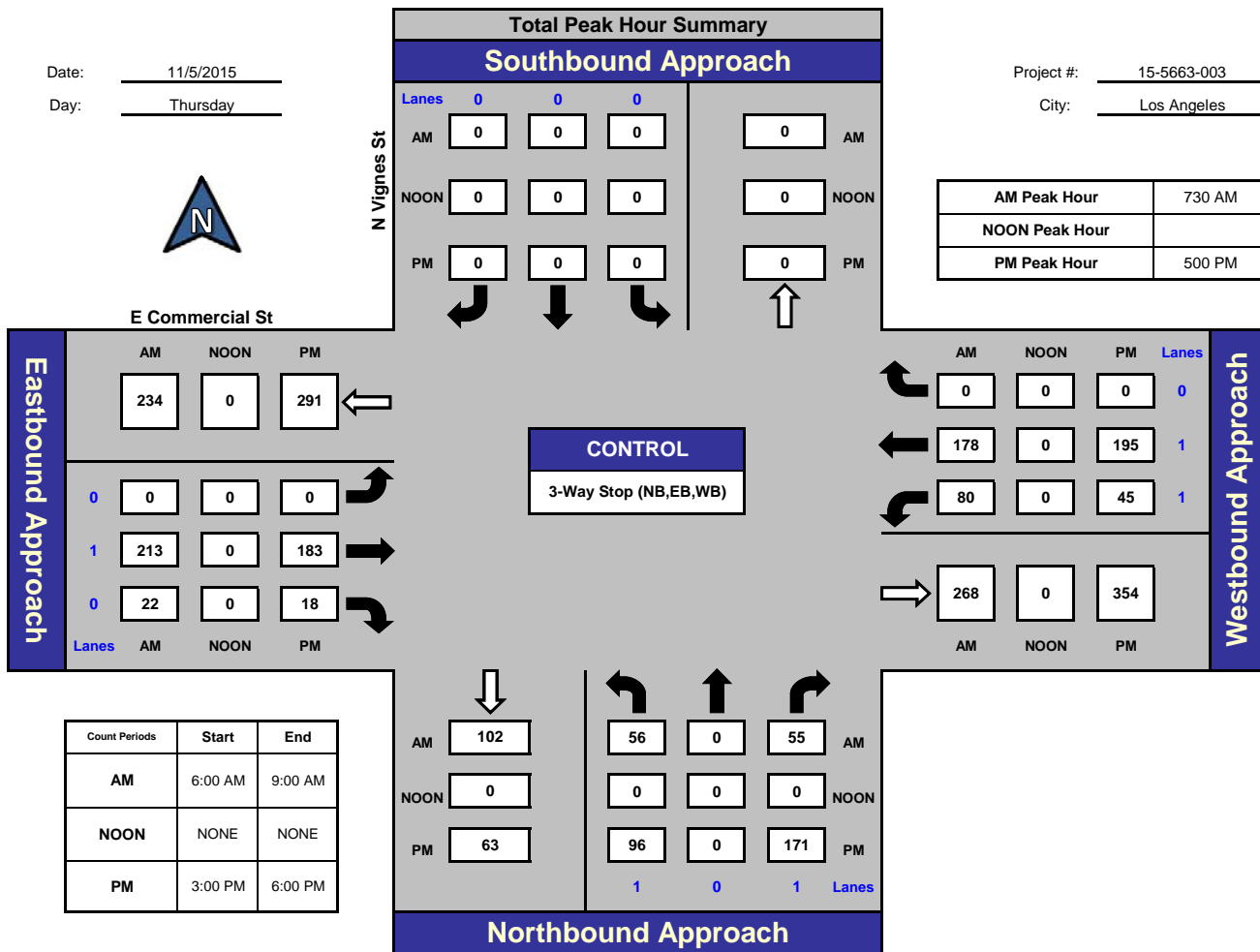


National Data & Surveying Services

N Vignes St and E Commercial St, Los Angeles

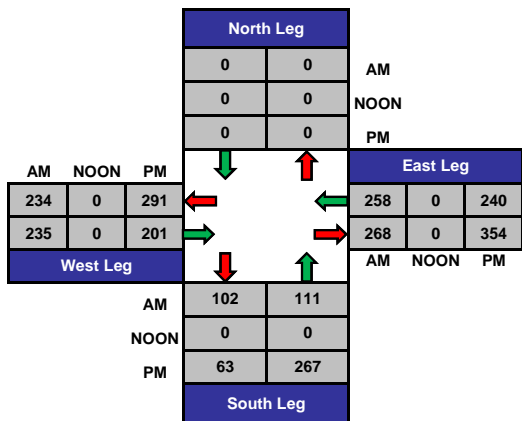
Date: 11/5/2015
Day: Thursday

Project #: 15-5663-003
City: Los Angeles

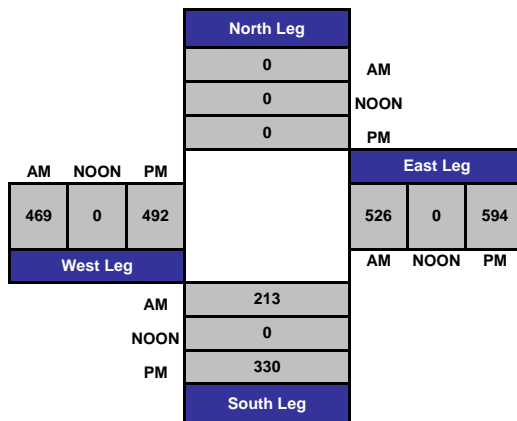


Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	0	1	0	0	0	0	1	0	1	1	0	
6:00 AM	3	0	10	0	0	0	0	79	7	21	54	0	174
6:15 AM	6	0	15	0	0	0	0	67	5	14	45	0	152
6:30 AM	6	0	10	0	0	0	0	55	4	14	48	0	137
6:45 AM	10	0	16	0	0	0	0	44	10	20	30	0	130
7:00 AM	5	0	11	0	0	0	0	51	4	18	39	0	128
7:15 AM	12	0	12	0	0	0	0	46	8	24	47	0	149
7:30 AM	15	0	9	0	0	0	0	44	7	23	45	0	143
7:45 AM	19	0	19	0	0	0	0	52	7	21	30	0	148
8:00 AM	13	0	15	0	0	0	0	62	5	17	51	0	163
8:15 AM	9	0	12	0	0	0	0	55	3	19	52	0	150
8:30 AM	15	0	13	0	0	0	0	45	10	24	35	0	142
8:45 AM	14	0	18	0	0	0	0	61	8	15	27	0	143
TOTAL VOLUMES :	127	0	160	0	0	0	0	661	78	230	503	0	1759
APPROACH %'s :	44.25%	0.00%	55.75%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	89.45%	10.55%	31.38%	68.62%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	56	0	55	0	0	0	0	213	22	80	178	0	604
PEAK HR FACTOR :	0.730			0.000			0.877			0.908			0.926

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	0	1	0	0	0	0	1	0	1	1	0	
3:00 PM	10	0	16	0	0	0	0	53	4	8	56	0	147
3:15 PM	6	0	15	0	0	0	0	40	9	13	47	0	130
3:30 PM	10	0	18	0	0	0	0	40	8	13	71	0	160
3:45 PM	15	0	28	0	0	0	0	38	12	13	57	0	163
4:00 PM	19	0	23	0	0	0	0	41	4	13	89	0	189
4:15 PM	12	0	23	0	0	0	0	49	3	11	58	0	156
4:30 PM	22	0	35	0	0	0	1	37	5	11	73	0	184
4:45 PM	26	0	24	0	0	0	0	30	1	6	53	0	140
5:00 PM	25	0	37	0	0	0	0	42	5	12	59	0	180
5:15 PM	22	0	32	0	0	0	0	54	6	21	53	0	188
5:30 PM	24	0	52	0	0	0	0	43	4	5	42	0	170
5:45 PM	25	0	50	0	0	0	0	44	3	7	41	0	170
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	216	0	353	0	0	0	1	511	64	133	699	0	1977
	37.96%	0.00%	62.04%	#DIV/0!	#DIV/0!	#DIV/0!	0.17%	88.72%	11.11%	15.99%	84.01%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	96	0	171	0	0	0	0	183	18	45	195	0	708
PEAK HR FACTOR :	0.878			0.000			0.838			0.811			0.941

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
6:00 AM	3	0	6	0	0	0	0	72	7	19	52	0	159
6:15 AM	5	0	11	0	0	0	0	65	5	10	40	0	136
6:30 AM	5	0	8	0	0	0	0	46	4	12	47	0	122
6:45 AM	10	0	11	0	0	0	0	36	10	16	29	0	112
7:00 AM	5	0	6	0	0	0	0	44	2	16	34	0	107
7:15 AM	12	0	7	0	0	0	0	34	8	13	44	0	118
7:30 AM	14	0	7	0	0	0	0	38	5	18	42	0	124
7:45 AM	19	0	10	0	0	0	0	44	7	19	23	0	122
8:00 AM	13	0	10	0	0	0	0	51	5	12	43	0	134
8:15 AM	8	0	10	0	0	0	0	44	3	16	48	0	129
8:30 AM	15	0	7	0	0	0	0	35	9	18	32	0	116
8:45 AM	12	0	12	0	0	0	0	51	8	12	21	0	116
TOTAL VOLUMES :	121	0	105	0	0	0	0	560	73	181	455	0	1495
APPROACH %'s :	53.54%	0.00%	46.46%				0.00%	88.47%	11.53%	28.46%	71.54%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	54	0	37	0	0	0	0	177	20	65	156	0	509
PEAK HR FACTOR :	0.784			0.000			0.879			0.863			0.950

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
3:00 PM	10	0	12	0	0	0	0	47	4	6	52	0	131
3:15 PM	6	0	13	0	0	0	0	33	9	9	45	0	115
3:30 PM	10	0	12	0	0	0	0	34	8	10	67	0	141
3:45 PM	15	0	21	0	0	0	0	36	11	8	53	0	144
4:00 PM	19	0	21	0	0	0	0	34	4	11	87	0	176
4:15 PM	12	0	17	0	0	0	0	43	3	5	53	0	133
4:30 PM	22	0	32	0	0	0	1	30	5	8	71	0	169
4:45 PM	26	0	16	0	0	0	0	26	1	3	49	0	121
5:00 PM	25	0	32	0	0	0	0	34	5	8	57	0	161
5:15 PM	22	0	31	0	0	0	0	47	6	19	50	0	175
5:30 PM	24	0	46	0	0	0	0	36	4	3	40	0	153
5:45 PM	24	0	45	0	0	0	0	35	3	6	36	0	149
TOTAL VOLUMES :	NL 215	NT 0	NR 298	SL 0	ST 0	SR 0	EL 1	ET 435	ER 63	WL 96	WT 660	WR 0	TOTAL 1768
APPROACH %'s :	41.91%	0.00%	58.09%				0.20%	87.17%	12.63%	12.70%	87.30%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	95	0	154	0	0	0	0	152	18	36	183	0	638
PEAK HR FACTOR :	0.889			0.000			0.802			0.793			0.911

CONTROL : 3-Way Stop (NB,EB,WB)



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Center St
 East/West E Commercial St
 Day: Thursday Date: November 5, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	179	137	134	22
BUSES	33	29	7	0
BUSES	128	186	159	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	133	7.30	135	8.15	91	6.00	10	7.00
PM PK 15 MIN	172	17.15	147	16.30	102	17.45	20	15.30
AM PK HOUR	429	7.30	514	7.30	300	6.00	25	7.00
PM PK HOUR	654	17.00	508	16.00	368	17.00	46	15.15

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	43	209	9	261
7-8	52	351	9	412
8-9	69	338	8	415
15-16	55	388	7	450
16-17	50	513	8	571
17-18	39	610	5	654
TOTAL	308	2409	46	2763

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	16	178	196	390
7-8	13	279	186	478
8-9	6	302	181	489
15-16	8	180	211	399
16-17	8	250	250	508
17-18	4	229	188	421
TOTAL	55	1418	1212	2685

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
651	4	0	3	0
890	3	0	4	0
904	2	0	0	0
849	5	0	1	0
1079	7	0	2	0
1075	6	0	0	0
5448	27	0	10	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	232	12	56	300
7-8	191	5	53	249
8-9	178	5	81	264
15-16	181	13	48	242
16-17	209	5	56	270
17-18	307	5	56	368
TOTAL	1298	45	350	1693

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	2	5	5	12
7-8	4	10	11	25
8-9	2	4	5	11
15-16	12	14	12	38
16-17	7	8	23	38
17-18	5	4	4	13
TOTAL	32	45	60	137

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
312	2	0	5	0
274	1	0	6	0
275	2	0	7	0
280	4	0	15	0
308	2	0	13	0
381	2	0	5	0
1830	13	0	51	0

ITM Peak Hour Summary

Prepared by:

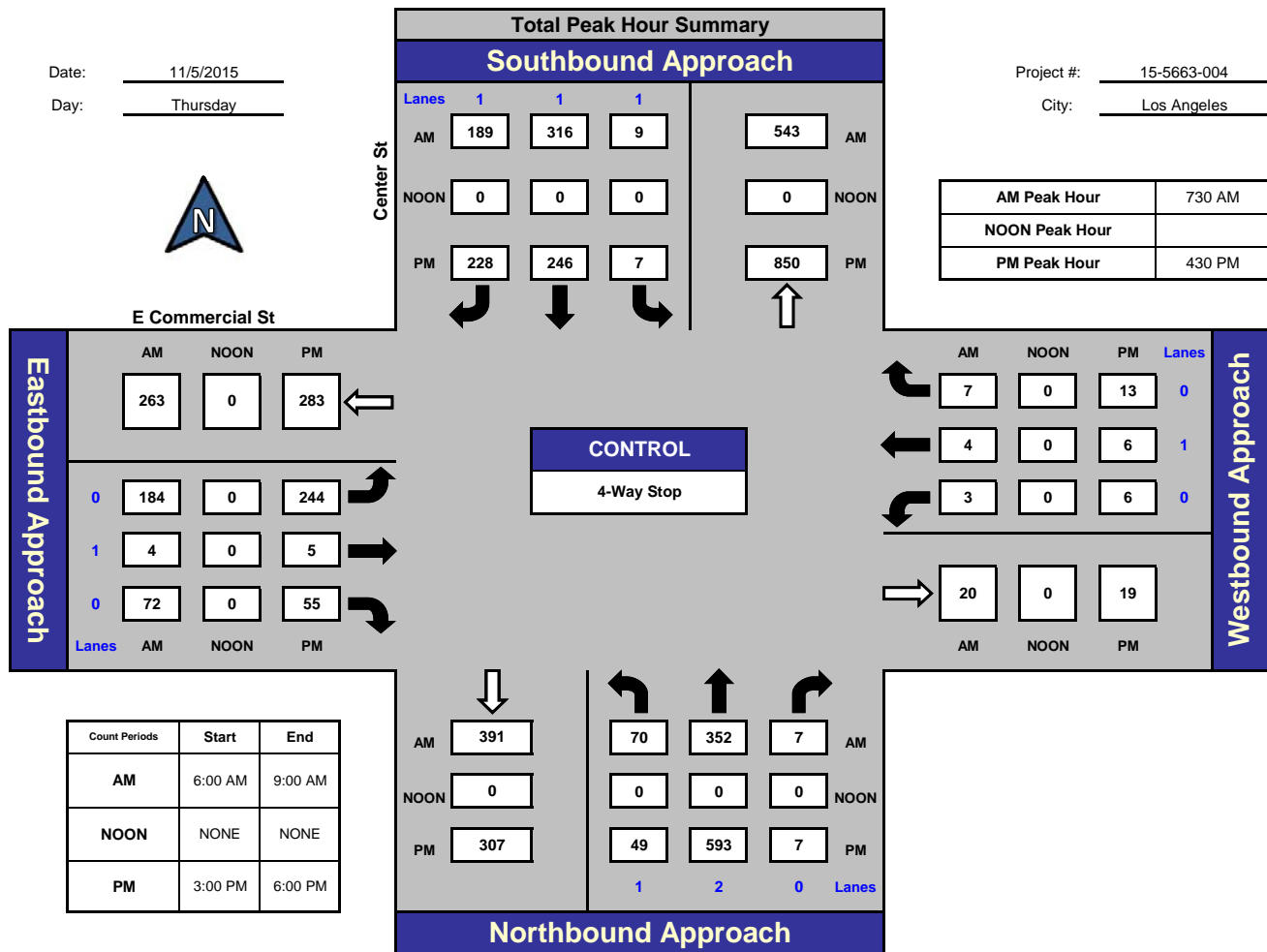


National Data & Surveying Services

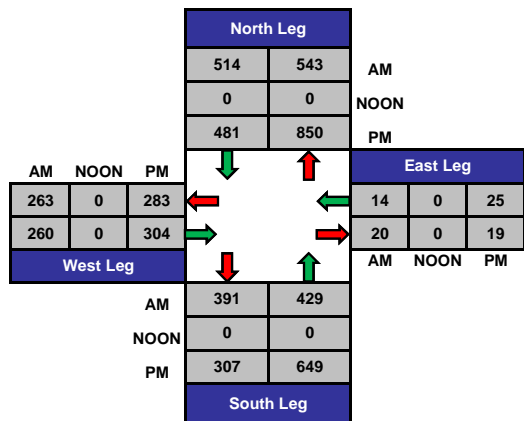
Center St and E Commercial St, Los Angeles

Date: 11/5/2015
Day: Thursday

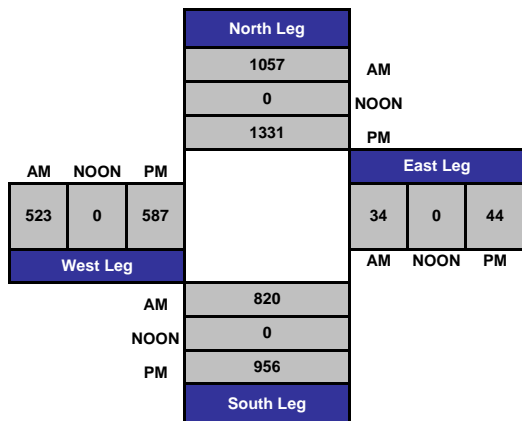
Project #: 15-5663-004
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
6:00 AM	7	35	0	3	32	62	72	3	16	0	2	0	232
6:15 AM	6	51	2	4	34	49	68	5	11	0	2	0	232
6:30 AM	22	69	2	3	53	41	50	4	11	0	1	1	257
6:45 AM	8	54	5	6	59	44	42	0	18	2	0	4	242
7:00 AM	12	82	3	4	60	46	51	1	13	2	3	5	282
7:15 AM	12	89	1	3	64	49	51	2	9	0	5	1	286
7:30 AM	19	112	2	3	76	50	37	2	14	0	1	1	317
7:45 AM	9	68	3	3	79	41	52	0	17	2	1	4	279
8:00 AM	19	78	1	2	78	47	49	1	25	1	0	0	301
8:15 AM	23	94	1	1	83	51	46	1	16	0	2	2	320
8:30 AM	9	79	3	2	69	48	39	1	12	1	2	1	266
8:45 AM	18	87	3	1	72	35	44	2	28	0	0	2	292
TOTAL VOLUMES :	164	898	26	35	759	563	601	22	190	8	19	21	3306
APPROACH %'s :	15.07%	82.54%	2.39%	2.58%	55.93%	41.49%	73.92%	2.71%	23.37%	16.67%	39.58%	43.75%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	70	352	7	9	316	189	184	4	72	3	4	7	1217
PEAK HR FACTOR :	0.806			0.952			0.867			0.500			0.951

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
3:00 PM	17	97	1	4	34	45	44	3	19	1	1	2	268
3:15 PM	11	77	3	1	45	44	43	1	11	1	2	4	243
3:30 PM	11	99	2	2	54	72	47	3	9	7	8	5	319
3:45 PM	16	115	1	1	47	50	47	6	9	3	3	1	299
4:00 PM	13	113	2	0	56	85	54	1	15	2	1	9	351
4:15 PM	14	118	3	2	63	48	51	1	20	1	2	4	327
4:30 PM	10	145	3	2	71	74	62	2	10	3	4	9	395
4:45 PM	13	137	0	4	60	43	42	1	11	1	1	1	314
5:00 PM	18	149	2	0	45	49	71	2	13	0	0	2	351
5:15 PM	8	162	2	1	70	62	69	0	21	2	1	1	399
5:30 PM	8	150	0	3	65	39	83	0	7	3	1	0	359
5:45 PM	5	149	1	0	49	38	84	3	15	0	2	1	347
TOTAL VOLUMES :	144	1511	20	20	659	649	697	23	160	24	26	39	3972
APPROACH %'s :	8.60%	90.21%	1.19%	1.51%	49.62%	48.87%	79.20%	2.61%	18.18%	26.97%	29.21%	43.82%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	49	593	7	7	246	228	244	5	55	6	6	13	1459
PEAK HR FACTOR :	0.943			0.818			0.844			0.391			0.914

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
6:00 AM	6	28	0	3	29	59	62	2	16	0	1	0	206
6:15 AM	6	45	2	4	27	41	63	5	10	0	1	0	204
6:30 AM	22	61	2	3	48	37	42	4	9	0	1	1	230
6:45 AM	8	46	5	5	52	40	32	0	16	0	0	4	208
7:00 AM	10	72	3	4	54	38	40	1	12	1	3	5	243
7:15 AM	10	78	1	3	55	43	33	1	8	0	1	1	234
7:30 AM	16	90	1	3	66	45	30	1	14	0	0	1	267
7:45 AM	7	59	2	3	74	35	36	0	15	1	0	4	236
8:00 AM	16	69	1	2	68	39	36	1	22	1	0	0	255
8:15 AM	21	81	0	1	73	44	34	0	15	0	1	2	272
8:30 AM	8	69	2	1	60	42	24	1	12	1	2	1	223
8:45 AM	17	74	3	0	57	27	28	2	27	0	0	2	237
TOTAL VOLUMES :	NL 147	NT 772	NR 22	SL 32	ST 663	SR 490	EL 460	ET 18	ER 176	WL 4	WT 10	WR 21	TOTAL 2815
APPROACH %'s :	15.62%	82.04%	2.34%	2.70%	55.95%	41.35%	70.34%	2.75%	26.91%	11.43%	28.57%	60.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	60	299	4	9	281	163	136	2	66	2	1	7	1030
PEAK HR FACTOR :	0.848			0.960			0.864			0.500			0.947

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
3:00 PM	17	91	1	4	29	43	38	3	16	1	0	2	245
3:15 PM	11	66	3	1	36	39	36	1	9	1	1	4	208
3:30 PM	10	84	0	2	48	63	36	1	9	6	8	5	272
3:45 PM	16	101	1	1	39	43	40	5	8	1	2	1	258
4:00 PM	13	100	2	0	48	81	45	1	14	1	1	8	314
4:15 PM	13	106	3	2	47	39	40	1	19	1	2	4	277
4:30 PM	9	133	0	2	62	69	53	1	9	3	4	9	354
4:45 PM	12	122	0	4	56	36	31	1	10	1	1	1	275
5:00 PM	18	137	2	0	43	43	60	1	13	0	0	2	319
5:15 PM	8	148	2	1	64	57	59	0	21	2	1	1	364
5:30 PM	8	135	0	3	59	34	74	0	7	2	1	0	323
5:45 PM	5	137	1	0	45	34	66	3	15	0	2	1	309
TOTAL VOLUMES :	140	1360	15	20	576	581	578	18	150	19	23	38	3518
APPROACH %'s :	9.24%	89.77%	0.99%	1.70%	48.94%	49.36%	77.48%	2.41%	20.11%	23.75%	28.75%	47.50%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	47	540	4	7	225	205	203	3	53	6	6	13	1312
PEAK HR FACTOR :	0.935			0.821			0.809			0.391			0.901

CONTROL : 4-Way Stop



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Alameda St

East/West E Temple St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	272	213	81	35
BUSES	32	45	13	8
BUSES	32	66	161	129

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	281	7.00	327	8.30	129	8.30	147	7.15
PM PK 15 MIN	280	16.00	288	16.00	266	17.15	84	17.00
AM PK HOUR	951	6.45	1283	7.45	424	8.00	493	7.00
PM PK HOUR	1013	15.45	1087	16.00	988	16.45	300	16.30

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	155	542	0	697
7-8	256	686	1	943
8-9	220	665	2	887
15-16	65	855	0	920
16-17	91	915	0	1006
17-18	57	835	1	893
TOTAL	844	4498	4	5346

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	20	590	238	848
7-8	20	779	357	1156
8-9	30	816	422	1268
15-16	52	586	265	903
16-17	73	713	301	1087
17-18	46	601	266	913
TOTAL	241	4085	1849	6175

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1545	60	0	15	0
2099	82	0	25	0
2155	79	0	22	0
1823	66	0	28	0
2093	99	1	30	0
1806	77	0	22	0
11521	463	1	142	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	55	103	59	217
7-8	72	160	107	339
8-9	108	160	156	424
15-16	309	288	172	769
16-17	244	436	190	870
17-18	213	536	198	947
TOTAL	1001	1683	882	3566

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	13	182	18	213
7-8	28	416	49	493
8-9	18	333	34	385
15-16	21	165	80	266
16-17	29	154	91	274
17-18	28	151	102	281
TOTAL	137	1401	374	1912

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
430	34	0	47	2
832	58	0	68	2
809	53	0	71	5
1035	46	0	36	0
1144	66	0	49	6
1228	73	0	41	0
5478	330	0	312	15

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

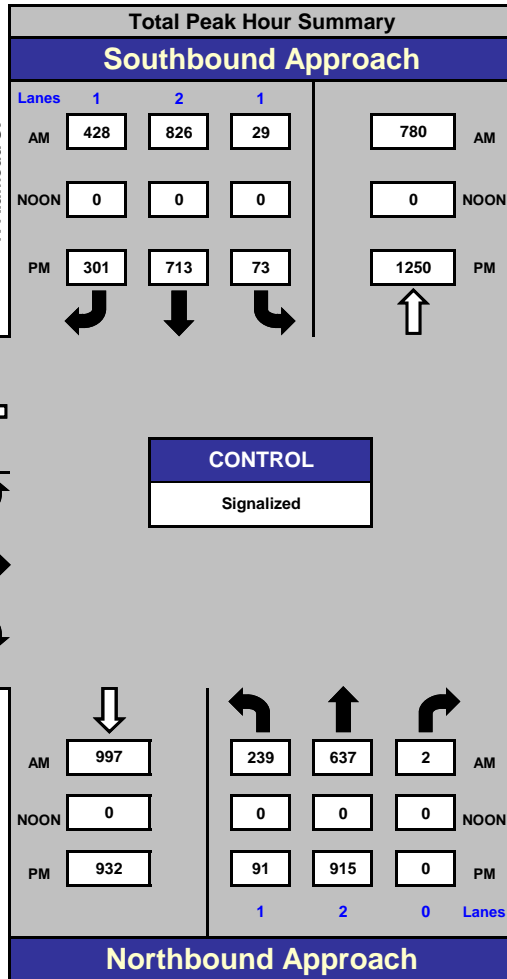
N Alameda St and E Temple St, Los Angeles

Date: 11/5/2015

Day: Thursday

Project #: 15-5663-005

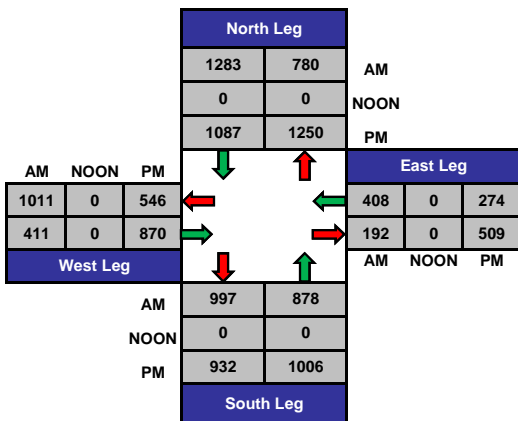
City: Los Angeles



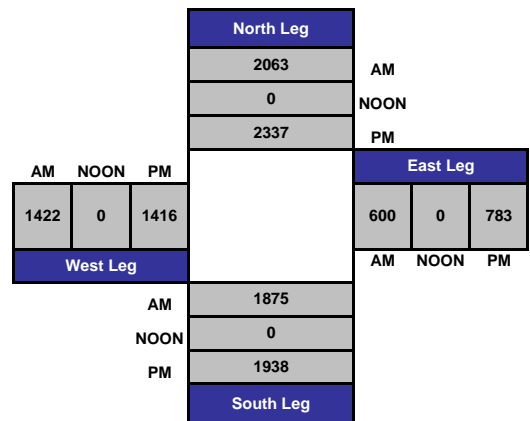
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
6:00 AM	14	88	0	8	130	50	4	16	15	0	20	3	348
6:15 AM	25	131	0	3	146	56	7	26	12	3	25	2	436
6:30 AM	52	165	0	5	148	59	24	28	13	4	54	8	560
6:45 AM	64	158	0	4	166	73	20	33	19	6	83	5	631
7:00 AM	85	196	0	4	188	83	19	34	25	3	118	13	768
7:15 AM	60	143	0	6	175	84	20	42	24	9	125	13	701
7:30 AM	54	191	0	5	209	90	15	36	28	5	92	12	737
7:45 AM	57	156	1	5	207	100	18	48	30	11	81	11	725
8:00 AM	76	155	0	2	215	106	19	34	36	6	87	10	746
8:15 AM	46	177	1	8	201	112	25	40	32	3	89	10	744
8:30 AM	60	149	0	14	203	110	41	39	49	4	87	9	765
8:45 AM	38	184	1	6	197	94	23	47	39	5	70	5	709
TOTAL VOLUMES :	NL 631	NT 1893	NR 3	SL 70	ST 2185	SR 1017	EL 235	ET 423	ER 322	WL 59	WT 931	WR 101	TOTAL 7870
APPROACH %'s :	24.97%	74.91%	0.12%	2.14%	66.78%	31.08%	23.98%	43.16%	32.86%	5.41%	85.33%	9.26%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	239	637	2	29	826	428	103	161	147	24	344	40	2980
PEAK HR FACTOR :	0.950			0.981			0.797			0.990			0.974

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
3:00 PM	22	219	0	7	139	55	74	55	37	5	43	14	670
3:15 PM	18	208	0	10	147	67	70	78	38	2	44	15	697
3:30 PM	14	194	0	17	153	84	85	69	53	5	40	26	740
3:45 PM	11	234	0	18	147	59	80	86	44	9	38	25	751
4:00 PM	27	253	0	22	199	67	65	97	55	6	50	24	865
4:15 PM	29	207	0	21	173	78	62	90	54	6	30	18	768
4:30 PM	19	233	0	18	188	77	69	116	34	12	36	23	825
4:45 PM	16	222	0	12	153	79	48	133	47	5	38	26	779
5:00 PM	20	223	0	20	158	72	58	157	50	11	49	24	842
5:15 PM	11	198	1	6	146	78	61	158	47	7	37	32	782
5:30 PM	13	215	0	11	149	50	54	114	61	4	42	20	733
5:45 PM	13	199	0	9	148	66	40	107	40	6	23	26	677
TOTAL VOLUMES :	213	2605	1	171	1900	832	766	1260	560	78	470	273	9129
APPROACH %'s :	7.56%	92.41%	0.04%	5.89%	65.45%	28.66%	29.62%	48.72%	21.66%	9.50%	57.25%	33.25%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	91	915	0	73	713	301	244	436	190	29	154	91	3237
PEAK HR FACTOR :	0.898			0.944			0.954			0.856			0.936

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
6:00 AM	13	72	0	8	115	49	4	11	14	0	14	3	303
6:15 AM	25	115	0	3	139	53	6	21	11	3	21	2	399
6:30 AM	52	150	0	5	144	57	23	23	12	4	48	8	526
6:45 AM	63	147	0	4	159	69	18	26	17	5	76	5	589
7:00 AM	83	173	0	4	185	79	17	27	25	3	111	13	720
7:15 AM	60	128	0	6	160	83	19	32	23	8	118	11	648
7:30 AM	52	170	0	4	197	87	13	30	28	5	85	12	683
7:45 AM	55	143	1	5	198	98	14	37	30	11	74	11	677
8:00 AM	73	136	0	2	201	102	17	27	35	6	76	10	685
8:15 AM	45	153	1	8	189	108	19	31	32	2	85	9	682
8:30 AM	56	138	0	14	195	107	38	34	48	4	80	8	722
8:45 AM	36	164	1	5	187	90	19	37	38	5	63	5	650
TOTAL VOLUMES :	613	1689	3	68	2069	982	207	336	313	56	851	97	7284
APPROACH %'s :	26.59%	73.28%	0.13%	2.18%	66.34%	31.48%	24.18%	39.25%	36.57%	5.58%	84.76%	9.66%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	229	570	2	29	783	415	88	129	145	23	315	38	2766
PEAK HR FACTOR :	0.958			0.971			0.754			0.979			0.958

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
3:00 PM	21	213	0	7	130	47	73	50	33	5	37	14	630
3:15 PM	18	201	0	10	141	65	69	71	38	2	38	15	668
3:30 PM	14	187	0	17	137	81	84	64	48	4	36	26	698
3:45 PM	11	225	0	18	142	57	80	76	42	8	27	25	711
4:00 PM	27	246	0	21	190	67	65	92	53	6	45	24	836
4:15 PM	27	198	0	20	167	74	60	84	49	5	23	17	724
4:30 PM	18	227	0	18	179	72	69	110	34	12	30	23	792
4:45 PM	14	212	0	12	151	74	47	125	47	5	30	26	743
5:00 PM	20	219	0	20	154	69	57	147	48	11	43	24	812
5:15 PM	11	196	1	6	142	71	60	153	41	7	29	32	749
5:30 PM	13	211	0	11	144	48	53	110	57	4	39	20	710
5:45 PM	12	195	0	9	144	62	39	104	36	6	20	26	653
TOTAL VOLUMES :	NL 206	NT 2530	NR 1	SL 169	ST 1821	SR 787	EL 756	ET 1186	ER 526	WL 75	WT 397	WR 272	TOTAL 8726
APPROACH %'s :	7.53%	92.44%	0.04%	6.09%	65.57%	28.34%	30.63%	48.06%	21.31%	10.08%	53.36%	36.56%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	86	883	0	71	687	287	241	411	183	28	128	90	3095
PEAK HR FACTOR :	0.887			0.940			0.953			0.820			0.926

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Vignes St

East/West E Temple St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B		S/B		E/B		W/B	
DUAL-WHEELED BIKES	49		27		42		11	
BUSES	13		7		12		1	
	14		67		130		3	

	N/B TIME		S/B TIME		E/B TIME		W/B TIME	
AM PK 15 MIN	122	7.00	33	8.30	50	8.45	36	7.00
PM PK 15 MIN	81	17.45	28	17.15	66	17.00	33	17.30
AM PK HOUR	452	6.45	115	7.00	167	8.00	119	7.00
PM PK HOUR	284	17.00	91	15.00	232	16.30	103	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	204	67	7	278
7-8	315	82	16	413
8-9	306	84	21	411
15-16	63	55	4	122
16-17	63	94	7	164
17-18	92	173	19	284
TOTAL	1043	555	74	1672

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	2	27	38	67
7-8	8	44	63	115
8-9	7	50	41	98
15-16	6	45	40	91
16-17	2	28	29	59
17-18	12	42	25	79
TOTAL	37	236	236	509

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
345	34	0	29	2
528	65	1	30	1
509	87	0	11	0
213	36	0	2	0
223	62	1	12	0
363	51	2	11	0
2181	335	4	95	3

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	36	19	48	103
7-8	51	24	74	149
8-9	44	41	82	167
15-16	64	44	84	192
16-17	66	39	108	213
17-18	63	40	106	209
TOTAL	324	207	502	1033

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	6	39	2	47
7-8	3	113	3	119
8-9	11	58	6	75
15-16	3	40	1	44
16-17	9	51	9	69
17-18	13	63	27	103
TOTAL	45	364	48	457

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
150	10	1	46	2
268	14	0	46	2
242	16	2	36	1
236	7	1	38	1
282	9	0	59	0
312	4	1	37	0
1490	60	5	262	6

ITM Peak Hour Summary

Prepared by:

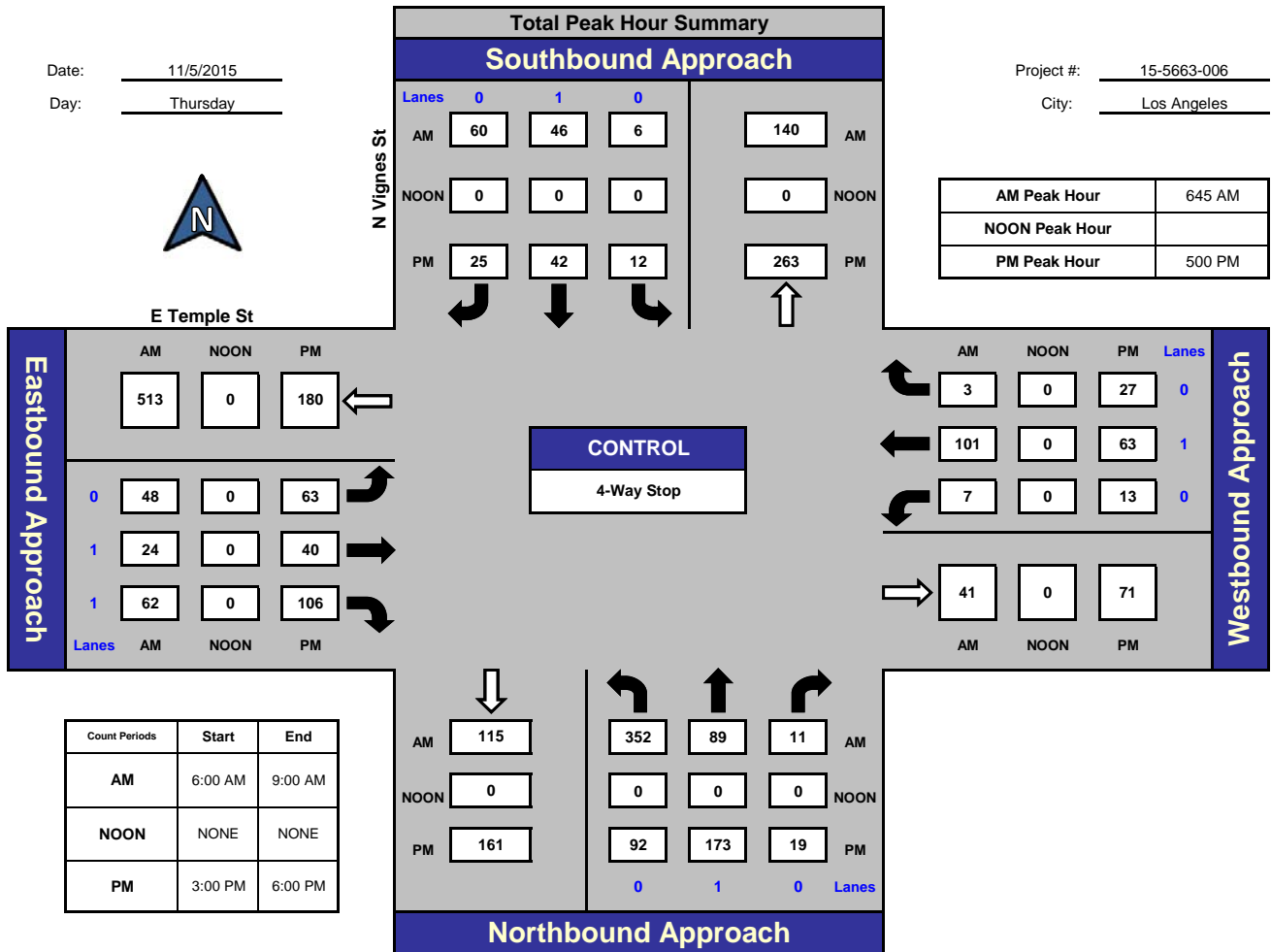


National Data & Surveying Services

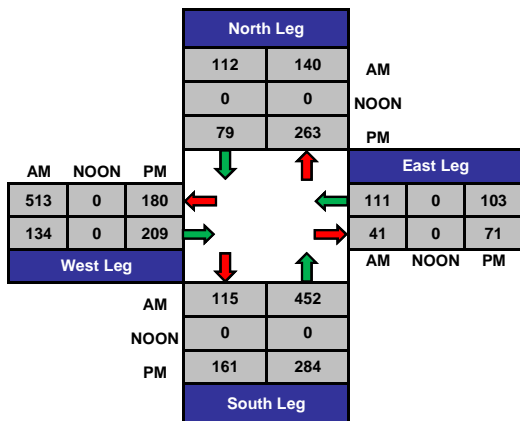
N Vignes St and E Temple St, Los Angeles

Date: 11/5/2015
Day: Thursday

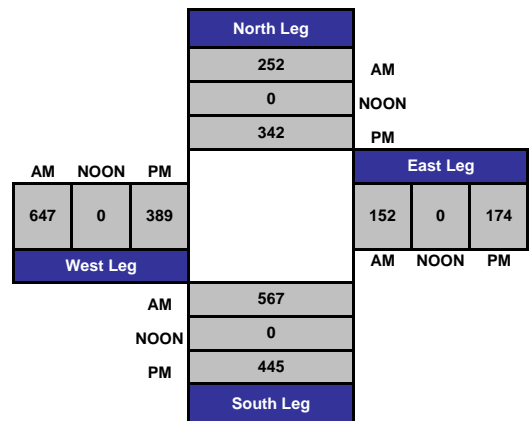
Project #: 15-5663-006
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
6:00 AM	32	10	2	1	5	11	8	3	12	0	4	1	89
6:15 AM	35	13	0	0	3	11	8	5	12	1	3	0	91
6:30 AM	48	17	3	0	6	6	6	4	13	0	19	1	123
6:45 AM	89	27	2	1	13	10	14	7	11	5	13	0	192
7:00 AM	97	21	4	1	11	16	10	5	16	2	32	2	217
7:15 AM	95	20	2	2	13	15	11	5	17	0	31	0	211
7:30 AM	71	21	3	2	9	19	13	7	18	0	25	1	189
7:45 AM	52	20	7	3	11	13	17	7	23	1	25	0	179
8:00 AM	75	24	4	1	9	9	9	9	20	2	14	2	178
8:15 AM	76	15	10	1	9	9	11	5	20	3	13	0	172
8:30 AM	89	24	3	3	21	9	5	19	19	3	14	2	211
8:45 AM	66	21	4	2	11	14	19	8	23	3	17	2	190
TOTAL VOLUMES :	825	233	44	17	121	142	131	84	204	20	210	11	2042
APPROACH %'s :	74.86%	21.14%	3.99%	6.07%	43.21%	50.71%	31.26%	20.05%	48.69%	8.30%	87.14%	4.56%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	352	89	11	6	46	60	48	24	62	7	101	3	809
PEAK HR FACTOR :	0.926			0.933			0.882			0.771			0.932

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
3:00 PM	22	15	0	3	10	7	13	10	19	0	10	1	110
3:15 PM	15	8	1	0	14	10	13	9	22	0	10	0	102
3:30 PM	14	12	2	2	8	10	13	12	19	3	7	0	102
3:45 PM	12	20	1	1	13	13	25	13	24	0	13	0	135
4:00 PM	14	21	2	0	8	10	15	11	32	2	16	1	132
4:15 PM	17	15	3	0	4	8	16	9	21	0	9	0	102
4:30 PM	19	29	0	2	13	3	19	12	27	3	15	6	148
4:45 PM	13	29	2	0	3	8	16	7	28	4	11	2	123
5:00 PM	18	32	7	4	10	8	21	13	32	6	18	4	173
5:15 PM	30	34	4	2	17	9	16	9	32	3	11	3	170
5:30 PM	24	51	3	4	8	6	12	12	28	4	20	9	181
5:45 PM	20	56	5	2	7	2	14	6	14	0	14	11	151
TOTAL VOLUMES :	218	322	30	20	115	94	193	123	298	25	154	37	1629
APPROACH %'s :	38.25%	56.49%	5.26%	8.73%	50.22%	41.05%	31.43%	20.03%	48.53%	11.57%	71.30%	17.13%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	92	173	19	12	42	25	63	40	106	13	63	27	675
PEAK HR FACTOR :	0.877			0.705			0.792			0.780			0.932

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
6:00 AM	32	10	2	1	5	9	3	3	12	0	4	1	82
6:15 AM	35	12	0	0	2	7	4	5	11	1	3	0	80
6:30 AM	47	16	3	0	5	4	3	4	13	0	17	1	113
6:45 AM	89	25	2	1	13	7	5	6	10	5	12	0	175
7:00 AM	95	21	4	1	9	13	3	5	15	2	32	2	202
7:15 AM	94	19	2	2	8	10	2	4	15	0	30	0	186
7:30 AM	69	20	3	2	8	14	9	6	16	0	25	1	173
7:45 AM	52	20	6	2	10	9	8	7	21	1	24	0	160
8:00 AM	72	23	4	1	9	5	4	9	18	2	14	2	163
8:15 AM	75	15	10	1	9	6	5	5	19	3	13	0	161
8:30 AM	83	24	3	3	20	6	0	19	16	3	12	2	191
8:45 AM	65	19	4	2	11	11	12	8	22	3	17	2	176
TOTAL VOLUMES :	808	224	43	16	109	101	58	81	188	20	203	11	1862
APPROACH %'s :	75.16%	20.84%	4.00%	7.08%	48.23%	44.69%	17.74%	24.77%	57.49%	8.55%	86.75%	4.70%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	347	85	11	6	38	44	19	21	56	7	99	3	736
PEAK HR FACTOR :	0.923			0.917			0.774			0.757			0.911

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
3:00 PM	19	14	0	3	10	4	7	10	17	0	9	1	94
3:15 PM	10	8	1	0	14	6	8	8	21	0	9	0	85
3:30 PM	13	10	2	2	8	8	9	11	19	3	7	0	92
3:45 PM	12	19	1	1	12	8	13	13	24	0	12	0	115
4:00 PM	13	20	2	0	8	9	12	10	29	2	16	1	122
4:15 PM	16	14	3	0	4	3	11	9	20	0	8	0	88
4:30 PM	19	28	0	1	10	2	15	10	27	3	15	5	135
4:45 PM	12	24	2	0	3	5	10	6	28	4	9	2	105
5:00 PM	18	32	7	4	10	3	14	13	29	6	18	4	158
5:15 PM	27	34	4	2	17	6	12	9	31	3	11	3	159
5:30 PM	23	49	3	4	8	4	9	12	27	4	20	9	172
5:45 PM	19	51	5	2	7	1	12	6	13	0	14	11	141
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	201	303	30	19	111	59	132	117	285	25	148	36	1466
	37.64%	56.74%	5.62%	10.05%	58.73%	31.22%	24.72%	21.91%	53.37%	11.96%	70.81%	17.22%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	87	166	19	12	42	14	47	40	100	13	63	27	630
PEAK HR FACTOR :	0.907			0.680			0.835			0.780			0.916

CONTROL : 4-Way Stop



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Alameda St

East/West E 1st St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	283	218	50	41
BUSES	50	47	68	83
BUSES	32	30	41	4

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	280	7.00	264	8.00	52	6.45	155	6.45
PM PK 15 MIN	235	16.00	262	16.00	259	16.45	94	17.30
AM PK HOUR	978	6.45	1007	7.45	155	6.00	563	6.45
PM PK HOUR	902	15.45	951	16.00	985	16.45	349	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	34	613	26	673
7-8	4	924	48	976
8-9	4	859	47	910
15-16	45	717	94	856
16-17	66	692	142	900
17-18	71	514	119	704
TOTAL	224	4319	476	5019

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	6	567	96	669
7-8	11	781	143	935
8-9	12	801	179	992
15-16	33	628	97	758
16-17	40	791	120	951
17-18	34	683	141	858
TOTAL	136	4251	776	5163

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1342	37	0	54	0
1911	36	0	124	2
1902	68	2	116	3
1614	76	0	160	5
1851	77	1	217	8
1562	65	0	248	5
10182	359	3	919	23

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	55	70	30	155
7-8	1	5	6	12
8-9	2	1	1	4
15-16	195	324	75	594
16-17	304	469	112	885
17-18	385	471	107	963
TOTAL	942	1340	331	2613

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	4	497	38	539
7-8	4	513	30	547
8-9	0	495	24	519
15-16	2	219	21	242
16-17	1	265	14	280
17-18	1	334	14	349
TOTAL	12	2323	141	2476

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
694	19	0	51	0
559	18	0	66	0
523	5	0	111	0
836	40	0	74	0
1165	67	1	117	2
1312	77	1	92	0
5089	226	2	511	2

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

N Alameda St and E 1st St, Los Angeles

Date: 11/5/2015

Day: Thursday

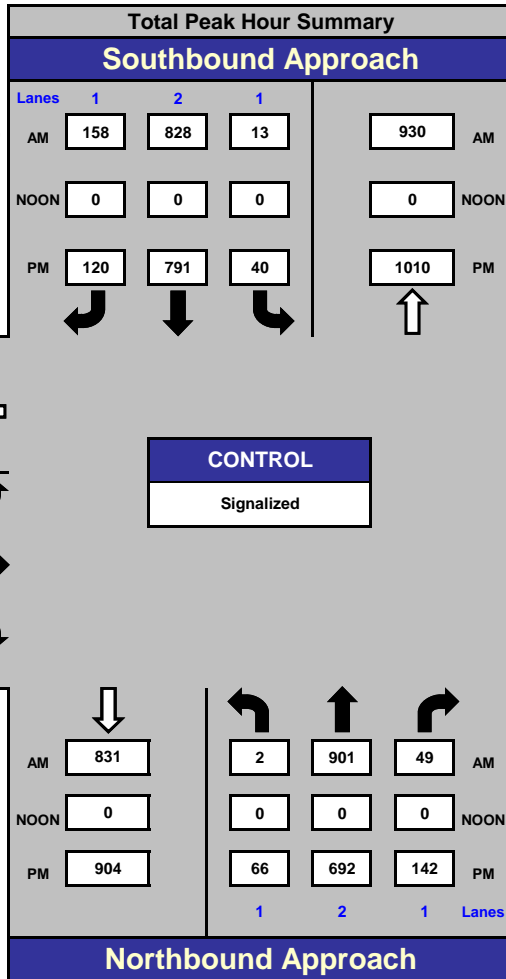
Project #: 15-5663-007

City: Los Angeles



E 1st St

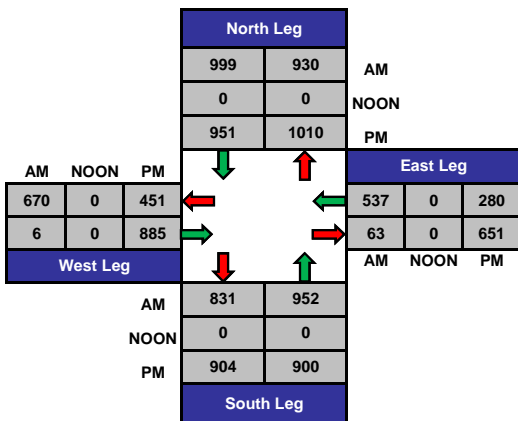
N Alameda St



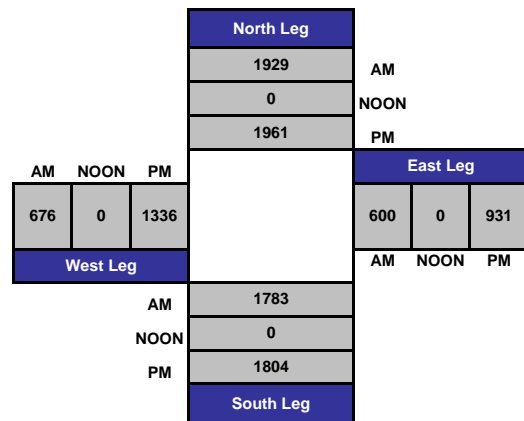
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	400 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 0	WT 2	WR 1	
6:00 AM	4	83	5	0	124	17	8	11	3	0	93	5	353
6:15 AM	7	136	5	1	135	19	16	15	9	2	135	16	496
6:30 AM	18	192	5	2	150	29	15	18	8	1	125	7	570
6:45 AM	5	202	11	3	158	31	16	26	10	1	144	10	617
7:00 AM	1	270	9	2	188	35	0	2	3	0	115	3	628
7:15 AM	1	205	13	3	174	31	0	2	1	3	140	7	580
7:30 AM	1	243	17	2	207	37	1	0	0	1	128	11	648
7:45 AM	1	206	9	4	212	40	0	1	2	0	130	9	614
8:00 AM	0	225	11	2	214	48	0	0	0	0	124	2	626
8:15 AM	0	227	12	5	195	33	2	0	0	0	128	4	606
8:30 AM	0	193	8	3	198	53	0	0	1	0	121	10	587
8:45 AM	4	214	16	2	194	45	0	1	0	0	122	8	606
TOTAL VOLUMES :	42	2396	121	29	2149	418	58	76	37	8	1505	92	6931
APPROACH %'s :	1.64%	93.63%	4.73%	1.12%	82.78%	16.10%	33.92%	44.44%	21.64%	0.50%	93.77%	5.73%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	2	901	49	13	828	158	3	1	2	1	510	26	2494
PEAK HR FACTOR :	0.912			0.946			0.500			0.959			0.962

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 0	WT 2	WR 1	
3:00 PM	11	189	23	11	149	25	44	73	25	0	44	7	601
3:15 PM	11	190	21	7	156	25	36	47	14	1	44	5	557
3:30 PM	11	161	21	8	166	29	49	94	20	0	76	2	637
3:45 PM	12	177	29	7	157	18	66	110	16	1	55	7	655
4:00 PM	13	194	28	17	216	29	72	93	27	0	66	3	758
4:15 PM	9	179	32	13	206	24	56	117	22	0	66	2	726
4:30 PM	17	169	43	5	193	32	88	117	34	1	59	6	764
4:45 PM	27	150	39	5	176	35	88	142	29	0	74	3	768
5:00 PM	15	161	22	3	182	37	88	113	28	1	80	4	734
5:15 PM	13	103	23	10	165	30	106	122	29	0	82	4	687
5:30 PM	16	132	41	13	179	35	97	114	29	0	92	2	750
5:45 PM	27	118	33	8	157	39	94	122	21	0	80	4	703
TOTAL VOLUMES :	182	1923	355	107	2102	358	884	1264	294	4	818	49	8340
APPROACH %'s :	7.40%	78.17%	14.43%	4.17%	81.89%	13.95%	36.20%	51.76%	12.04%	0.46%	93.92%	5.63%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	66	692	142	40	791	120	304	469	112	1	265	14	3016
PEAK HR FACTOR :	0.957			0.907			0.854			0.909			0.982

CONTROL : [Signalized](#)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	1	1	2	0	0	2	1	
6:00 AM	4	67	5	0	108	14	7	9	3	0	93	5	315
6:15 AM	7	120	3	1	130	18	13	12	9	2	133	16	464
6:30 AM	17	178	2	2	144	27	15	14	7	1	124	7	538
6:45 AM	5	194	11	3	153	29	13	24	9	1	139	9	590
7:00 AM	1	245	8	2	183	35	0	2	3	0	112	3	594
7:15 AM	1	188	13	2	160	30	0	0	0	3	135	7	539
7:30 AM	1	222	11	2	194	37	0	0	0	0	123	11	601
7:45 AM	1	188	8	4	204	38	0	0	0	0	127	9	579
8:00 AM	0	206	9	2	199	48	0	0	0	0	123	2	589
8:15 AM	0	201	12	5	185	30	0	0	0	0	126	4	563
8:30 AM	0	178	8	3	188	53	0	0	0	0	118	10	558
8:45 AM	4	197	14	2	186	43	0	0	0	0	120	8	574
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	41	2184	104	28	2034	402	48	61	31	7	1473	91	6504
	1.76%	93.77%	4.47%	1.14%	82.55%	16.31%	34.29%	43.57%	22.14%	0.45%	93.76%	5.79%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	2	817	40	13	782	153	0	0	0	0	499	26	2332
PEAK HR FACTOR :	0.918			0.952			0.000			0.965			0.970

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 0	WT 2	WR 1	
3:00 PM	11	186	22	11	138	20	42	70	23	0	43	6	572
3:15 PM	9	185	19	7	151	25	35	42	13	1	44	5	536
3:30 PM	11	152	21	6	154	24	48	91	20	0	75	2	604
3:45 PM	12	172	28	7	152	18	65	107	16	1	52	7	637
4:00 PM	11	186	27	17	212	23	70	90	26	0	65	3	730
4:15 PM	7	173	32	13	195	22	56	113	22	0	64	2	699
4:30 PM	16	161	42	5	186	30	86	116	33	1	59	6	741
4:45 PM	27	145	36	5	174	33	83	140	28	0	74	3	748
5:00 PM	14	159	20	3	177	35	87	110	28	1	79	4	717
5:15 PM	12	99	23	10	157	30	106	117	29	0	82	4	669
5:30 PM	16	131	41	13	170	34	96	112	28	0	92	2	735
5:45 PM	27	110	32	8	147	39	93	120	21	0	79	4	680
TOTAL VOLUMES :	173	1859	343	105	2013	333	867	1228	287	4	808	48	8068
APPROACH %'s :	7.28%	78.27%	14.44%	4.28%	82.13%	13.59%	36.40%	51.55%	12.05%	0.47%	93.95%	5.58%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	61	665	137	40	767	108	295	459	109	1	262	14	2918
PEAK HR FACTOR :	0.963			0.908			0.860			0.899			0.975

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Vignes St
 East/West E 1st St
 Day: Thursday Date: November 5, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	26	21	56	77
BUSES	21	15	39	66
BUSES	0	10	8	19

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	22	7.45	30	8.30	48	8.15	310	6.45
PM PK 15 MIN	92	17.45	40	17.30	194	17.15	120	17.15
AM PK HOUR	78	7.45	91	7.45	153	6.45	1105	6.45
PM PK HOUR	306	17.00	144	16.45	665	17.00	449	16.45

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	2	15	16	33
7-8	5	17	39	61
8-9	6	29	43	78
15-16	10	26	66	102
16-17	5	33	116	154
17-18	6	76	224	306
TOTAL	34	196	504	734

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	11	19	12	42
7-8	30	28	24	82
8-9	32	34	23	89
15-16	63	27	22	112
16-17	79	21	34	134
17-18	79	27	29	135
TOTAL	294	156	144	594

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
75	4	0	11	1
143	3	0	5	1
167	5	0	13	0
214	10	0	11	0
288	14	2	4	0
441	6	0	18	2
1328	42	2	62	4

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	23	77	11	111
7-8	25	117	11	153
8-9	29	100	8	137
15-16	38	385	36	459
16-17	58	539	46	643
17-18	69	574	22	665
TOTAL	242	1792	134	2168

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	93	544	253	890
7-8	184	505	349	1038
8-9	222	481	352	1055
15-16	58	211	41	310
16-17	67	248	49	364
17-18	77	302	69	448
TOTAL	701	2291	1113	4105

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1001	9	0	0	0
1191	11	0	0	0
1192	11	2	0	0
769	19	0	1	0
1007	12	4	0	0
1113	23	3	0	0
6273	85	9	1	0

ITM Peak Hour Summary

Prepared by:

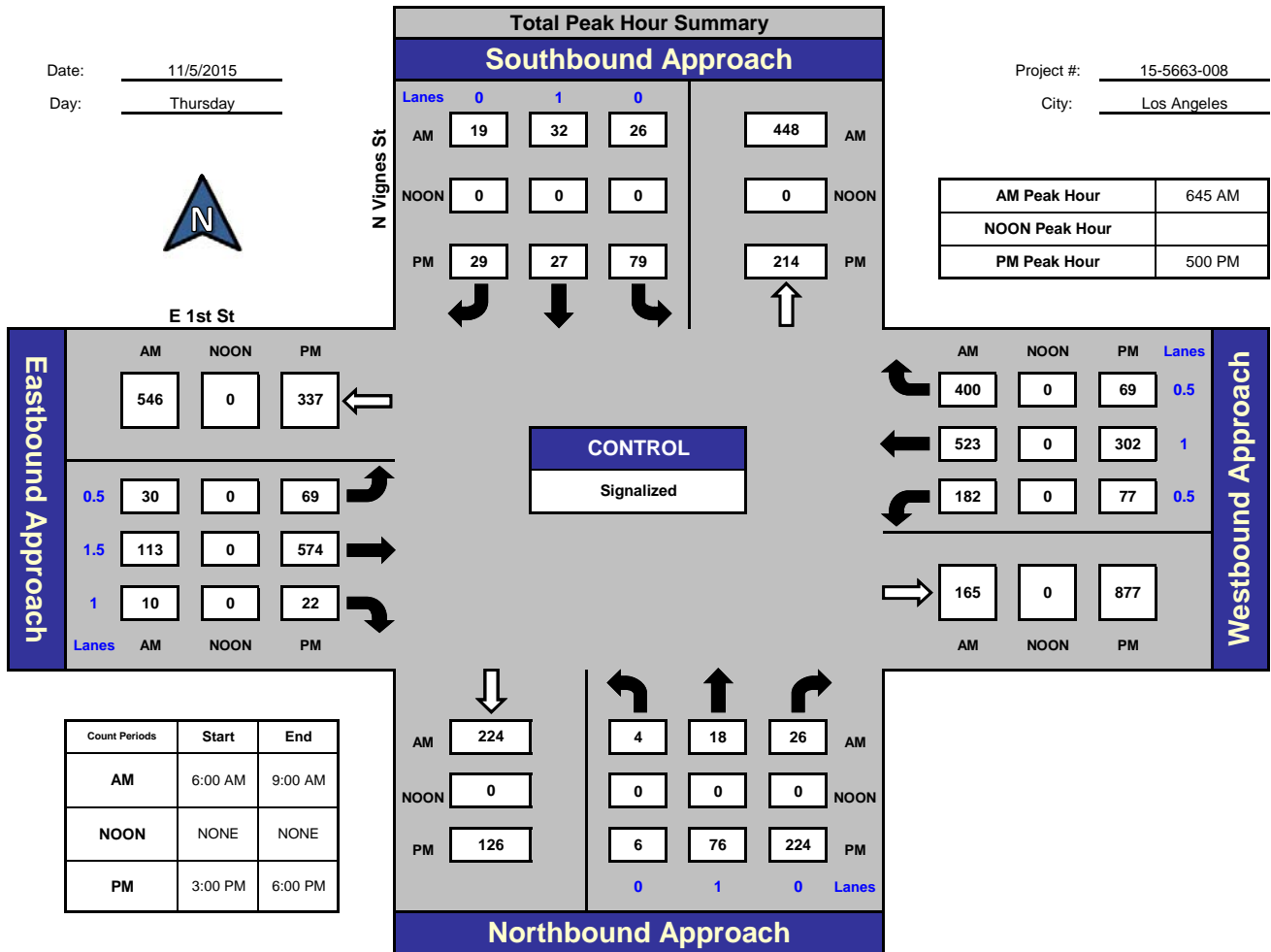


National Data & Surveying Services

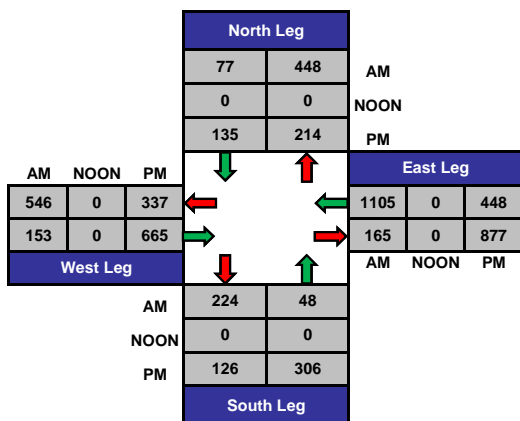
N Vignes St and E 1st St, Los Angeles

Date: 11/5/2015
Day: Thursday

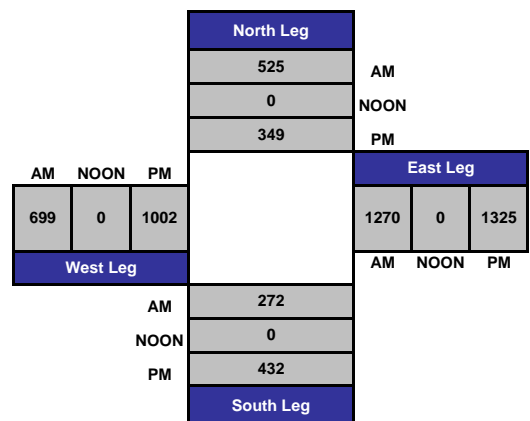
Project #: 15-5663-008
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
6:00 AM	0	1	4	1	4	1	4	13	2	11	104	36	181
6:15 AM	0	2	6	2	3	2	3	12	3	16	153	41	243
6:30 AM	2	6	3	3	2	5	3	25	5	25	134	60	273
6:45 AM	0	6	3	5	10	4	13	27	1	41	153	116	379
7:00 AM	1	2	9	3	11	6	3	24	2	54	115	114	344
7:15 AM	2	5	7	11	5	6	8	26	4	44	130	89	337
7:30 AM	1	5	7	7	6	3	6	36	3	43	125	81	323
7:45 AM	1	5	16	9	6	9	8	31	2	43	135	65	330
8:00 AM	2	8	10	12	11	4	3	9	0	55	117	93	324
8:15 AM	2	4	12	4	3	3	11	36	1	44	118	81	319
8:30 AM	1	7	10	11	10	9	8	25	4	54	127	97	363
8:45 AM	1	10	11	5	10	7	7	30	3	69	119	81	353
TOTAL VOLUMES :	13	61	98	73	81	59	77	294	30	499	1530	954	3769
APPROACH %'s :	7.56%	35.47%	56.98%	34.27%	38.03%	27.70%	19.20%	73.32%	7.48%	16.73%	51.29%	31.98%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	4	18	26	26	32	19	30	113	10	182	523	400	1383
PEAK HR FACTOR :	0.857			0.875			0.850			0.891			0.912

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
3:00 PM	1	5	20	8	9	8	8	92	10	16	48	14	239
3:15 PM	5	7	10	24	6	4	11	59	10	14	53	7	210
3:30 PM	3	7	21	14	4	6	8	103	7	9	48	10	240
3:45 PM	1	7	15	17	8	4	11	131	9	19	62	10	294
4:00 PM	0	9	32	18	7	11	14	115	8	12	58	11	295
4:15 PM	0	4	32	22	3	4	13	145	16	14	63	10	326
4:30 PM	3	10	27	24	6	9	17	137	16	22	56	10	337
4:45 PM	2	10	25	15	5	10	14	142	6	19	71	18	337
5:00 PM	1	11	51	26	8	5	16	116	3	23	68	14	342
5:15 PM	2	23	53	17	8	10	17	171	6	21	75	24	427
5:30 PM	2	19	52	26	7	7	19	140	4	14	83	19	392
5:45 PM	1	23	68	10	4	7	17	147	9	19	76	12	393
TOTAL VOLUMES :	21	135	406	221	75	85	165	1498	104	202	761	159	3832
APPROACH %'s :	3.74%	24.02%	72.24%	58.01%	19.69%	22.31%	9.34%	84.78%	5.89%	18.00%	67.83%	14.17%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	6	76	224	79	27	29	69	574	22	77	302	69	1554
PEAK HR FACTOR :	0.832			0.844			0.857			0.933			0.910

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
6:00 AM	0	1	4	1	4	1	4	12	2	11	102	36	178
6:15 AM	0	2	6	1	2	2	3	10	3	16	151	40	236
6:30 AM	2	6	3	3	2	4	3	22	5	25	131	58	264
6:45 AM	0	6	3	5	10	4	12	25	1	41	148	113	368
7:00 AM	1	2	9	3	8	6	3	23	1	52	114	111	333
7:15 AM	1	4	6	8	5	5	8	25	3	43	124	89	321
7:30 AM	1	5	7	5	4	2	6	31	2	43	122	79	307
7:45 AM	1	5	16	7	6	9	8	28	2	43	132	63	320
8:00 AM	2	8	8	10	11	3	3	7	0	52	117	88	309
8:15 AM	1	3	11	3	3	3	10	35	1	42	117	81	310
8:30 AM	1	7	10	11	9	9	8	25	2	52	122	93	349
8:45 AM	1	9	10	5	9	7	6	29	3	68	117	79	343
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	11	58	93	62	73	55	74	272	25	488	1497	930	3638
	6.79%	35.80%	57.41%	32.63%	38.42%	28.95%	19.95%	73.32%	6.74%	16.74%	51.36%	31.90%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	3	17	25	21	27	17	29	104	7	179	508	392	1329
PEAK HR FACTOR :	0.865			0.855			0.897			0.893			0.903

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
3:00 PM	1	4	20	8	8	8	7	90	10	16	46	12	230
3:15 PM	4	7	9	23	6	4	8	56	9	14	53	5	198
3:30 PM	3	7	21	14	4	6	7	103	5	9	48	8	235
3:45 PM	1	7	15	17	8	4	10	130	9	19	59	10	289
4:00 PM	0	9	32	17	7	11	13	114	8	12	56	9	288
4:15 PM	0	3	32	22	3	4	13	144	15	14	61	9	320
4:30 PM	3	10	27	24	5	9	16	136	16	21	56	9	332
4:45 PM	2	7	24	15	5	10	12	141	5	19	71	16	327
5:00 PM	1	11	50	24	8	5	16	115	2	23	67	14	336
5:15 PM	2	21	52	17	8	10	15	169	6	20	75	23	418
5:30 PM	2	18	52	26	6	7	18	140	4	14	83	18	388
5:45 PM	1	20	68	9	4	7	16	146	9	19	75	11	385
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	20	124	402	216	72	85	151	1484	98	200	750	144	3746
	3.66%	22.71%	73.63%	57.91%	19.30%	22.79%	8.71%	85.63%	5.65%	18.28%	68.56%	13.16%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	6	70	222	76	26	29	65	570	21	76	300	66	1527
PEAK HR FACTOR :	0.837			0.840			0.863			0.936			0.913

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Alameda St

East/West N Vignes St Alpine St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	163	185	49	95
BUSES	19	16	24	33
	66	105	37	28

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	96	7.15	345	8.45	64	8.45	240	7.30
PM PK 15 MIN	308	17.45	147	17.00	135	17.00	215	17.30
AM PK HOUR	341	7.15	1295	7.15	227	7.30	928	8.00
PM PK HOUR	1169	17.00	532	17.00	487	16.45	805	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	18	159	5	182
7-8	46	256	4	306
8-9	53	249	17	319
15-16	79	606	20	705
16-17	119	871	37	1027
17-18	171	950	48	1169
TOTAL	486	3091	131	3708

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	68	640	66	774
7-8	113	932	213	1258
8-9	125	823	273	1221
15-16	63	349	40	452
16-17	76	360	47	483
17-18	93	384	55	532
TOTAL	538	3488	694	4720

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
956	8	0	8	0
1564	14	0	7	0
1540	16	0	24	0
1157	25	0	16	0
1510	18	0	29	0
1701	19	0	7	0
8428	100	0	91	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	18	74	40	132
7-8	35	114	54	203
8-9	52	107	63	222
15-16	53	169	63	285
16-17	103	228	70	401
17-18	100	312	68	480
TOTAL	361	1004	358	1723

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	41	266	60	367
7-8	45	711	126	882
8-9	62	733	133	928
15-16	44	335	241	620
16-17	42	359	330	731
17-18	54	406	345	805
TOTAL	288	2810	1235	4333

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
499	10	0	6	0
1085	13	0	8	0
1150	22	0	10	1
905	18	0	14	0
1132	15	0	16	0
1285	9	0	6	0
6056	87	0	60	1

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

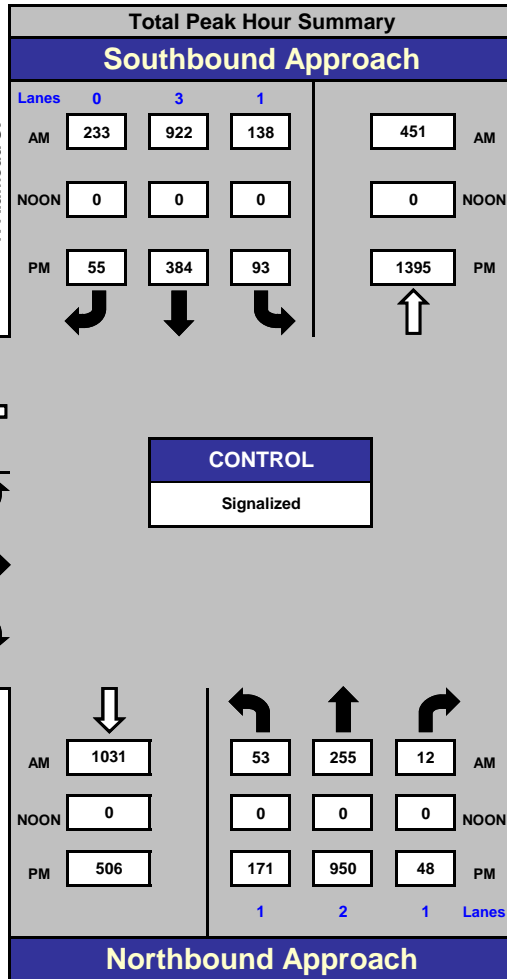
N Alameda St and N Vignes St Alpine St, Los Angeles

Date: 11/5/2015

Day: Thursday

Project #: 15-5663-012

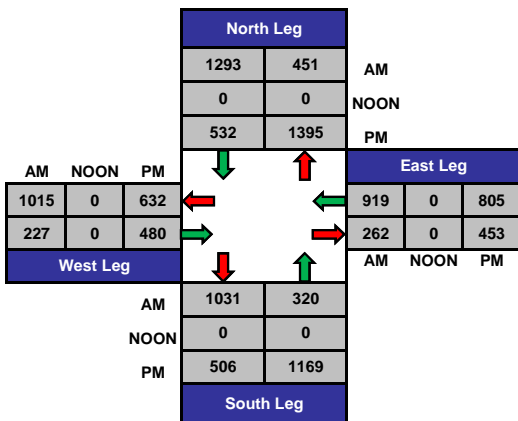
City: Los Angeles



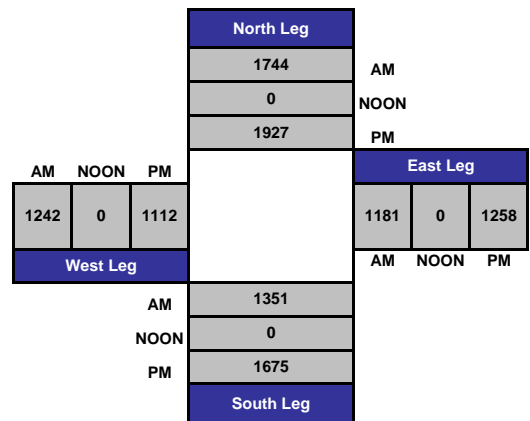
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL 1	NT 2	NR 1	SL 1	ST 3	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1																											
6:00 AM	5	23	0	9	115	9	2	20	7	8	21	10	229																										
6:15 AM	3	39	1	13	159	11	3	16	9	13	48	19	334																										
6:30 AM	4	44	2	24	187	19	4	23	10	11	68	16	412																										
6:45 AM	6	53	2	22	179	27	9	15	14	9	129	15	480																										
7:00 AM	5	28	1	24	212	48	4	32	7	7	174	20	562																										
7:15 AM	12	83	1	21	246	62	7	22	17	9	186	25	691																										
7:30 AM	18	75	2	35	229	46	10	27	16	17	176	47	698																										
7:45 AM	11	70	0	33	245	57	14	33	14	12	175	34	698																										
8:00 AM	15	48	6	33	212	76	13	28	16	7	184	28	666																										
8:15 AM	9	62	4	37	236	54	17	24	15	12	194	33	697																										
8:30 AM	14	63	4	31	135	62	8	20	17	20	181	30	585																										
8:45 AM	15	76	3	24	240	81	14	35	15	23	174	42	742																										
TOTAL VOLUMES :	117	664	26	306	2395	552	105	295	157	148	1710	319	6794																										
APPROACH %'s :	14.50%	82.28%	3.22%	9.41%	73.62%	16.97%	18.85%	52.96%	28.19%	6.80%	78.55%	14.65%																											
PEAK HR START TIME :	730 AM												TOTAL																										
PEAK HR VOL :	53			255			12			138			922			233			54			112			61			48			729			142			2759		
PEAK HR FACTOR :	0.842			0.965			0.930			0.957			0.988																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 3	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	
3:00 PM	17	109	2	18	86	7	10	37	17	10	87	49	449
3:15 PM	17	148	5	15	89	11	17	38	15	10	76	54	495
3:30 PM	18	165	8	12	76	15	15	49	13	10	79	61	521
3:45 PM	27	184	5	18	98	7	11	45	18	14	93	77	597
4:00 PM	22	183	6	13	98	11	26	57	18	11	87	77	609
4:15 PM	30	219	6	19	97	8	20	53	19	8	85	72	636
4:30 PM	39	242	9	24	79	9	20	66	18	11	103	90	710
4:45 PM	28	227	16	20	86	19	37	52	15	12	84	91	687
5:00 PM	39	255	11	22	114	11	40	78	17	15	91	88	781
5:15 PM	36	233	7	26	95	18	24	89	18	15	86	83	730
5:30 PM	47	221	12	19	85	16	16	82	19	9	118	88	732
5:45 PM	49	241	18	26	90	10	20	63	14	15	111	86	743
TOTAL VOLUMES :	NL 369	NT 2427	NR 105	SL 232	ST 1093	SR 142	EL 256	ET 709	ER 201	WL 140	WT 1100	WR 916	TOTAL 7690
APPROACH %'s :	12.72%	83.66%	3.62%	15.81%	74.51%	9.68%	21.96%	60.81%	17.24%	6.49%	51.02%	42.49%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	171	950	48	93	384	55	100	312	68	54	406	345	2986
PEAK HR FACTOR :	0.949			0.905			0.889			0.936			0.956

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 3	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	
6:00 AM	4	15	0	9	75	5	1	20	7	8	21	10	175
6:15 AM	3	34	0	10	124	9	1	16	9	12	48	17	283
6:30 AM	4	41	2	22	172	15	1	21	9	11	66	15	379
6:45 AM	5	44	2	20	168	25	8	15	14	7	125	9	442
7:00 AM	4	22	1	23	208	44	2	30	7	7	169	19	536
7:15 AM	12	75	1	21	237	59	5	21	16	8	184	23	662
7:30 AM	17	67	2	35	223	43	7	26	16	17	171	43	667
7:45 AM	11	63	0	32	240	55	12	32	14	12	170	33	674
8:00 AM	14	44	5	33	204	75	11	27	16	7	179	25	640
8:15 AM	8	54	3	36	229	50	14	23	15	10	190	31	663
8:30 AM	14	48	4	30	126	59	5	18	17	20	176	30	547
8:45 AM	14	58	3	24	234	78	12	33	15	22	168	42	703
TOTAL VOLUMES :	110	565	23	295	2240	517	79	282	155	141	1667	297	6371
APPROACH %'s :	15.76%	80.95%	3.30%	9.67%	73.39%	16.94%	15.31%	54.65%	30.04%	6.70%	79.19%	14.11%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	50	228	10	136	896	223	44	108	61	46	710	132	2644
PEAK HR FACTOR :	0.837			0.959			0.918			0.961			0.981

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 3	SR 0	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	
3:00 PM	16	101	2	18	75	6	7	36	17	10	87	48	423
3:15 PM	16	143	5	14	81	9	16	37	14	8	73	50	466
3:30 PM	18	155	8	11	73	14	13	47	13	9	79	60	500
3:45 PM	27	175	5	18	96	4	8	45	18	14	89	74	573
4:00 PM	22	176	6	10	89	9	23	54	18	11	81	75	574
4:15 PM	30	206	5	17	91	7	18	51	19	8	84	69	605
4:30 PM	39	228	9	23	76	6	17	65	18	11	101	87	680
4:45 PM	28	219	16	20	83	18	35	52	15	12	83	88	669
5:00 PM	39	245	11	22	109	9	35	77	17	15	90	88	757
5:15 PM	36	227	7	26	92	15	23	86	18	13	85	81	709
5:30 PM	47	208	12	17	82	14	15	80	18	9	118	86	706
5:45 PM	48	230	16	26	89	9	20	63	13	14	111	84	723
TOTAL VOLUMES :	NL 366	NT 2313	NR 102	SL 222	ST 1036	SR 120	EL 230	ET 693	ER 198	WL 134	WT 1081	WR 890	TOTAL 7385
APPROACH %'s :	13.16%	83.17%	3.67%	16.11%	75.18%	8.71%	20.52%	61.82%	17.66%	6.37%	51.35%	42.28%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	170	910	46	91	372	47	93	306	66	51	404	339	2895
PEAK HR FACTOR :	0.954			0.911			0.901			0.932			0.956

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Vignes St

East/West N Main St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	155	228	39	229
BUSES	7	9	50	26
	26	3	12	30

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	62	7.45	334	8.00	68	7.45	168	7.30
PM PK 15 MIN	191	17.00	179	17.00	120	17.15	266	17.45
AM PK HOUR	210	7.45	1249	7.15	258	7.30	567	7.30
PM PK HOUR	678	17.00	641	16.30	455	17.00	978	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	3	140	17	160
7-8	4	161	38	203
8-9	1	162	45	208
15-16	6	260	32	298
16-17	6	432	30	468
17-18	5	639	34	678
TOTAL	25	1794	196	2015

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	130	329	234	693
7-8	223	439	515	1177
8-9	195	470	570	1235
15-16	154	251	122	527
16-17	210	240	125	575
17-18	183	267	181	631
TOTAL	1095	1996	1747	4838

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
853	5	0	4	0
1380	6	0	8	0
1443	13	0	13	1
825	15	0	13	0
1043	10	0	3	0
1309	9	0	10	0
6853	58	0	51	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	13	126	7	146
7-8	52	178	1	231
8-9	71	164	7	242
15-16	96	149	8	253
16-17	129	202	4	335
17-18	222	232	1	455
TOTAL	583	1051	28	1662

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	146	111	257
7-8	0	355	176	531
8-9	0	353	158	511
15-16	0	494	182	676
16-17	0	594	267	861
17-18	0	626	352	978
TOTAL	0	2568	1246	3814

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
403	3	0	9	0
762	3	0	7	0
753	4	0	16	1
929	9	0	15	0
1196	6	0	8	0
1433	3	0	12	0
5476	28	0	67	1

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

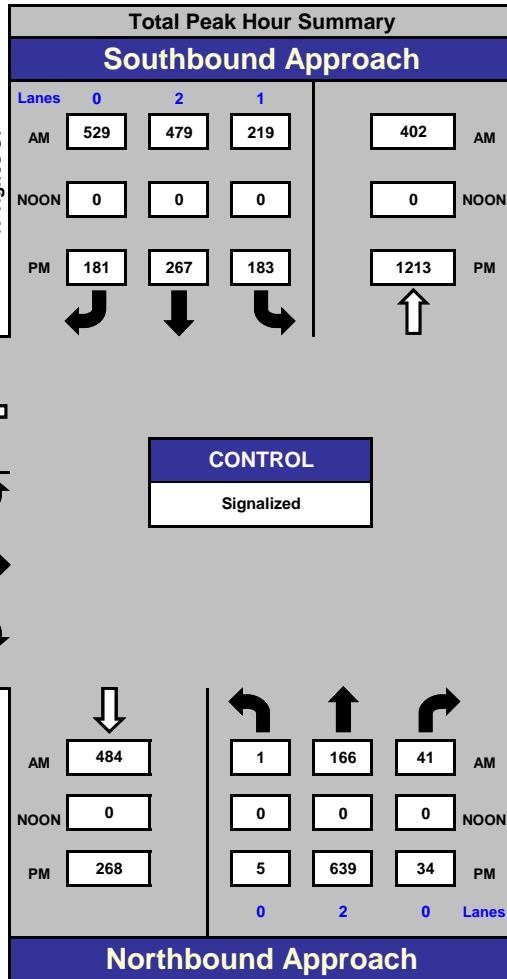
N Vignes St and N Main St, Los Angeles

Date: 11/5/2015

Day: Thursday

Project #: 15-5663-015

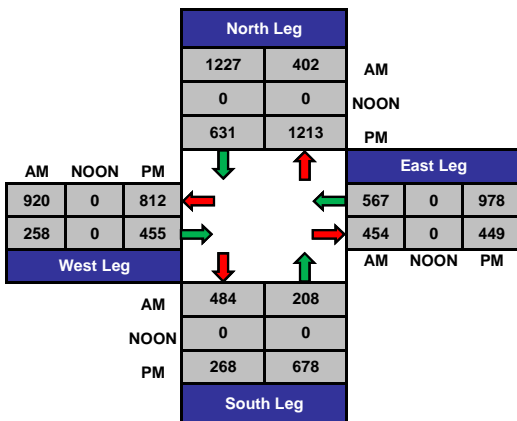
City: Los Angeles



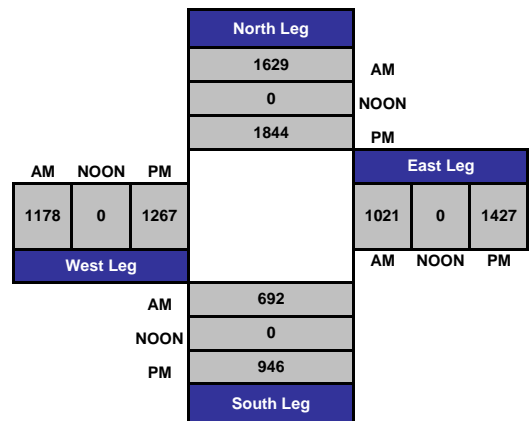
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM	0	23	4	29	52	12	4	24	1	0	28	37	214
6:15 AM	0	41	5	41	80	38	0	25	2	0	48	25	305
6:30 AM	0	34	2	25	84	65	5	40	2	0	26	20	303
6:45 AM	3	42	6	35	113	119	4	37	2	0	44	29	434
7:00 AM	4	31	7	50	90	122	19	40	0	0	64	24	451
7:15 AM	0	30	9	48	133	151	8	32	0	0	71	49	531
7:30 AM	0	48	12	62	116	118	14	49	1	0	116	52	588
7:45 AM	0	52	10	63	100	124	11	57	0	0	104	51	572
8:00 AM	0	31	9	51	139	144	24	41	1	0	72	34	546
8:15 AM	1	35	10	43	124	143	10	47	3	0	98	40	554
8:30 AM	0	53	9	43	110	143	16	42	1	0	83	42	542
8:45 AM	0	43	17	58	97	140	21	34	2	0	100	42	554
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	8	463	100	548	1238	1319	136	468	15	0	854	445	5594
	1.40%	81.09%	17.51%	17.65%	39.87%	42.48%	21.97%	75.61%	2.42%	0.00%	65.74%	34.26%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	166	41	219	479	529	59	194	5	0	390	177	2260
PEAK HR FACTOR :	0.839			0.918			0.949			0.844			0.961

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1	2	0	1	2	0	
3:00 PM	2	52	8	34	52	28	22	32	1	0	116	28	375
3:15 PM	1	58	6	28	69	28	23	38	1	0	109	60	421
3:30 PM	0	68	8	60	64	25	27	40	4	0	123	49	468
3:45 PM	3	82	10	32	66	41	24	39	2	0	146	45	490
4:00 PM	3	85	5	62	64	25	27	45	3	0	147	63	529
4:15 PM	0	90	11	48	48	29	27	50	0	0	139	55	497
4:30 PM	1	128	8	69	69	38	37	60	1	0	156	62	629
4:45 PM	2	129	6	31	59	33	38	47	0	0	152	87	584
5:00 PM	0	182	9	47	78	54	61	54	0	0	144	79	708
5:15 PM	0	152	9	57	65	41	55	64	1	0	146	88	678
5:30 PM	3	152	5	42	58	42	49	65	0	0	167	88	671
5:45 PM	2	153	11	37	66	44	57	49	0	0	169	97	685
TOTAL VOLUMES :	17	1331	96	547	758	428	447	583	13	0	1714	801	6735
APPROACH %'s :	1.18%	92.17%	6.65%	31.56%	43.74%	24.70%	42.86%	55.90%	1.25%	0.00%	68.15%	31.85%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	5	639	34	183	267	181	222	232	1	0	626	352	2742
PEAK HR FACTOR :	0.887			0.881			0.948			0.919			0.968

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM	0	20	3	24	48	12	4	24	1	0	28	36	200
6:15 AM	0	38	4	32	75	37	0	23	1	0	46	23	279
6:30 AM	0	30	2	24	80	62	3	38	2	0	25	19	285
6:45 AM	3	33	6	28	110	115	4	34	2	0	35	26	396
7:00 AM	4	27	6	47	86	121	18	36	0	0	60	22	427
7:15 AM	0	27	9	44	129	150	8	31	0	0	68	48	514
7:30 AM	0	40	11	61	112	116	14	49	1	0	110	48	562
7:45 AM	0	45	10	59	97	122	11	55	0	0	100	48	547
8:00 AM	0	26	9	50	131	140	22	41	1	0	67	28	515
8:15 AM	1	30	9	41	118	140	10	47	3	0	94	32	525
8:30 AM	0	38	9	38	100	139	14	40	1	0	80	27	486
8:45 AM	0	33	15	46	92	134	21	34	2	0	100	36	513
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	8	387	93	494	1178	1288	129	452	14	0	813	393	5249
	1.64%	79.30%	19.06%	16.69%	39.80%	43.51%	21.68%	75.97%	2.35%	0.00%	67.41%	32.59%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	141	39	211	458	518	57	192	5	0	371	156	2149
PEAK HR FACTOR :	0.823			0.924			0.962			0.834			0.956

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1	2	0	1	2	0	
3:00 PM	2	47	8	32	48	28	22	29	1	0	115	24	356
3:15 PM	1	53	6	26	62	26	20	36	1	0	103	50	384
3:30 PM	0	62	8	56	63	24	27	38	4	0	122	38	442
3:45 PM	3	75	9	25	62	38	24	39	2	0	141	37	455
4:00 PM	3	76	5	57	58	24	27	42	3	0	140	53	488
4:15 PM	0	81	11	40	44	29	24	50	0	0	136	50	465
4:30 PM	1	121	8	66	68	38	35	59	1	0	152	54	603
4:45 PM	2	122	6	30	59	33	38	47	0	0	148	75	560
5:00 PM	0	168	9	44	75	54	61	54	0	0	142	72	679
5:15 PM	0	143	9	56	65	38	53	64	1	0	144	70	643
5:30 PM	3	144	5	39	57	42	49	63	0	0	165	71	638
5:45 PM	2	142	11	33	65	43	55	47	0	0	167	80	645
TOTAL VOLUMES :	17	1234	95	504	726	417	435	568	13	0	1675	674	6358
APPROACH %'s :	1.26%	91.68%	7.06%	30.60%	44.08%	25.32%	42.81%	55.91%	1.28%	0.00%	71.31%	28.69%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	5	597	34	172	262	177	218	228	1	0	618	293	2605
PEAK HR FACTOR :	0.898			0.883			0.947			0.922			0.959

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Alameda St_N Spring St

East/West W College St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	184	165	33	78
BUSES	27	23	15	9
BUSES	124	69	40	35

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	117	7.30	358	8.45	95	8.45	51	8.15
PM PK 15 MIN	386	17.00	125	17.15	114	17.00	74	17.30
AM PK HOUR	441	7.15	1283	8.00	311	7.30	186	8.00
PM PK HOUR	1397	16.30	426	16.45	376	16.15	247	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	85	155	4	244
7-8	159	223	5	387
8-9	170	235	11	416
15-16	292	588	12	892
16-17	477	767	14	1258
17-18	516	852	27	1395
TOTAL	1699	2820	73	4592

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	12	578	51	641
7-8	5	1016	96	1117
8-9	11	1123	149	1283
15-16	7	284	45	336
16-17	14	274	60	348
17-18	9	317	98	424
TOTAL	58	3592	499	4149

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
885	27	1	12	0
1504	59	5	25	3
1699	66	2	22	0
1228	77	5	24	0
1606	58	1	15	0
1819	50	0	18	0
8741	337	14	116	3

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	44	40	146	230
7-8	77	42	165	284
8-9	78	67	162	307
15-16	76	75	138	289
16-17	101	78	160	339
17-18	105	92	168	365
TOTAL	481	394	939	1814

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	37	43	30	110
7-8	25	118	5	148
8-9	28	148	10	186
15-16	11	68	12	91
16-17	21	104	18	143
17-18	31	190	26	247
TOTAL	153	671	101	925

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
340	17	0	2	0
432	12	1	10	1
493	24	0	15	0
380	53	0	20	1
482	25	0	13	2
612	16	0	9	1
2739	147	1	69	5

ITM Peak Hour Summary

Prepared by:

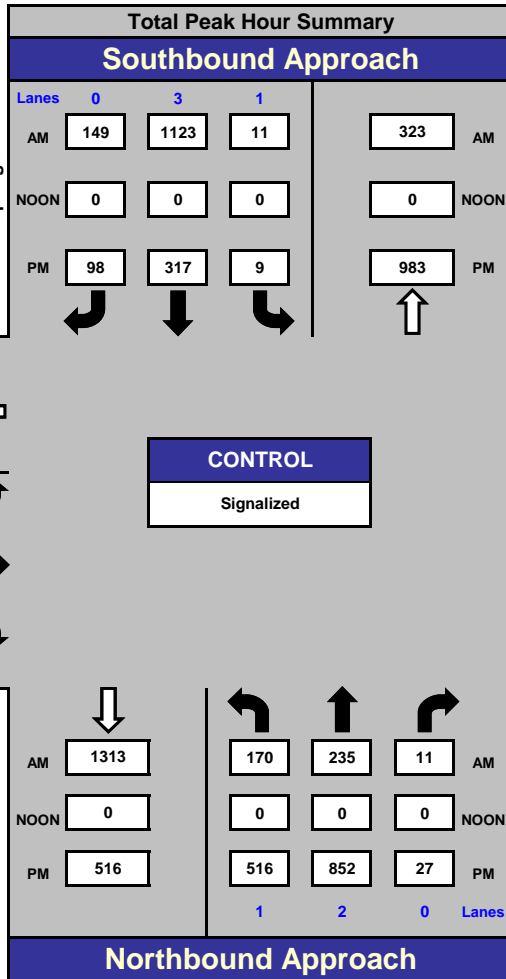


National Data & Surveying Services

N Alameda St N Spring St and W College St, Los Angeles

Date: 11/5/2015
Day: Thursday

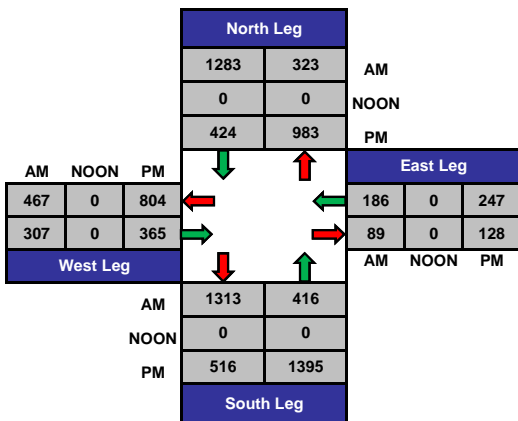
Project #: 15-5663-016
City: Los Angeles



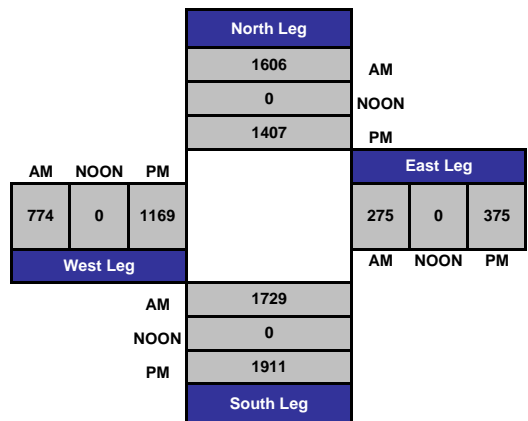
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	
6:00 AM	20	20	1	3	90	7	10	4	28	12	9	13	217
6:15 AM	20	44	1	1	130	12	15	10	36	16	9	7	301
6:30 AM	22	43	1	5	165	15	10	13	44	6	10	6	340
6:45 AM	23	48	1	3	193	17	9	13	38	3	15	4	367
7:00 AM	22	27	0	1	232	19	12	5	36	3	34	1	392
7:15 AM	30	80	1	1	276	19	22	5	37	4	27	1	503
7:30 AM	59	55	3	0	240	24	19	16	47	8	24	3	498
7:45 AM	48	61	1	3	268	34	24	16	45	10	33	0	543
8:00 AM	40	62	1	3	265	30	22	13	41	8	28	2	515
8:15 AM	48	55	4	3	293	27	15	17	36	6	43	2	549
8:30 AM	41	50	2	1	264	39	20	13	35	8	41	2	516
8:45 AM	41	68	4	4	301	53	21	24	50	6	36	4	612
TOTAL VOLUMES :	414	613	20	28	2717	296	199	149	473	90	309	45	5353
APPROACH %'s :	39.54%	58.55%	1.91%	0.92%	89.35%	9.73%	24.24%	18.15%	57.61%	20.27%	69.59%	10.14%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	170	235	11	11	1123	149	78	67	162	28	148	10	2192
PEAK HR FACTOR :	0.920			0.896			0.808			0.912			0.895

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	
3:00 PM	56	117	3	1	64	11	19	27	38	4	11	2	353
3:15 PM	68	140	4	0	75	13	19	16	33	3	14	2	387
3:30 PM	82	159	3	3	62	13	24	14	34	1	23	3	421
3:45 PM	86	172	2	3	83	8	14	18	33	3	20	5	447
4:00 PM	101	175	1	3	77	11	25	14	38	3	20	5	473
4:15 PM	118	175	4	2	71	11	27	23	42	7	25	2	507
4:30 PM	139	192	3	2	54	19	17	15	51	5	31	2	530
4:45 PM	119	225	6	7	72	19	32	26	29	6	28	9	578
5:00 PM	142	239	5	3	82	19	30	29	55	9	36	7	656
5:15 PM	116	206	5	2	91	32	24	24	35	8	55	5	603
5:30 PM	120	206	7	2	76	21	27	16	44	6	58	10	593
5:45 PM	138	201	10	2	68	26	24	23	34	8	41	4	579
TOTAL VOLUMES :	1285	2207	53	30	875	203	282	245	466	63	362	56	6127
APPROACH %'s :	36.25%	62.26%	1.50%	2.71%	78.97%	18.32%	28.40%	24.67%	46.93%	13.10%	75.26%	11.64%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	516	852	27	9	317	98	105	92	168	31	190	26	2431
PEAK HR FACTOR :	0.903			0.848			0.800			0.834			0.926

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	
6:00 AM	15	16	1	3	58	7	10	4	28	0	5	1	148
6:15 AM	18	37	1	1	105	11	13	9	35	3	6	2	241
6:30 AM	19	38	1	4	147	14	8	13	44	0	10	2	300
6:45 AM	19	38	1	2	184	17	6	13	36	1	14	2	333
7:00 AM	19	21	0	1	222	19	10	5	36	1	33	1	368
7:15 AM	27	72	1	1	268	19	20	5	34	2	27	1	477
7:30 AM	55	45	3	0	235	23	17	16	45	7	23	1	470
7:45 AM	44	53	1	3	265	32	23	16	43	9	32	0	521
8:00 AM	38	54	1	3	258	30	21	13	40	6	28	1	493
8:15 AM	45	45	2	1	286	27	10	17	36	3	43	2	517
8:30 AM	39	39	1	1	254	37	19	13	35	7	40	2	487
8:45 AM	38	57	0	1	293	50	19	23	49	5	36	4	575
TOTAL VOLUMES :	NL 376	NT 515	NR 13	SL 21	ST 2575	SR 286	EL 176	ET 147	ER 461	WL 44	WT 297	WR 19	TOTAL 4930
APPROACH %'s :	41.59%	56.97%	1.44%	0.73%	89.35%	9.92%	22.45%	18.75%	58.80%	12.22%	82.50%	5.28%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	160	195	4	6	1091	144	69	66	160	21	147	9	2072
PEAK HR FACTOR :	0.945			0.902			0.810			0.903			0.901

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 1	ER 1	WL 1	WT 1	WR 0	
3:00 PM	53	105	3	1	55	11	17	27	38	2	11	2	325
3:15 PM	66	134	4	0	69	13	18	14	31	1	14	2	366
3:30 PM	80	149	2	2	58	12	24	14	33	0	23	3	400
3:45 PM	85	159	1	1	80	8	12	17	33	1	19	5	421
4:00 PM	98	163	1	3	68	11	21	14	35	2	20	2	438
4:15 PM	114	167	2	1	67	11	27	21	41	5	25	2	483
4:30 PM	135	182	0	0	50	19	16	13	50	4	31	2	502
4:45 PM	115	216	5	0	69	18	31	25	29	5	27	8	548
5:00 PM	139	229	2	1	78	19	28	29	55	7	36	6	629
5:15 PM	113	201	4	1	88	32	22	24	34	7	54	4	584
5:30 PM	115	199	5	2	71	21	27	15	42	4	57	10	568
5:45 PM	135	192	7	1	66	26	24	23	33	8	39	4	558
TOTAL VOLUMES :	1248	2096	36	13	819	201	267	236	454	46	356	50	5822
APPROACH %'s :	36.92%	62.01%	1.07%	1.26%	79.28%	19.46%	27.90%	24.66%	47.44%	10.18%	78.76%	11.06%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	502	821	18	5	303	98	101	91	164	26	186	24	2339
PEAK HR FACTOR :	0.906			0.839			0.795			0.831			0.930

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Los Angeles St

East/West Arcadia St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	49	39	0	107
BUSES	28	45	3	8
BUSES	65	70	0	353

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	95	7.45	96	7.45	0	0.00	475	7.30
PM PK 15 MIN	338	17.45	58	17.45	0	0.00	188	17.45
AM PK HOUR	339	7.45	367	7.45	0	0.00	1860	7.15
PM PK HOUR	1226	17.00	187	17.00	0	0.00	639	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	19	132	0	151
7-8	66	211	0	277
8-9	74	260	0	334
15-16	57	597	0	654
16-17	107	834	0	941
17-18	183	1043	0	1226
TOTAL	506	3077	0	3583

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	166	13	179
7-8	0	325	25	350
8-9	0	320	40	360
15-16	0	109	36	145
16-17	0	113	29	142
17-18	0	149	38	187
TOTAL	0	1182	181	1363

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
330	3	0	17	1
627	0	0	32	0
694	0	0	22	0
799	0	0	32	0
1083	0	0	29	2
1413	0	0	33	1
4946	3	0	165	4

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	268	1281	41	1590
7-8	288	1519	43	1850
8-9	274	1508	55	1837
15-16	87	421	22	530
16-17	102	373	20	495
17-18	101	516	22	639
TOTAL	1120	5618	203	6941

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1590	26	0	74	0
1850	41	0	93	1
1837	32	0	77	0
530	39	2	70	0
495	49	0	62	1
639	50	0	47	0
6941	237	2	423	2

ITM Peak Hour Summary

Prepared by:

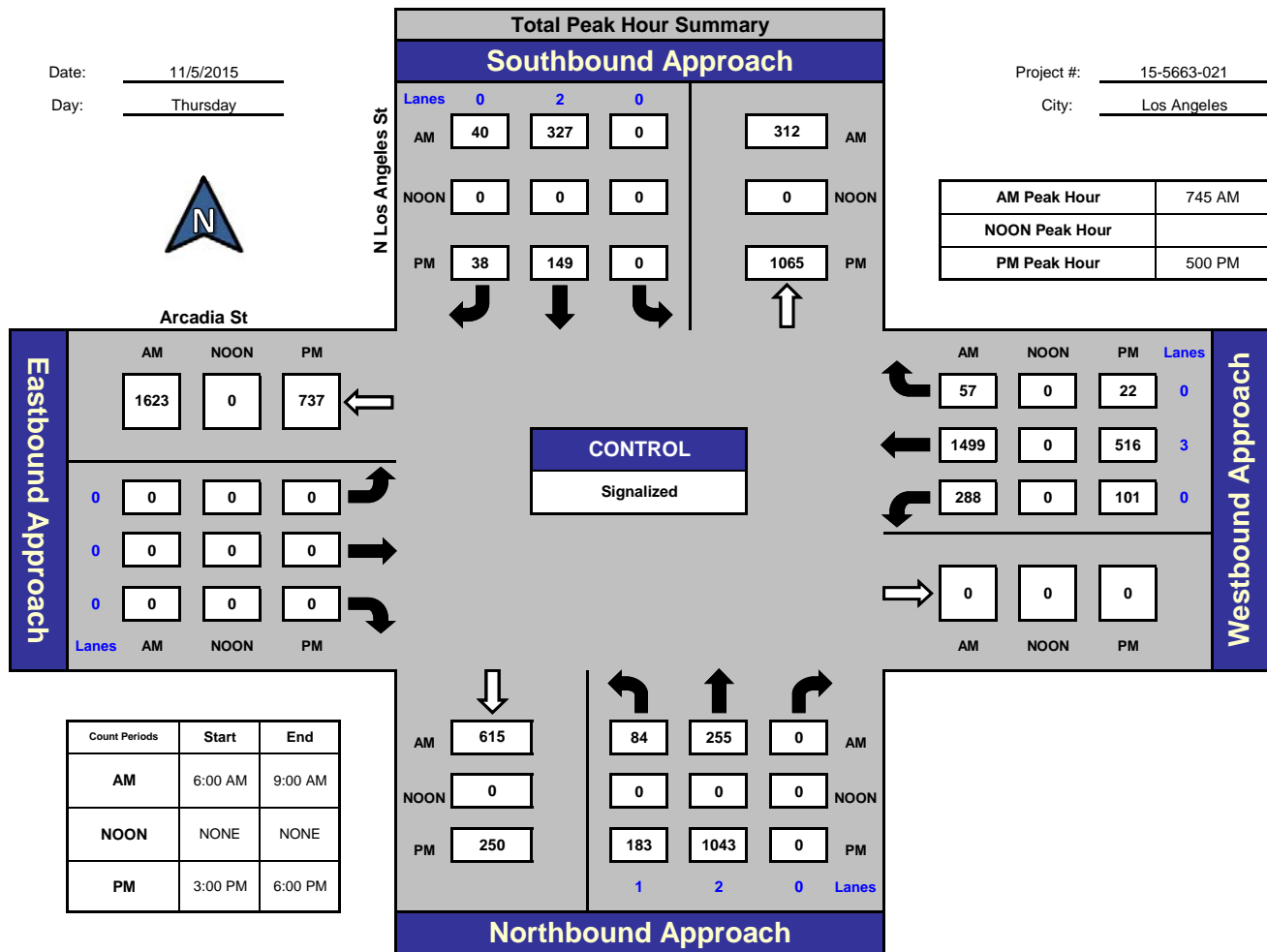


National Data & Surveying Services

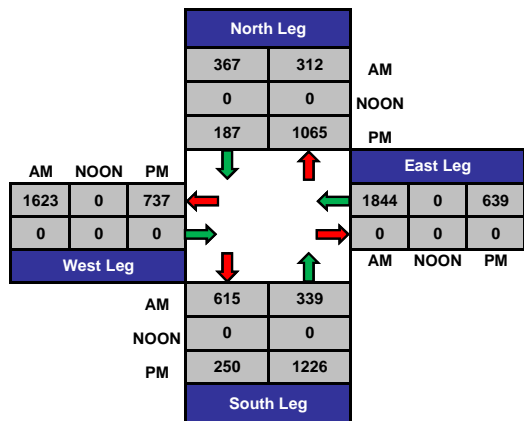
N Los Angeles St and Arcadia St, Los Angeles

Date: 11/5/2015
Day: Thursday

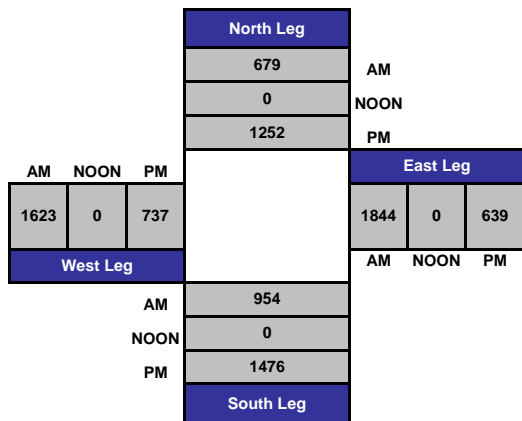
Project #: 15-5663-021
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 3	WR 0	
6:00 AM	3	24	0	0	17	4	0	0	0	73	283	5	409
6:15 AM	2	34	0	0	29	4	0	0	0	59	314	10	452
6:30 AM	8	40	0	0	49	2	0	0	0	65	319	13	496
6:45 AM	6	34	0	0	71	3	0	0	0	71	365	13	563
7:00 AM	6	40	0	0	76	3	0	0	0	72	364	14	575
7:15 AM	16	45	0	0	80	7	0	0	0	68	386	7	609
7:30 AM	19	56	0	0	80	8	0	0	0	62	405	8	638
7:45 AM	25	70	0	0	89	7	0	0	0	86	364	14	655
8:00 AM	14	56	0	0	79	10	0	0	0	75	371	14	619
8:15 AM	24	59	0	0	76	12	0	0	0	62	373	11	617
8:30 AM	21	70	0	0	83	11	0	0	0	65	391	18	659
8:45 AM	15	75	0	0	82	7	0	0	0	72	373	12	636
TOTAL VOLUMES :	159	603	0	0	811	78	0	0	0	830	4308	139	6928
APPROACH %'s :	20.87%	79.13%	0.00%	0.00%	91.23%	8.77%	#DIV/0!	#DIV/0!	#DIV/0!	15.73%	81.64%	2.63%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	84	255	0	0	327	40	0	0	0	288	1499	57	2550
PEAK HR FACTOR :	0.892			0.956			0.000			0.973			0.967

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 3	WR 0	
3:00 PM	12	130	0	0	28	9	0	0	0	21	101	6	307
3:15 PM	18	135	0	0	28	9	0	0	0	24	118	3	335
3:30 PM	11	167	0	0	23	12	0	0	0	19	127	8	367
3:45 PM	16	165	0	0	30	6	0	0	0	23	75	5	320
4:00 PM	23	194	0	0	27	10	0	0	0	27	79	6	366
4:15 PM	34	213	0	0	25	3	0	0	0	20	75	5	375
4:30 PM	28	190	0	0	31	7	0	0	0	21	104	5	386
4:45 PM	22	237	0	0	30	9	0	0	0	34	115	4	451
5:00 PM	40	219	0	0	40	5	0	0	0	22	133	5	464
5:15 PM	37	265	0	0	29	6	0	0	0	25	96	7	465
5:30 PM	42	285	0	0	33	16	0	0	0	31	127	5	539
5:45 PM	64	274	0	0	47	11	0	0	0	23	160	5	584
TOTAL VOLUMES :	NL 347	NT 2474	NR 0	SL 0	ST 371	SR 103	EL 0	ET 0	ER 0	WL 290	WT 1310	WR 64	TOTAL 4959
APPROACH %'s :	12.30%	87.70%	0.00%	0.00%	78.27%	21.73%	#DIV/0!	#DIV/0!	#DIV/0!	17.43%	78.73%	3.85%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	183	1043	0	0	149	38	0	0	0	101	516	22	2052
PEAK HR FACTOR :	0.907			0.806			0.000			0.850			0.878

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	0	2	0	0	0	0	0	3	0	
6:00 AM	3	22	0	0	14	4	0	0	0	69	269	5	386
6:15 AM	2	31	0	0	25	4	0	0	0	57	295	10	424
6:30 AM	8	36	0	0	44	2	0	0	0	64	301	13	468
6:45 AM	6	30	0	0	66	3	0	0	0	70	339	13	527
7:00 AM	6	35	0	0	70	3	0	0	0	70	339	14	537
7:15 AM	15	40	0	0	76	7	0	0	0	65	358	6	567
7:30 AM	19	51	0	0	75	7	0	0	0	62	384	8	606
7:45 AM	25	65	0	0	85	6	0	0	0	82	341	14	618
8:00 AM	14	49	0	0	75	9	0	0	0	75	346	14	582
8:15 AM	24	57	0	0	74	10	0	0	0	59	356	11	591
8:30 AM	19	66	0	0	80	10	0	0	0	64	368	15	622
8:45 AM	15	69	0	0	78	6	0	0	0	71	354	12	605
TOTAL VOLUMES :	156	551	0	0	762	71	0	0	0	808	4050	135	6533
APPROACH %'s :	22.07%	77.93%	0.00%	0.00%	91.48%	8.52%				16.18%	81.11%	2.70%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	82	237	0	0	314	35	0	0	0	280	1411	54	2413
PEAK HR FACTOR :	0.886			0.959			0.000			0.976			0.970

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 2	SR 0	EL 0	ET 0	ER 0	WL 0	WT 3	WR 0	
3:00 PM	12	125	0	0	23	6	0	0	0	21	94	6	287
3:15 PM	18	132	0	0	24	9	0	0	0	24	106	3	316
3:30 PM	11	162	0	0	21	11	0	0	0	18	112	8	343
3:45 PM	16	157	0	0	26	6	0	0	0	23	61	5	294
4:00 PM	23	189	0	0	23	8	0	0	0	27	68	6	344
4:15 PM	34	210	0	0	20	3	0	0	0	19	61	4	351
4:30 PM	28	188	0	0	28	6	0	0	0	20	89	5	364
4:45 PM	21	232	0	0	27	9	0	0	0	34	100	4	427
5:00 PM	40	211	0	0	37	4	0	0	0	21	115	3	431
5:15 PM	37	261	0	0	27	6	0	0	0	22	84	6	443
5:30 PM	42	280	0	0	28	16	0	0	0	29	114	5	514
5:45 PM	64	269	0	0	42	11	0	0	0	23	143	5	557
TOTAL VOLUMES :	NL 346	NT 2416	NR 0	SL 0	ST 326	SR 95	EL 0	ET 0	ER 0	WL 281	WT 1147	WR 60	TOTAL 4671
APPROACH %'s :	12.53%	87.47%	0.00%	0.00%	77.43%	22.57%				18.88%	77.08%	4.03%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	183	1021	0	0	134	37	0	0	0	95	456	19	1945
PEAK HR FACTOR :	0.904			0.807			0.000			0.833			0.873

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Los Angeles St

East/West E Aliso St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	53	31	31	0
BUSES	23	52	7	3
BUSES	71	89	229	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	100	8.45	172	7.45	89	8.15	0	0.00
PM PK 15 MIN	366	17.45	68	17.00	120	15.15	0	0.00
AM PK HOUR	369	8.00	623	7.15	315	8.00	0	0.00
PM PK HOUR	1311	17.00	252	17.00	452	15.00	0	0.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	127	27	154
7-8	0	268	38	306
8-9	1	298	70	369
15-16	0	572	130	702
16-17	0	875	165	1040
17-18	0	1153	158	1311
TOTAL	1	3293	588	3882

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	428	0	428
7-8	0	615	0	615
8-9	0	599	0	599
15-16	0	189	0	189
16-17	1	210	0	211
17-18	0	252	0	252
TOTAL	1	2293	0	2294

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
582	44	0	0	0
921	42	0	0	0
968	35	0	1	0
891	33	2	0	0
1251	87	0	0	0
1563	61	0	1	0
6176	302	2	2	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	28	86	61	175
7-8	4	117	122	243
8-9	41	118	156	315
15-16	81	320	51	452
16-17	61	286	32	379
17-18	79	246	20	345
TOTAL	294	1173	442	1909

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
175	31	0	80	0
243	37	0	115	0
315	36	0	84	0
452	36	1	78	1
379	29	0	87	0
345	33	0	65	0
1909	202	1	509	1

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

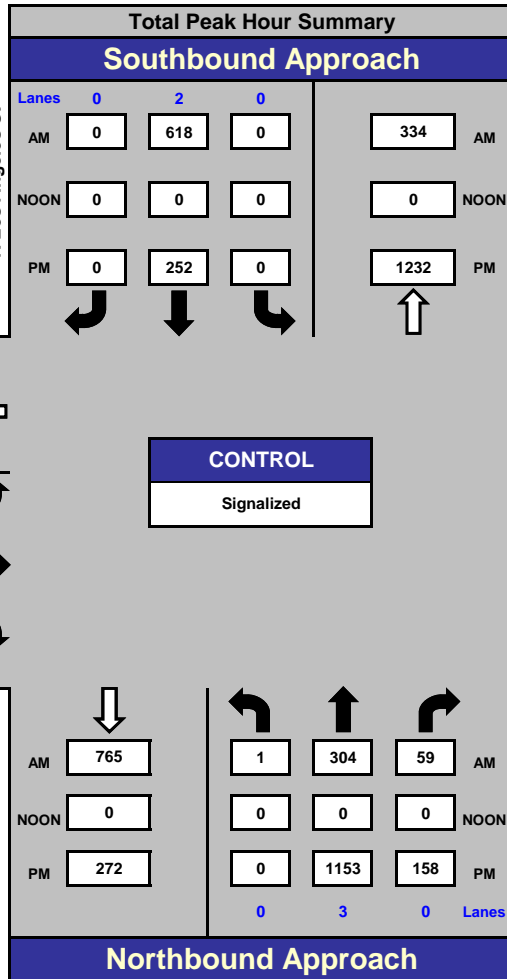
N Los Angeles St and E Aliso St, Los Angeles

Date: 11/5/2015

Day: Thursday

Project #: 15-5663-022

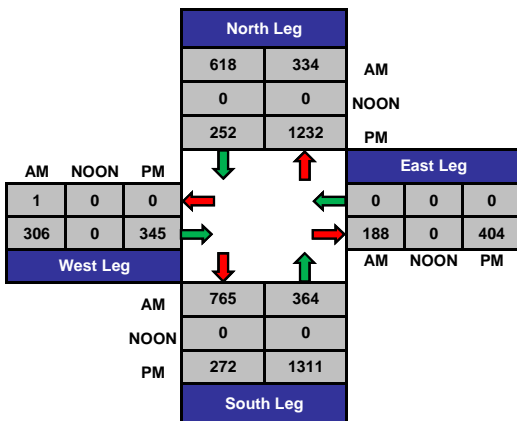
City: Los Angeles



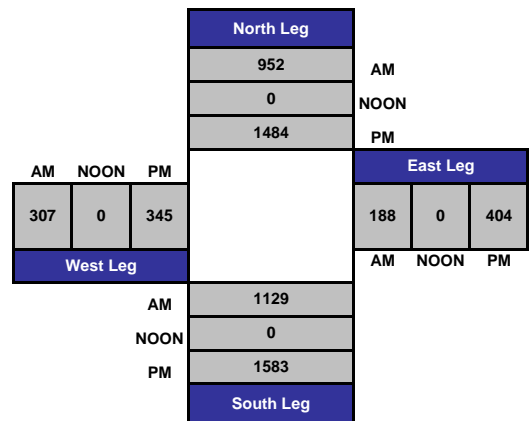
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	0	2	0	0	4	0	0	0	0	
6:00 AM	0	14	7	0	86	0	9	22	10	0	0	0	148
6:15 AM	0	35	6	0	85	0	2	21	12	0	0	0	161
6:30 AM	0	37	7	0	118	0	10	24	19	0	0	0	215
6:45 AM	0	41	7	0	139	0	7	19	20	0	0	0	233
7:00 AM	0	42	17	0	146	0	1	26	29	0	0	0	261
7:15 AM	0	56	6	0	153	0	0	31	28	0	0	0	274
7:30 AM	0	82	8	0	144	0	0	30	34	0	0	0	298
7:45 AM	0	88	7	0	172	0	3	30	31	0	0	0	331
8:00 AM	0	62	20	0	154	0	10	29	40	0	0	0	315
8:15 AM	0	77	15	0	142	0	5	39	45	0	0	0	323
8:30 AM	1	77	17	0	150	0	12	31	31	0	0	0	319
8:45 AM	0	82	18	0	153	0	14	19	40	0	0	0	326
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	693	135	0	1642	0	73	321	339	0	0	0	3204
	0.12%	83.59%	16.28%	0.00%	100.00%	0.00%	9.96%	43.79%	46.25%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	304	59	0	618	0	30	129	147	0	0	0	1288
PEAK HR FACTOR :	0.958		0.898			0.860			0.000			0.973	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	0	2	0	0	4	0	0	0	0	
3:00 PM	0	121	21	0	41	0	18	87	12	0	0	0	300
3:15 PM	0	133	36	0	53	0	20	85	15	0	0	0	342
3:30 PM	0	151	35	0	45	0	26	80	13	0	0	0	350
3:45 PM	0	167	38	0	50	0	17	68	11	0	0	0	351
4:00 PM	0	205	30	0	56	0	15	71	10	0	0	0	387
4:15 PM	0	227	46	0	44	0	14	81	9	0	0	0	421
4:30 PM	0	212	48	0	49	0	8	75	7	0	0	0	399
4:45 PM	0	231	41	1	61	0	24	59	6	0	0	0	423
5:00 PM	0	244	47	0	68	0	17	59	6	0	0	0	441
5:15 PM	0	284	38	0	51	0	17	54	4	0	0	0	448
5:30 PM	0	299	33	0	67	0	27	70	4	0	0	0	500
5:45 PM	0	326	40	0	66	0	18	63	6	0	0	0	519
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	2600	453	1	651	0	221	852	103	0	0	0	4881
	0.00%	85.16%	14.84%	0.15%	99.85%	0.00%	18.79%	72.45%	8.76%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	1153	158	0	252	0	79	246	20	0	0	0	1908
PEAK HR FACTOR :	0.895			0.926			0.854			0.000			0.919

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	
6:00 AM	0	12	7	0	79	0	9	17	10	0	0	0	134
6:15 AM	0	32	6	0	79	0	2	18	12	0	0	0	149
6:30 AM	0	33	7	0	112	0	10	17	19	0	0	0	198
6:45 AM	0	37	7	0	134	0	7	14	20	0	0	0	219
7:00 AM	0	37	15	0	139	0	1	22	28	0	0	0	242
7:15 AM	0	50	6	0	146	0	0	24	28	0	0	0	254
7:30 AM	0	77	7	0	139	0	0	19	34	0	0	0	276
7:45 AM	0	83	7	0	165	0	3	20	31	0	0	0	309
8:00 AM	0	55	19	0	149	0	10	22	40	0	0	0	295
8:15 AM	0	75	15	0	138	0	5	30	45	0	0	0	308
8:30 AM	1	71	17	0	146	0	12	23	29	0	0	0	299
8:45 AM	0	75	18	0	147	0	14	13	40	0	0	0	307
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	637	131	0	1573	0	73	239	336	0	0	0	2990
	0.13%	82.83%	17.04%	0.00%	100.00%	0.00%	11.27%	36.88%	51.85%				
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	284	58	0	598	0	30	95	145	0	0	0	1211
PEAK HR FACTOR :	0.953			0.906			0.844			0.000			0.980

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	
3:00 PM	0	116	21	0	37	0	18	80	12	0	0	0	284
3:15 PM	0	131	36	0	51	0	20	79	15	0	0	0	332
3:30 PM	0	146	33	0	42	0	26	64	12	0	0	0	323
3:45 PM	0	160	36	0	46	0	15	59	11	0	0	0	327
4:00 PM	0	202	30	0	52	0	14	60	10	0	0	0	368
4:15 PM	0	224	44	0	39	0	14	66	9	0	0	0	396
4:30 PM	0	211	48	0	44	0	8	58	7	0	0	0	376
4:45 PM	0	225	40	1	58	0	24	42	6	0	0	0	396
5:00 PM	0	236	45	0	64	0	17	43	6	0	0	0	411
5:15 PM	0	280	38	0	47	0	17	44	4	0	0	0	430
5:30 PM	0	294	33	0	60	0	27	45	4	0	0	0	463
5:45 PM	0	321	39	0	60	0	18	41	6	0	0	0	485
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	2546	443	1	600	0	218	681	102	0	0	0	4591
	0.00%	85.18%	14.82%	0.17%	99.83%	0.00%	21.78%	68.03%	10.19%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	1131	155	0	231	0	79	173	20	0	0	0	1789
PEAK HR FACTOR :	0.893			0.902			0.895			0.000			0.922

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Los Angeles St

East/West Temple St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED	57	55	58	73
BIKES	20	46	18	4
BUSES	17	93	143	116

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	118	8.30	302	8.45	158	8.15	270	7.15
PM PK 15 MIN	372	17.45	187	16.30	255	17.00	220	16.00
AM PK HOUR	446	8.00	1158	8.00	572	7.45	983	7.00
PM PK HOUR	1345	17.00	694	16.30	903	16.45	775	16.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	27	144	15	186
7-8	69	255	42	366
8-9	63	324	59	446
15-16	91	694	62	847
16-17	93	935	59	1087
17-18	167	1116	62	1345
TOTAL	510	3468	299	4277

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	96	585	59	740
7-8	136	761	75	972
8-9	170	881	107	1158
15-16	99	343	168	610
16-17	97	357	219	673
17-18	76	374	129	579
TOTAL	674	3301	757	4732

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
926	61	0	49	0
1338	119	0	80	0
1604	171	0	105	0
1457	118	0	65	0
1760	125	0	84	0
1924	131	0	43	0
9009	725	0	426	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	28	150	115	293
7-8	37	271	175	483
8-9	39	370	163	572
15-16	54	463	141	658
16-17	103	581	114	798
17-18	107	622	113	842
TOTAL	368	2457	821	3646

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	66	417	37	520
7-8	111	779	93	983
8-9	88	704	115	907
15-16	59	457	176	692
16-17	52	513	210	775
17-18	69	375	264	708
TOTAL	445	3245	895	4585

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
813	42	0	92	0
1466	71	0	133	2
1479	60	0	128	1
1350	66	0	114	0
1573	68	0	103	1
1550	44	0	90	0
8231	351	0	660	4

ITM Peak Hour Summary

Prepared by:

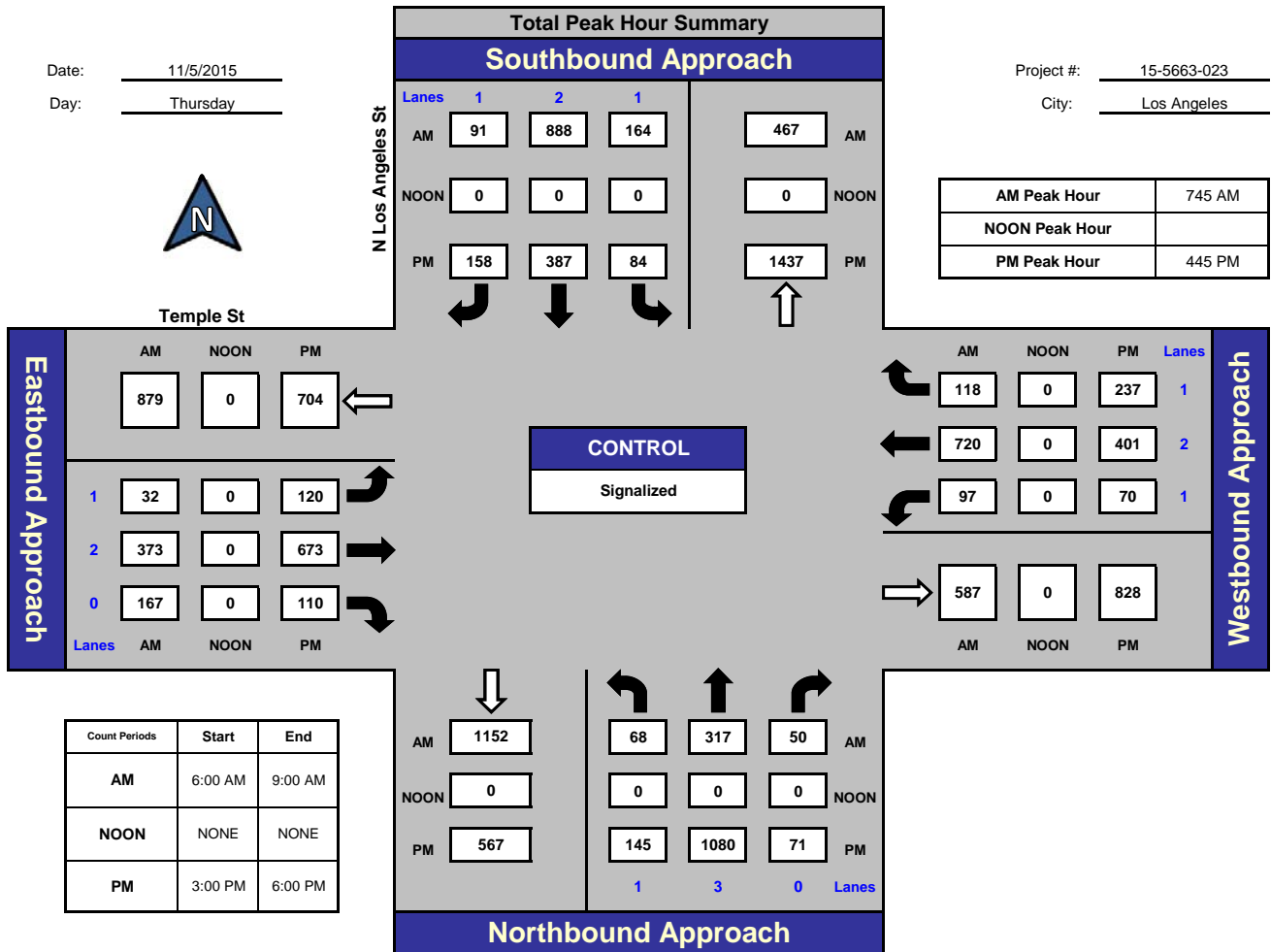


National Data & Surveying Services

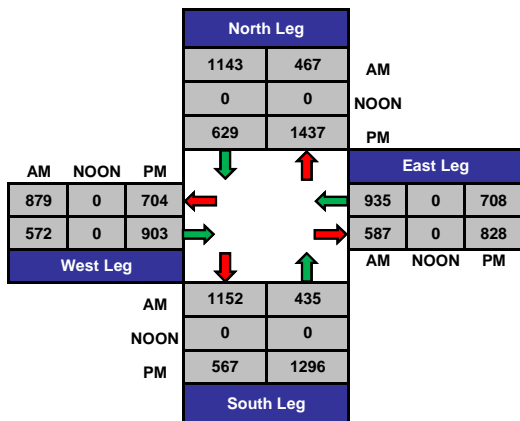
N Los Angeles St and Temple St, Los Angeles

Date: 11/5/2015
Day: Thursday

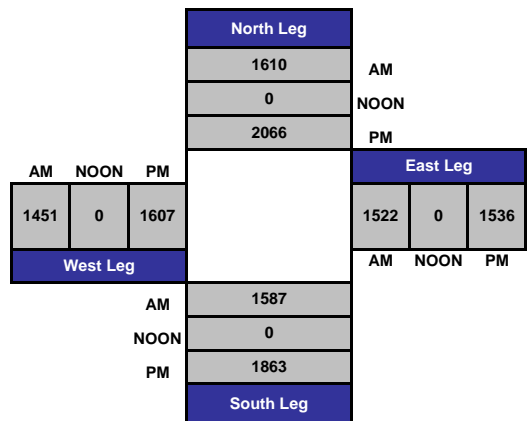
Project #: 15-5663-023
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	
6:00 AM	4	28	2	26	142	7	6	34	16	13	48	4	330
6:15 AM	7	33	6	29	130	15	7	27	27	16	73	13	383
6:30 AM	4	49	5	21	151	20	8	36	38	21	120	9	482
6:45 AM	12	34	2	20	162	17	7	53	34	16	176	11	544
7:00 AM	13	48	7	28	180	11	9	61	36	22	218	17	650
7:15 AM	21	55	14	32	166	24	8	62	50	24	221	25	702
7:30 AM	17	77	12	41	184	19	11	66	45	34	178	22	706
7:45 AM	18	75	9	35	231	21	9	82	44	31	162	29	746
8:00 AM	22	68	12	40	227	24	8	91	38	22	181	34	767
8:15 AM	16	81	16	44	203	20	2	106	50	19	195	29	781
8:30 AM	12	93	13	45	227	26	13	94	35	25	182	26	791
8:45 AM	13	82	18	41	224	37	16	79	40	22	146	26	744
TOTAL VOLUMES :	159	723	116	402	2227	241	104	791	453	265	1900	245	7626
APPROACH %'s :	15.93%	72.44%	11.62%	14.01%	77.60%	8.40%	7.72%	58.68%	33.61%	11.00%	78.84%	10.17%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	68	317	50	164	888	91	32	373	167	97	720	118	3085
PEAK HR FACTOR :	0.922			0.959			0.905			0.962			0.975

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	
3:00 PM	22	146	12	29	81	40	16	100	44	15	112	45	662
3:15 PM	17	168	22	29	89	34	11	112	39	13	123	43	700
3:30 PM	29	183	13	22	89	53	14	114	34	15	128	47	741
3:45 PM	23	197	15	19	84	41	13	137	24	16	94	41	704
4:00 PM	12	207	9	33	87	53	23	134	30	15	146	59	808
4:15 PM	16	231	16	18	71	49	27	137	32	5	119	56	777
4:30 PM	37	226	10	24	97	66	26	150	25	19	119	46	845
4:45 PM	28	271	24	22	102	51	27	160	27	13	129	49	903
5:00 PM	32	254	18	24	103	48	23	199	33	19	112	65	930
5:15 PM	31	278	19	22	89	46	29	160	29	22	69	58	852
5:30 PM	54	277	10	16	93	13	41	154	21	16	91	65	851
5:45 PM	50	307	15	14	89	22	14	109	30	12	103	76	841
TOTAL VOLUMES :	351	2745	183	272	1074	516	264	1666	368	180	1345	650	9614
APPROACH %'s :	10.70%	83.71%	5.58%	14.61%	57.68%	27.71%	11.49%	72.50%	16.01%	8.28%	61.84%	29.89%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	145	1080	71	84	387	158	120	673	110	70	401	237	3536
PEAK HR FACTOR :	0.950			0.899			0.885			0.903			0.951

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	
6:00 AM	4	28	2	24	136	4	4	30	16	13	43	4	308
6:15 AM	7	33	6	29	123	15	4	22	27	14	66	13	359
6:30 AM	4	47	5	21	148	17	5	34	38	20	118	9	466
6:45 AM	12	31	2	18	158	15	6	47	34	15	168	11	517
7:00 AM	13	45	6	28	178	8	7	57	35	20	210	16	623
7:15 AM	21	53	12	31	163	21	5	55	50	23	217	23	674
7:30 AM	17	73	12	41	182	14	8	63	45	34	172	22	683
7:45 AM	17	71	7	34	227	19	8	73	44	31	155	28	714
8:00 AM	22	67	12	40	225	21	4	81	38	21	172	32	735
8:15 AM	16	80	15	44	200	17	1	98	49	19	189	29	757
8:30 AM	12	90	13	43	224	24	10	85	34	25	172	26	758
8:45 AM	13	75	17	41	223	31	12	73	40	22	138	26	711
TOTAL VOLUMES :	158	693	109	394	2187	206	74	718	450	257	1820	239	7305
APPROACH %'s :	16.46%	72.19%	11.35%	14.14%	78.47%	7.39%	5.96%	57.81%	36.23%	11.10%	78.58%	10.32%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	67	308	47	161	876	81	23	337	165	96	688	115	2964
PEAK HR FACTOR :	0.917			0.960			0.887			0.948			0.978

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 1	TOTAL
3:00 PM	22	143	11	28	80	37	14	96	44	15	100	45	635
3:15 PM	17	167	22	29	89	31	9	108	38	13	117	43	683
3:30 PM	28	179	11	21	87	49	11	109	33	15	121	45	709
3:45 PM	23	195	14	18	82	38	8	129	23	16	87	41	674
4:00 PM	12	206	8	32	87	50	21	132	30	13	140	59	790
4:15 PM	16	230	16	18	70	45	24	128	32	4	112	55	750
4:30 PM	37	226	10	24	94	64	25	146	25	19	107	46	823
4:45 PM	28	267	24	22	101	48	22	156	27	12	122	48	877
5:00 PM	32	249	18	23	100	47	21	191	33	19	103	64	900
5:15 PM	31	276	19	20	86	44	27	154	28	22	64	58	829
5:30 PM	54	275	10	16	88	10	39	151	21	16	87	64	831
5:45 PM	50	302	15	13	88	18	13	105	30	12	101	75	822
TOTAL VOLUMES :	NL 350	NT 2715	NR 178	SL 264	ST 1052	SR 481	EL 234	ET 1605	ER 364	WL 176	WT 1261	WR 643	TOTAL 9323
APPROACH %'s :	10.79%	83.72%	5.49%	14.69%	58.54%	26.77%	10.62%	72.86%	16.52%	8.46%	60.63%	30.91%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	145	1067	71	81	375	149	109	652	109	69	376	234	3437
PEAK HR FACTOR :	0.946			0.885			0.888			0.913			0.955

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South N Los Angeles St

East/West 1st St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	59	46	70	69
BUSES	24	52	59	66
	10	34	142	131

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	134	8.45	274	7.45	154	8.45	216	7.15
PM PK 15 MIN	328	17.45	191	17.30	281	17.15	209	17.15
AM PK HOUR	490	8.00	1052	7.45	572	8.00	807	6.45
PM PK HOUR	1219	17.00	700	17.00	1051	16.30	789	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	51	126	12	189
7-8	129	266	28	423
8-9	104	346	40	490
15-16	74	674	76	824
16-17	87	911	128	1126
17-18	133	1004	82	1219
TOTAL	578	3327	366	4271

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	63	493	93	649
7-8	84	690	133	907
8-9	111	796	133	1040
15-16	81	372	129	582
16-17	73	375	144	592
17-18	83	447	170	700
TOTAL	495	3173	802	4470

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
838	200	0	52	0
1330	293	0	98	0
1530	325	0	148	0
1406	328	8	161	0
1718	274	0	124	1
1919	242	2	76	0
8741	1662	10	659	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	16	177	52	245
7-8	30	340	87	457
8-9	31	414	127	572
15-16	111	619	90	820
16-17	91	775	101	967
17-18	108	802	123	1033
TOTAL	387	3127	580	4094

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	39	577	36	652
7-8	60	653	55	768
8-9	47	616	78	741
15-16	35	351	65	451
16-17	38	454	90	582
17-18	91	469	229	789
TOTAL	310	3120	553	3983

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
897	58	0	91	0
1225	96	0	106	0
1313	108	0	129	0
1271	124	0	153	1
1549	65	1	132	0
1822	65	0	117	0
8077	516	1	728	1

ITM Peak Hour Summary

Prepared by:

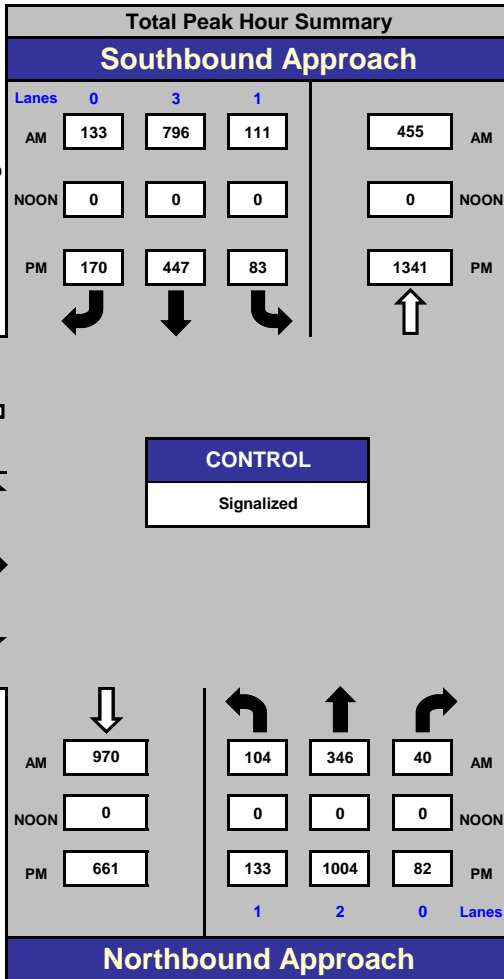


National Data & Surveying Services

N Los Angeles St and 1st St, Los Angeles

Date: 11/5/2015
Day: Thursday

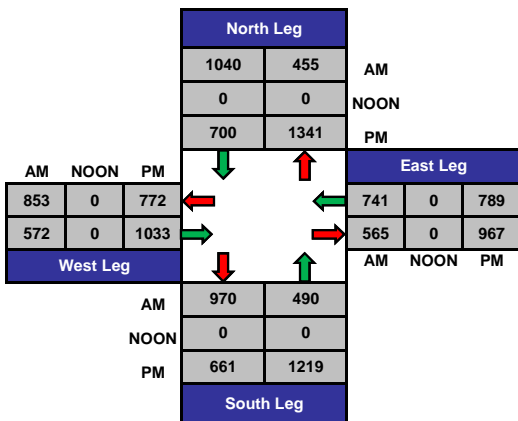
Project #: 15-5663-024
City: Los Angeles



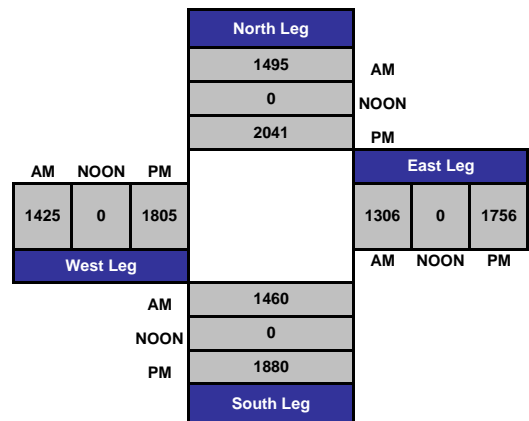
AM Peak Hour	800 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	
6:00 AM	3	21	5	13	116	15	5	18	10	7	92	10	315
6:15 AM	17	30	3	15	109	17	2	43	12	8	147	10	413
6:30 AM	11	38	1	19	128	32	4	52	19	12	151	7	474
6:45 AM	20	37	3	16	140	29	5	64	11	12	187	9	533
7:00 AM	25	47	9	17	165	24	6	66	28	14	164	8	573
7:15 AM	29	59	7	15	149	34	11	75	20	21	180	15	615
7:30 AM	38	80	4	20	177	32	7	100	16	12	173	12	671
7:45 AM	37	80	8	32	199	43	6	99	23	13	136	20	696
8:00 AM	31	77	8	24	211	27	8	104	27	10	151	19	697
8:15 AM	21	88	6	27	195	21	9	104	29	15	173	19	707
8:30 AM	28	90	7	33	200	40	6	95	36	10	158	22	725
8:45 AM	24	91	19	27	190	45	8	111	35	12	134	18	714
TOTAL VOLUMES :	NL 284	NT 738	NR 80	SL 258	ST 1979	SR 359	EL 77	ET 931	ER 266	WL 146	WT 1846	WR 169	TOTAL 7133
APPROACH %'s :	25.77%	66.97%	7.26%	9.94%	76.23%	13.83%	6.04%	73.08%	20.88%	6.76%	85.42%	7.82%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	104	346	40	111	796	133	31	414	127	47	616	78	2843
PEAK HR FACTOR :	0.914			0.952			0.929			0.895			0.980

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	
3:00 PM	17	160	17	22	85	33	19	131	32	6	92	17	631
3:15 PM	19	165	18	13	104	38	27	125	11	10	70	9	609
3:30 PM	18	178	14	27	82	24	29	175	21	7	96	18	689
3:45 PM	20	171	27	19	101	34	36	188	26	12	93	21	748
4:00 PM	23	199	32	16	101	43	17	180	28	11	112	21	783
4:15 PM	25	220	29	13	75	28	18	185	20	6	92	21	732
4:30 PM	21	220	35	22	100	44	25	208	29	11	116	19	850
4:45 PM	18	272	32	22	99	29	31	202	24	10	134	29	902
5:00 PM	34	250	25	19	134	36	25	196	30	16	126	40	931
5:15 PM	34	225	17	24	99	40	32	216	33	27	113	69	929
5:30 PM	32	254	20	22	117	52	30	194	28	22	125	60	956
5:45 PM	33	275	20	18	97	42	21	196	32	26	105	60	925
TOTAL VOLUMES :	NL 294	NT 2589	NR 286	SL 237	ST 1194	SR 443	EL 310	ET 2196	ER 314	WL 164	WT 1274	WR 384	TOTAL 9685
APPROACH %'s :	9.28%	81.70%	9.02%	12.65%	63.71%	23.64%	10.99%	77.87%	11.13%	9.00%	69.92%	21.08%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	133	1004	82	83	447	170	108	802	123	91	469	229	3741
PEAK HR FACTOR :	0.929			0.916			0.919			0.944			0.978

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	
6:00 AM	3	21	5	13	111	13	5	16	10	7	87	10	301
6:15 AM	17	30	3	15	103	15	2	34	12	8	140	10	389
6:30 AM	11	38	1	18	128	28	3	44	19	12	141	7	450
6:45 AM	20	34	3	15	138	27	5	56	11	12	178	9	508
7:00 AM	25	45	9	17	163	22	5	57	28	14	155	8	548
7:15 AM	29	58	7	15	147	31	10	69	20	20	172	15	593
7:30 AM	37	77	4	20	177	30	7	91	16	12	160	11	642
7:45 AM	36	75	7	32	195	42	5	93	23	13	125	19	665
8:00 AM	31	76	8	24	209	26	8	97	27	10	145	19	680
8:15 AM	21	84	6	27	193	19	9	90	29	15	166	19	678
8:30 AM	28	87	7	33	199	37	5	87	36	10	145	22	696
8:45 AM	23	86	15	27	189	45	7	105	31	12	124	17	681
TOTAL VOLUMES :	NL 281	NT 711	NR 75	SL 256	ST 1952	SR 335	EL 71	ET 839	ER 262	WL 145	WT 1738	WR 166	TOTAL 6831
APPROACH %'s :	26.34%	66.64%	7.03%	10.07%	76.76%	13.17%	6.06%	71.59%	22.35%	7.08%	84.82%	8.10%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	103	333	36	111	790	127	29	379	123	47	580	77	2735
PEAK HR FACTOR :	0.952			0.955			0.928			0.880			0.982

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 3	SR 0	EL 1	ET 3	ER 0	WL 1	WT 2	WR 1	TOTAL
3:00 PM	17	157	17	21	85	33	19	119	31	6	84	17	606
3:15 PM	18	165	18	13	104	38	26	114	11	10	64	9	590
3:30 PM	18	175	12	27	80	24	27	169	21	7	88	17	665
3:45 PM	20	168	27	19	100	32	35	182	25	12	87	21	728
4:00 PM	23	199	32	16	99	43	16	172	28	11	103	21	763
4:15 PM	25	219	28	12	74	28	18	174	20	6	84	21	709
4:30 PM	20	220	34	22	99	42	25	201	29	11	106	19	828
4:45 PM	18	267	32	22	99	29	31	194	22	9	129	29	881
5:00 PM	33	246	25	19	131	36	24	188	29	16	119	40	906
5:15 PM	33	224	17	24	96	37	32	209	33	27	107	69	908
5:30 PM	32	252	20	22	113	52	30	186	28	22	118	60	935
5:45 PM	33	271	20	18	96	42	20	190	32	26	99	60	907
TOTAL VOLUMES :	290	2563	282	235	1176	436	303	2098	309	163	1188	383	9426
APPROACH %'s :	9.25%	81.75%	9.00%	12.72%	63.67%	23.61%	11.18%	77.42%	11.40%	9.40%	68.51%	22.09%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	131	993	82	83	436	167	106	773	122	91	443	229	3656
PEAK HR FACTOR :	0.931			0.917			0.913			0.940			0.978

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Judge John Aiso St

East/West Temple St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	36	0	71	84
BUSES	12	1	12	14
BUSES	86	0	91	174

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	95	7.00	0	0.00	151	8.15	267	8.30
PM PK 15 MIN	160	17.00	0	0.00	219	17.00	185	15.30
AM PK HOUR	337	7.00	0	0.00	551	7.45	981	7.45
PM PK HOUR	583	17.00	0	0.00	826	16.45	619	15.30

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	66	0	61	127
7-8	214	0	123	337
8-9	165	0	111	276
15-16	189	0	141	330
16-17	272	0	187	459
17-18	316	0	267	583
TOTAL	1222	0	890	2112

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
127	43	3	14	0
337	98	2	10	0
276	147	0	20	0
330	97	3	0	0
459	102	0	0	0
583	97	1	0	0
2112	584	9	44	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	170	89	259
7-8	1	283	168	452
8-9	1	336	212	549
15-16	0	573	57	630
16-17	0	675	85	760
17-18	0	676	92	768
TOTAL	2	2713	703	3418

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	99	459	0	558
7-8	172	782	0	954
8-9	201	757	0	958
15-16	86	467	0	553
16-17	113	474	0	587
17-18	90	437	0	527
TOTAL	761	3376	0	4137

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
817	0	0	33	1
1406	1	0	104	1
1507	1	0	135	0
1183	0	0	199	6
1347	0	0	137	2
1295	1	0	48	0
7555	3	0	656	10

ITM Peak Hour Summary

Prepared by:

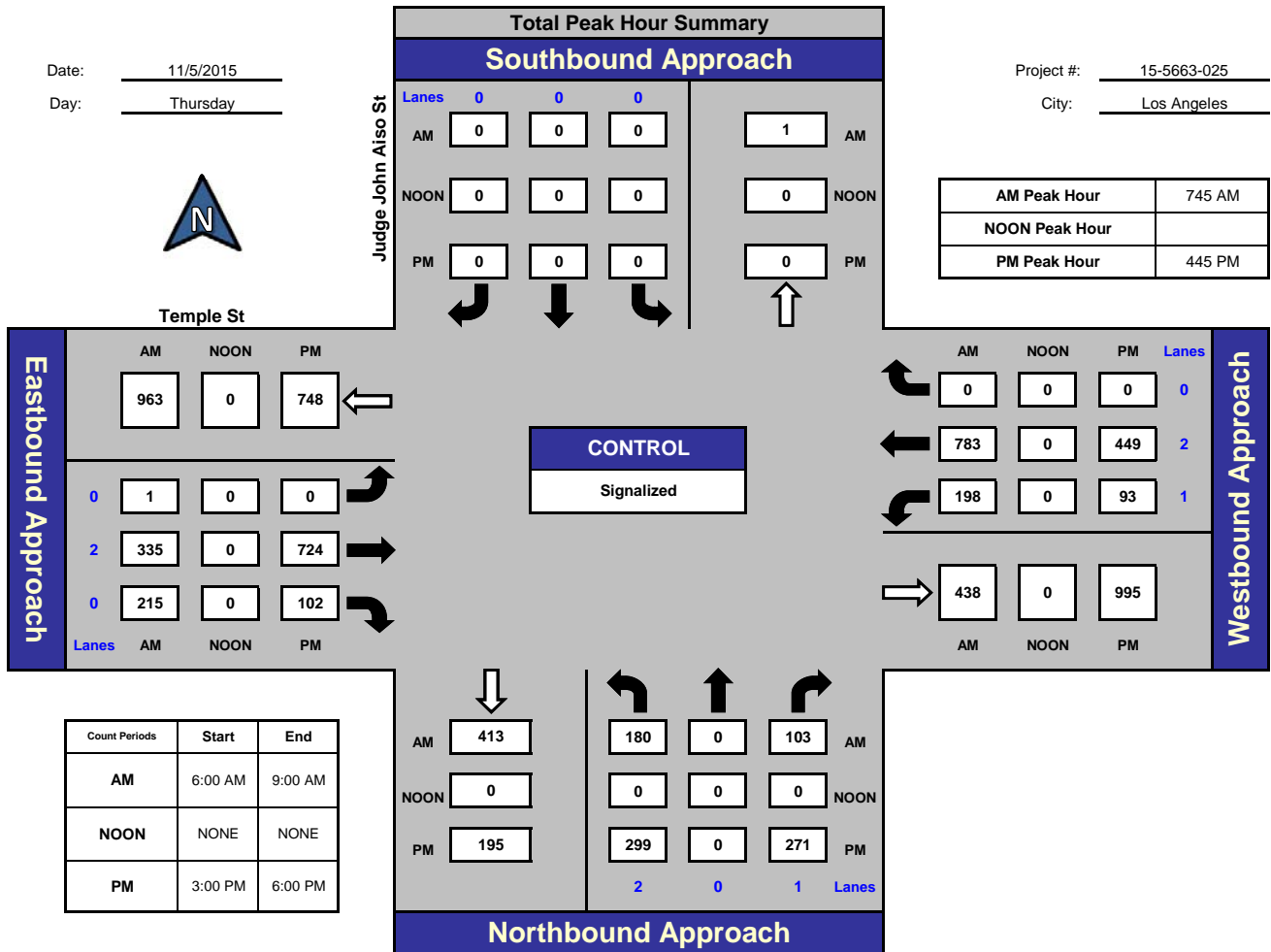


National Data & Surveying Services

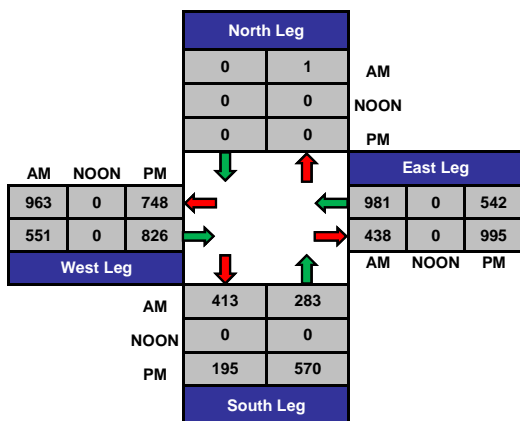
Judge John Aiso St and Temple St, Los Angeles

Date: 11/5/2015
Day: Thursday

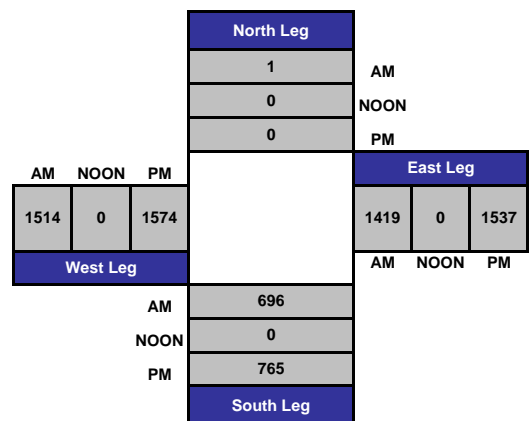
Project #: 15-5663-025
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	2	0	1	0	0	0	0	2	0	1	2	0	
6:00 AM	11	0	5	0	0	0	0	36	29	26	54	0	161
6:15 AM	16	0	12	0	0	0	0	41	20	17	89	0	195
6:30 AM	8	0	23	0	0	0	0	39	22	26	135	0	253
6:45 AM	31	0	21	0	0	0	0	54	18	30	181	0	335
7:00 AM	60	0	35	0	0	0	0	67	32	37	216	0	447
7:15 AM	53	0	29	0	0	0	0	76	32	47	206	0	443
7:30 AM	55	0	28	0	0	0	0	73	47	50	177	0	430
7:45 AM	46	0	31	0	0	0	1	67	57	38	183	0	423
8:00 AM	41	0	16	0	0	0	0	79	49	51	203	0	439
8:15 AM	57	0	28	0	0	0	0	91	60	46	193	0	475
8:30 AM	36	0	28	0	0	0	0	98	49	63	204	0	478
8:45 AM	31	0	39	0	0	0	1	68	54	41	157	0	391
TOTAL VOLUMES :	445	0	295	0	0	0	2	789	469	472	1998	0	4470
APPROACH %'s :	60.14%	0.00%	39.86%	#DIV/0!	#DIV/0!	#DIV/0!	0.16%	62.62%	37.22%	19.11%	80.89%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	180	0	103	0	0	0	1	335	215	198	783	0	1815
PEAK HR FACTOR :	0.832			0.000			0.912			0.919			0.949

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	2	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	39	0	25	0	0	0	0	132	0	16	95	0	307
3:15 PM	40	0	30	0	0	0	0	154	19	28	98	0	369
3:30 PM	56	0	50	0	0	0	0	152	16	27	158	0	459
3:45 PM	54	0	36	0	0	0	0	135	22	15	116	0	378
4:00 PM	59	0	53	0	0	0	0	153	10	37	133	0	445
4:15 PM	64	0	41	0	0	0	0	183	22	25	108	0	443
4:30 PM	69	0	36	0	0	0	0	152	27	28	109	0	421
4:45 PM	80	0	57	0	0	0	0	187	26	23	124	0	497
5:00 PM	86	0	74	0	0	0	0	189	30	25	113	0	517
5:15 PM	69	0	67	0	0	0	0	186	16	24	111	0	473
5:30 PM	64	0	73	0	0	0	0	162	30	21	101	0	451
5:45 PM	97	0	53	0	0	0	0	139	16	20	112	0	437
TOTAL VOLUMES :	777	0	595	0	0	0	0	1924	234	289	1378	0	5197
APPROACH %'s :	56.63%	0.00%	43.37%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	89.16%	10.84%	17.34%	82.66%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	299	0	271	0	0	0	0	724	102	93	449	0	1938
PEAK HR FACTOR :	0.891		0.000			0.943			0.922			0.937	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2	0	1	0	0	0	0	2	0	1	2	0	
6:00 AM	9	0	4	0	0	0	0	32	28	23	50	0	146
6:15 AM	13	0	9	0	0	0	0	36	19	14	84	0	175
6:30 AM	8	0	18	0	0	0	0	37	22	21	131	0	237
6:45 AM	30	0	17	0	0	0	0	46	18	27	173	0	311
7:00 AM	56	0	31	0	0	0	0	61	31	33	208	0	420
7:15 AM	52	0	25	0	0	0	0	64	32	42	200	0	415
7:30 AM	55	0	23	0	0	0	0	70	47	46	170	0	411
7:45 AM	45	0	25	0	0	0	1	57	54	33	177	0	392
8:00 AM	40	0	12	0	0	0	0	74	47	44	192	0	409
8:15 AM	56	0	21	0	0	0	0	85	57	42	189	0	450
8:30 AM	36	0	26	0	0	0	0	91	45	60	196	0	454
8:45 AM	31	0	33	0	0	0	1	63	54	36	147	0	365
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	431	0	244	0	0	0	2	716	454	421	1917	0	4185
	63.85%	0.00%	36.15%				0.17%	61.09%	38.74%	18.01%	81.99%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	177	0	84	0	0	0	1	307	203	179	754	0	1705
PEAK HR FACTOR :	0.847			0.000			0.900			0.911			0.939

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL																							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																										
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																								
	2	0	1	0	0	0	0	2	0	1	2	0																								
3:00 PM	35	0	20	0	0	0	0	132	0	15	85	0	287																							
3:15 PM	40	0	25	0	0	0	0	145	19	23	94	0	346																							
3:30 PM	54	0	48	0	0	0	0	147	16	23	152	0	440																							
3:45 PM	54	0	32	0	0	0	0	123	20	12	108	0	349																							
4:00 PM	57	0	50	0	0	0	0	148	10	34	128	0	427																							
4:15 PM	62	0	38	0	0	0	0	175	22	20	101	0	418																							
4:30 PM	68	0	33	0	0	0	0	150	26	25	100	0	402																							
4:45 PM	80	0	54	0	0	0	0	180	25	19	115	0	473																							
5:00 PM	86	0	71	0	0	0	0	180	30	23	101	0	491																							
5:15 PM	69	0	60	0	0	0	0	182	16	20	101	0	448																							
5:30 PM	63	0	70	0	0	0	0	156	30	17	98	0	434																							
5:45 PM	97	0	49	0	0	0	0	136	16	17	110	0	425																							
TOTAL VOLUMES :	NL 765	NT 0	NR 550	SL 0	ST 0	SR 0	EL 0	ET 1854	ER 230	WL 248	WT 1293	WR 0	TOTAL 4940																							
APPROACH %'s :	58.17%	0.00%	41.83%				0.00%	88.96%	11.04%	16.09%	83.91%	0.00%																								
PEAK HR START TIME :	445 PM												TOTAL																							
PEAK HR VOL :	298			0			255			0			0			0			698			101			79			415			0			1846		
PEAK HR FACTOR :	0.881			0.000			0.000			0.951			0.922			0.940																				

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Judge John Aiso St, San Pedro St

East/West 1st St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	50	42	70	71
BUSES	13	10	51	69
	72	77	138	14

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	127	7.15	98	8.00	148	8.45	192	7.45
PM PK 15 MIN	220	17.15	82	17.30	274	17.15	190	17.30
AM PK HOUR	450	7.00	357	7.45	541	8.00	726	7.45
PM PK HOUR	753	17.00	278	17.00	1022	16.30	701	16.45

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	73	87	21	181
7-8	181	241	28	450
8-9	143	206	54	403
15-16	107	226	89	422
16-17	127	293	125	545
17-18	178	453	122	753
TOTAL	809	1506	439	2754

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	10	121	27	158
7-8	11	229	33	273
8-9	25	276	37	338
15-16	28	173	41	242
16-17	28	170	35	233
17-18	29	170	79	278
TOTAL	131	1139	252	1522

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
339	43	3	47	0
723	68	4	60	0
741	79	7	72	0
664	204	17	123	6
778	216	4	131	0
1031	207	2	89	0
4276	817	37	522	6

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	39	151	55	245
7-8	64	233	131	428
8-9	83	291	167	541
15-16	103	525	137	765
16-17	70	735	157	962
17-18	87	757	118	962
TOTAL	446	2692	765	3903

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	39	549	21	609
7-8	75	568	67	710
8-9	85	559	65	709
15-16	49	306	46	401
16-17	69	412	51	532
17-18	72	542	81	695
TOTAL	389	2936	331	3656

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
854	9	0	32	0
1138	35	0	47	2
1250	49	0	76	1
1166	65	2	100	5
1494	61	1	133	0
1657	90	0	115	0
7559	309	3	503	8

ITM Peak Hour Summary

Prepared by:

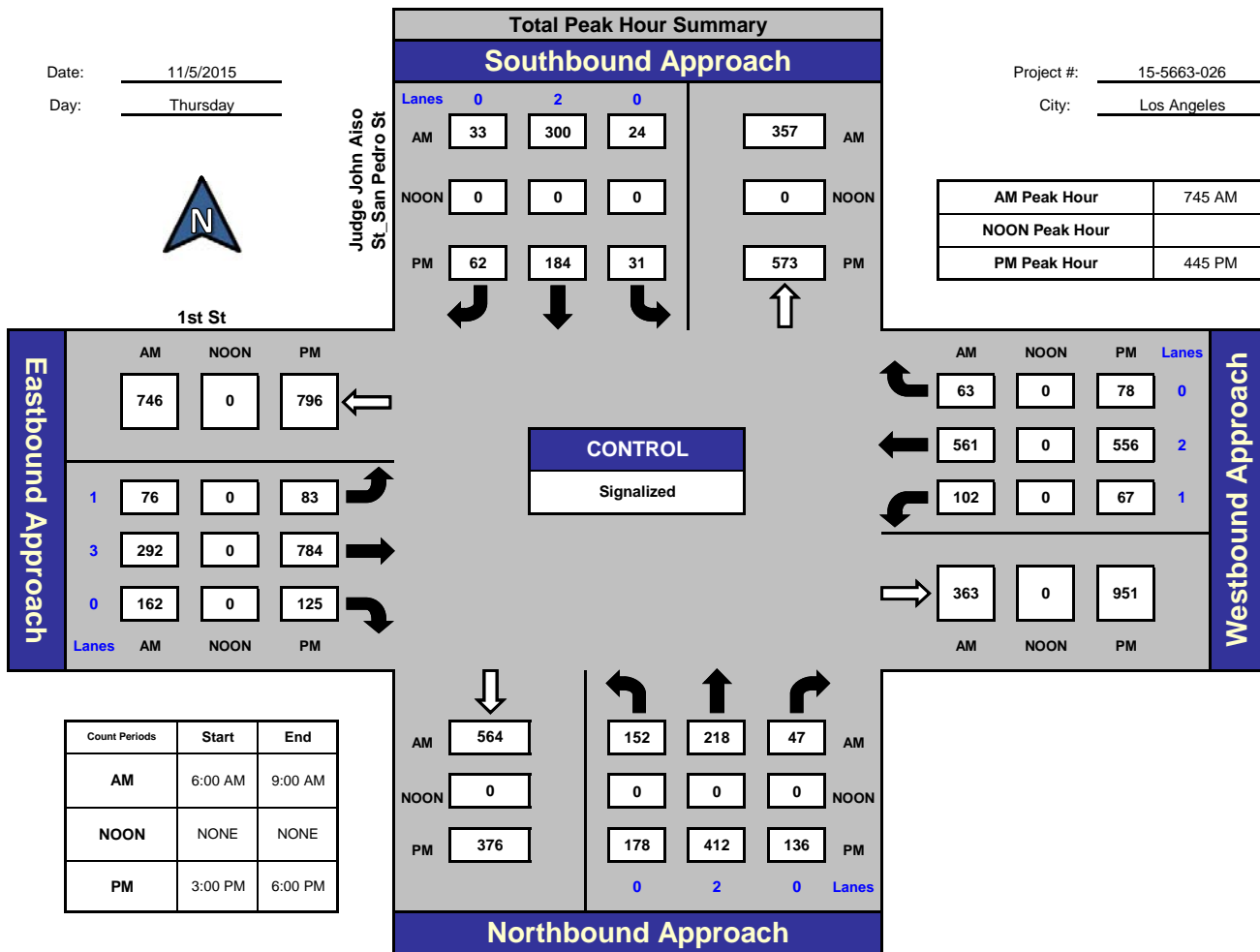


National Data & Surveying Services

Judge John Aiso St San Pedro St and 1st St, Los Angeles

Date: 11/5/2015
Day: Thursday

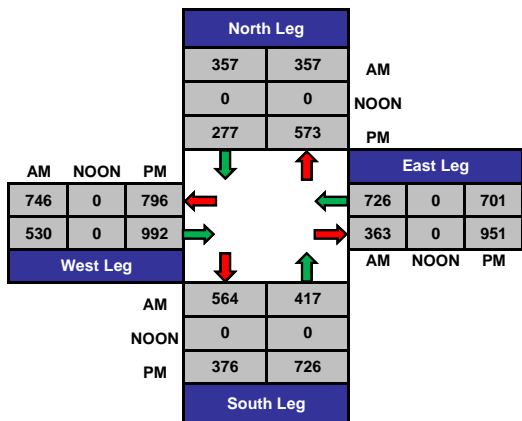
Project #: 15-5663-026
City: Los Angeles



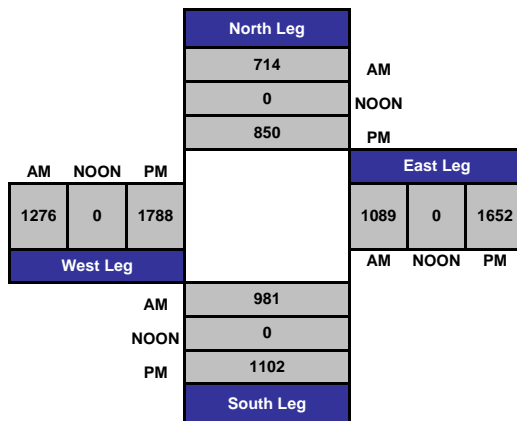
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	2	0	1	3	0	1	2	0	
6:00 AM	4	8	5	4	36	7	9	22	8	4	102	6	215
6:15 AM	15	19	3	3	20	6	8	39	14	10	141	4	282
6:30 AM	18	24	3	0	35	7	10	42	15	12	150	3	319
6:45 AM	36	36	10	3	30	7	12	48	18	13	156	8	377
7:00 AM	34	70	3	1	44	11	15	46	22	9	145	16	416
7:15 AM	61	63	3	3	46	10	16	51	32	18	147	17	467
7:30 AM	52	52	10	4	59	7	16	62	31	15	136	15	459
7:45 AM	34	56	12	3	80	5	17	74	46	33	140	19	519
8:00 AM	33	49	17	9	78	11	23	67	40	19	139	8	493
8:15 AM	50	62	6	4	68	7	21	79	39	27	142	15	520
8:30 AM	35	51	12	8	74	10	15	72	37	23	140	21	498
8:45 AM	25	44	19	4	56	9	24	73	51	16	138	21	480
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	397	534	103	46	626	97	186	675	353	199	1676	153	5045
	38.39%	51.64%	9.96%	5.98%	81.40%	12.61%	15.32%	55.60%	29.08%	9.81%	82.64%	7.54%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	152	218	47	24	300	33	76	292	162	102	561	63	2030
PEAK HR FACTOR :	0.883			0.911			0.953			0.945			0.976

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
3:00 PM	30	55	23	7	39	11	20	110	47	15	71	10	438
3:15 PM	17	63	22	4	49	10	27	100	28	13	66	11	410
3:30 PM	26	48	26	7	48	9	36	141	33	13	89	10	486
3:45 PM	34	60	18	10	37	11	20	174	29	8	80	15	496
4:00 PM	24	79	25	5	44	10	18	168	40	18	102	9	542
4:15 PM	35	64	35	8	44	7	21	168	34	15	86	9	526
4:30 PM	34	73	27	7	34	9	15	202	45	18	95	16	575
4:45 PM	34	77	38	8	48	9	16	197	38	18	129	17	629
5:00 PM	39	94	32	7	35	17	20	183	32	7	139	13	618
5:15 PM	58	126	36	9	45	17	26	217	31	21	141	26	753
5:30 PM	47	115	30	7	56	19	21	187	24	21	147	22	696
5:45 PM	34	118	24	6	34	26	20	170	31	23	115	20	621
TOTAL VOLUMES :	412	972	336	85	513	155	260	2017	412	190	1260	178	6790
APPROACH %'s :	23.95%	56.51%	19.53%	11.29%	68.13%	20.58%	9.67%	75.01%	15.32%	11.67%	77.40%	10.93%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	178	412	136	31	184	62	83	784	125	67	556	78	2696
PEAK HR FACTOR :	0.825			0.845			0.905			0.922			0.895

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
6:00 AM	3	7	4	4	34	5	8	21	8	4	101	6	205
6:15 AM	12	17	3	3	20	3	5	35	12	10	139	4	263
6:30 AM	14	22	2	0	33	3	5	38	14	12	149	3	295
6:45 AM	33	34	5	3	29	5	10	44	16	12	152	8	351
7:00 AM	31	68	3	1	43	7	11	43	21	9	142	16	395
7:15 AM	55	62	3	3	44	8	12	49	31	17	144	17	445
7:30 AM	48	50	9	4	59	3	13	58	30	15	129	15	433
7:45 AM	30	54	11	3	76	1	13	71	44	33	136	19	491
8:00 AM	30	48	17	9	71	8	19	65	38	19	138	8	470
8:15 AM	48	59	6	4	63	5	15	73	36	26	138	15	488
8:30 AM	31	49	12	8	68	8	13	68	36	23	134	21	471
8:45 AM	21	42	18	4	54	6	21	71	48	15	133	20	453
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	356	512	93	46	594	62	145	636	334	195	1635	152	4760
	37.04%	53.28%	9.68%	6.55%	84.62%	8.83%	13.00%	57.04%	29.96%	9.84%	82.49%	7.67%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	139	210	46	24	278	22	60	277	154	101	546	63	1920
PEAK HR FACTOR :	0.874			0.920			0.959			0.944			0.978

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
3:00 PM	25	54	21	7	36	9	16	105	43	13	67	10	406
3:15 PM	15	62	22	4	48	7	23	93	27	12	66	11	390
3:30 PM	24	48	25	7	46	5	34	139	29	10	87	8	462
3:45 PM	31	59	18	10	36	8	18	170	29	8	79	14	480
4:00 PM	23	77	24	5	44	7	15	164	39	16	99	9	522
4:15 PM	33	63	35	8	42	4	16	163	33	14	83	9	503
4:30 PM	30	72	26	7	33	5	14	197	43	18	93	16	554
4:45 PM	33	74	37	8	46	8	13	193	36	18	126	17	609
5:00 PM	38	93	31	7	35	13	15	180	29	7	136	13	597
5:15 PM	56	126	36	9	44	15	24	213	30	21	140	24	738
5:30 PM	46	114	30	7	55	14	17	182	24	21	146	21	677
5:45 PM	31	116	23	6	33	23	16	169	29	22	115	20	603
TOTAL VOLUMES :	385	958	328	85	498	118	221	1968	391	180	1237	172	6541
APPROACH %'s :	23.04%	57.33%	19.63%	12.13%	71.04%	16.83%	8.57%	76.28%	15.16%	11.33%	77.85%	10.82%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	173	407	134	31	180	50	69	768	119	67	548	75	2621
PEAK HR FACTOR :	0.819			0.859			0.895			0.918			0.888

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Mission Rd
 East/West Cesar Chavez Ave
 Day: Thursday Date: November 5, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	108	182	123	71
BUSES	16	14	33	25
	19	211	196	58

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	214	7.45	475	7.45	187	7.45	339	6.30
PM PK 15 MIN	272	17.45	280	16.15	378	16.00	247	17.45
AM PK HOUR	782	7.30	1812	7.45	625	7.00	1295	6.30
PM PK HOUR	934	17.00	986	16.15	1409	16.00	848	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	190	217	41	448
7-8	185	415	80	680
8-9	200	455	59	714
15-16	68	424	88	580
16-17	75	519	68	662
17-18	288	565	81	934
TOTAL	1006	2595	417	4018

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	17	539	510	1066
7-8	32	969	712	1713
8-9	32	1028	696	1756
15-16	36	482	283	801
16-17	26	605	340	971
17-18	45	463	358	866
TOTAL	188	4086	2899	7173

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1514	7	0	7	0
2393	8	0	9	0
2470	13	0	13	0
1381	9	0	12	0
1633	3	0	1	0
1800	10	0	5	0
11191	50	0	47	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	180	110	165	455
7-8	288	210	127	625
8-9	229	198	128	555
15-16	383	426	357	1166
16-17	493	591	325	1409
17-18	399	578	278	1255
TOTAL	1972	2113	1380	5465

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	195	965	5	1165
7-8	280	978	9	1267
8-9	236	842	22	1100
15-16	136	370	64	570
16-17	121	459	62	642
17-18	167	655	26	848
TOTAL	1135	4269	188	5592

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1620	5	0	2	0
1892	4	0	13	0
1655	3	0	5	0
1736	4	0	6	0
2051	1	0	3	0
2103	4	0	0	0
11057	21	0	29	0

ITM Peak Hour Summary

Prepared by:

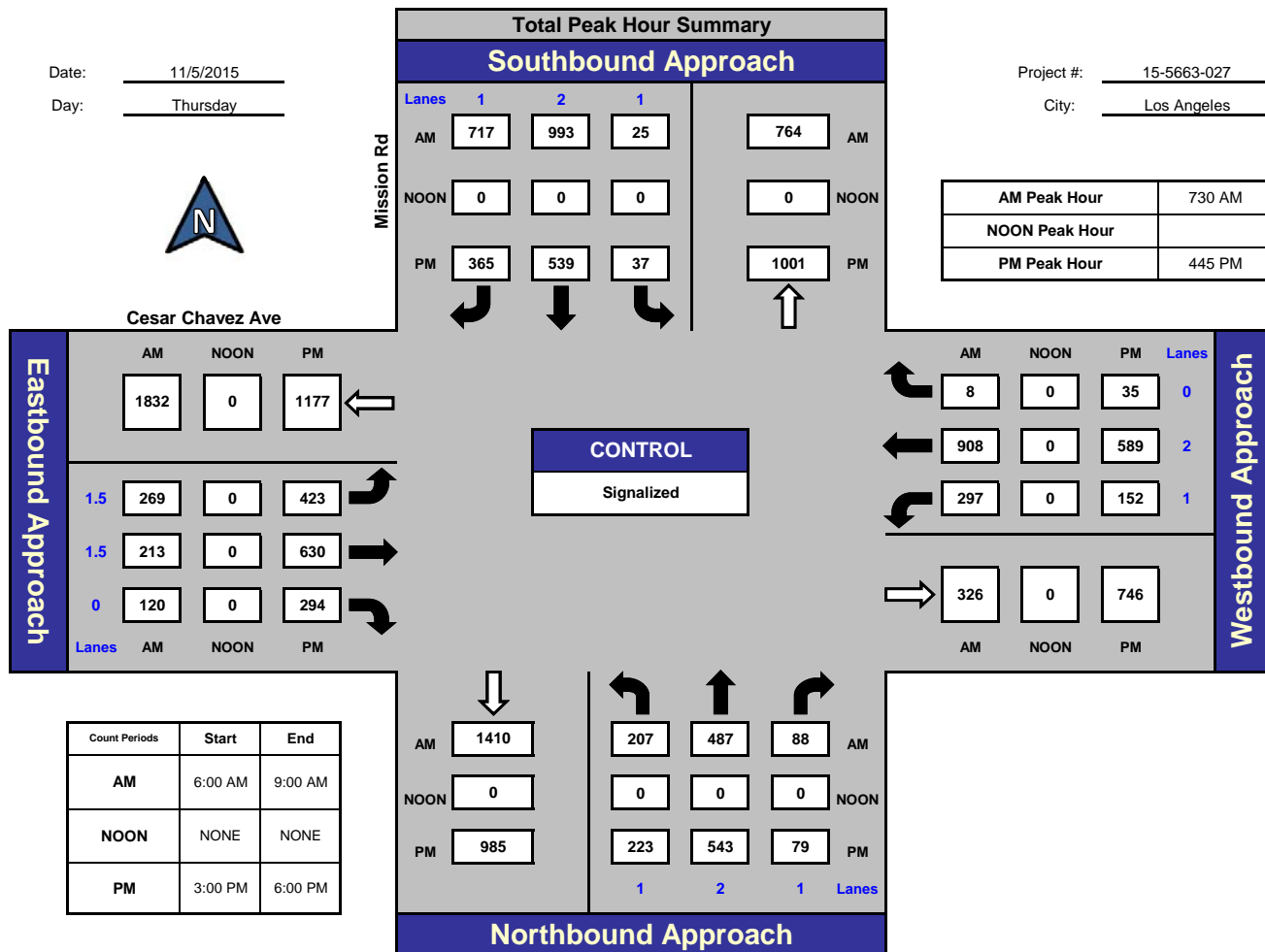


National Data & Surveying Services

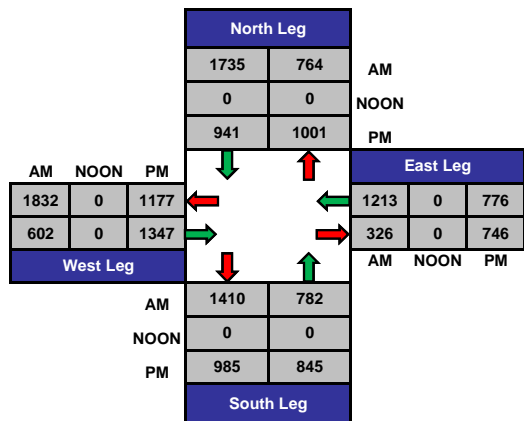
Mission Rd and Cesar Chavez Ave, Los Angeles

Date: 11/5/2015
Day: Thursday

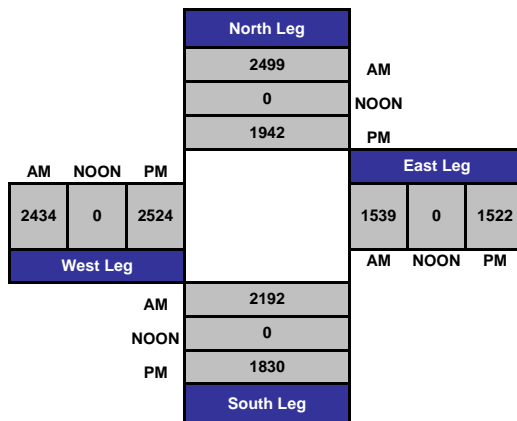
Project #: 15-5663-027
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1.5	ET 1.5	ER 0	WL 1	WT 2	WR 0	
6:00 AM	55	43	9	2	94	72	30	26	47	44	180	1	603
6:15 AM	42	55	13	1	111	138	34	31	60	51	219	1	756
6:30 AM	49	73	10	7	151	124	50	21	32	43	294	2	856
6:45 AM	44	46	9	7	183	176	66	32	26	57	272	1	919
7:00 AM	36	81	9	10	224	169	52	54	36	47	279	2	999
7:15 AM	45	89	15	7	234	201	78	50	23	71	222	5	1040
7:30 AM	47	130	14	5	233	155	74	48	23	66	268	2	1065
7:45 AM	57	115	42	10	278	187	84	58	45	96	209	0	1181
8:00 AM	52	116	21	7	216	171	60	50	27	74	216	2	1012
8:15 AM	51	126	11	3	266	204	51	57	25	61	215	4	1074
8:30 AM	52	113	11	7	286	177	54	36	35	55	209	10	1045
8:45 AM	45	100	16	15	260	144	64	55	41	46	202	6	994
TOTAL VOLUMES :	575	1087	180	81	2536	1918	697	518	420	711	2785	36	11544
APPROACH %'s :	31.22%	59.01%	9.77%	1.79%	55.92%	42.29%	42.63%	31.68%	25.69%	20.13%	78.85%	1.02%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	207	487	88	25	993	717	269	213	120	297	908	8	4332
PEAK HR FACTOR :	0.914			0.913			0.805			0.903			0.917

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1.5	ET 1.5	ER 0	WL 1	WT 2	WR 0	
3:00 PM	10	97	27	8	103	61	84	102	108	28	73	16	717
3:15 PM	21	112	29	9	112	80	89	102	88	30	102	11	785
3:30 PM	21	97	20	6	138	77	111	100	93	32	84	15	794
3:45 PM	16	118	12	13	129	65	99	122	68	46	111	22	821
4:00 PM	19	119	12	9	140	83	128	139	111	30	115	13	918
4:15 PM	13	117	15	5	181	94	122	132	74	38	104	20	915
4:30 PM	23	141	20	6	129	95	128	149	78	27	105	15	916
4:45 PM	20	142	21	6	155	68	115	171	62	26	135	14	935
5:00 PM	55	129	16	17	127	103	112	181	77	35	120	7	979
5:15 PM	79	148	19	7	137	100	91	133	79	51	174	9	1027
5:30 PM	69	124	23	7	120	94	105	145	76	40	160	5	968
5:45 PM	85	164	23	14	79	61	91	119	46	41	201	5	929
TOTAL VOLUMES :	431	1508	237	107	1550	981	1275	1595	960	424	1484	152	10704
APPROACH %'s :	19.81%	69.30%	10.89%	4.06%	58.76%	37.19%	33.29%	41.64%	25.07%	20.58%	72.04%	7.38%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	223	543	79	37	539	365	423	630	294	152	589	35	3909
PEAK HR FACTOR :	0.859			0.952			0.910			0.829			0.952

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1.5	ET 1.5	ER 0	WL 1	WT 2	WR 0	
6:00 AM	55	40	8	2	86	61	25	22	44	44	175	1	563
6:15 AM	40	54	13	1	99	123	30	27	58	51	215	1	712
6:30 AM	46	69	10	7	135	112	44	15	32	43	289	2	804
6:45 AM	41	44	9	7	172	158	62	26	24	56	267	1	867
7:00 AM	33	78	9	10	209	157	46	44	33	47	274	2	942
7:15 AM	45	87	15	7	231	188	69	44	20	70	218	4	998
7:30 AM	46	124	14	5	226	148	66	41	23	66	263	2	1024
7:45 AM	55	114	40	10	273	180	75	53	43	95	206	0	1144
8:00 AM	45	109	20	7	211	157	52	49	25	74	211	2	962
8:15 AM	50	121	11	3	258	195	39	54	25	59	206	4	1025
8:30 AM	51	103	11	7	274	170	44	35	30	55	202	10	992
8:45 AM	43	93	14	13	251	131	56	48	35	45	197	6	932
TOTAL VOLUMES :	550	1036	174	79	2425	1780	608	458	392	705	2723	35	10965
APPROACH %'s :	31.25%	58.86%	9.89%	1.84%	56.61%	41.55%	41.70%	31.41%	26.89%	20.36%	78.63%	1.01%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	196	468	85	25	968	680	232	197	116	294	886	8	4155
PEAK HR FACTOR :	0.896			0.903			0.797			0.897			0.908

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1.5	ET 1.5	ER 0	WL 1	WT 2	WR 0	
3:00 PM	10	92	27	8	92	54	75	99	104	28	71	15	675
3:15 PM	20	107	29	8	109	71	83	98	85	26	98	11	745
3:30 PM	21	97	19	6	129	71	103	95	90	32	81	14	758
3:45 PM	16	114	12	12	121	57	89	118	65	45	104	22	775
4:00 PM	19	119	12	9	134	75	121	134	110	30	111	13	887
4:15 PM	12	115	15	5	171	91	116	128	69	38	103	20	883
4:30 PM	23	137	20	6	127	91	125	146	76	27	99	12	889
4:45 PM	19	140	21	6	150	65	107	167	62	26	132	13	908
5:00 PM	54	125	16	15	119	99	108	178	77	34	118	7	950
5:15 PM	78	143	19	7	134	97	85	130	78	51	167	7	996
5:30 PM	69	123	23	7	119	86	104	142	75	39	156	5	948
5:45 PM	84	158	23	14	75	56	83	117	46	41	199	5	901
TOTAL VOLUMES :	425	1470	236	103	1480	913	1199	1552	937	417	1439	144	10315
APPROACH %'s :	19.94%	68.98%	11.07%	4.13%	59.29%	36.58%	32.51%	42.08%	25.41%	20.85%	71.95%	7.20%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	220	531	79	35	522	347	404	617	292	150	573	32	3802
PEAK HR FACTOR :	0.865			0.950			0.904			0.839			0.954

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Mission Rd
 East/West 1st St
 Day: Thursday Date: November 5, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	71	102	47	74
BUSES	1	3	16	26

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	63	7.45	199	8.30	53	7.30	222	6.45
PM PK 15 MIN	97	17.45	123	17.15	235	17.15	124	17.45
AM PK HOUR	200	7.30	733	7.15	189	7.30	765	6.15
PM PK HOUR	323	17.00	421	17.00	873	17.00	402	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	8	52	5	65
7-8	36	161	2	199
8-9	28	98	10	136
15-16	9	105	9	123
16-17	11	181	8	200
17-18	16	303	4	323
TOTAL	108	900	38	1046

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	31	60	255	346
7-8	101	142	453	696
8-9	86	187	449	722
15-16	100	119	125	344
16-17	88	108	136	332
17-18	92	128	201	421
TOTAL	498	744	1619	2861

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
411	4	0	12	1
895	9	0	12	0
858	14	0	9	0
467	7	0	9	0
532	22	0	6	0
744	11	0	6	0
3907	67	0	54	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	58	40	8	106
7-8	103	67	13	183
8-9	78	92	10	180
15-16	223	274	13	510
16-17	374	348	16	738
17-18	468	395	10	873
TOTAL	1304	1216	70	2590

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	7	625	73	705
7-8	12	555	142	709
8-9	7	580	108	695
15-16	7	179	132	318
16-17	5	209	109	323
17-18	6	237	159	402
TOTAL	44	2385	723	3152

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
811	0	0	3	0
892	0	0	3	0
875	0	0	8	0
828	0	0	8	0
1061	1	0	4	0
1275	1	1	4	0
5742	2	1	30	0

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

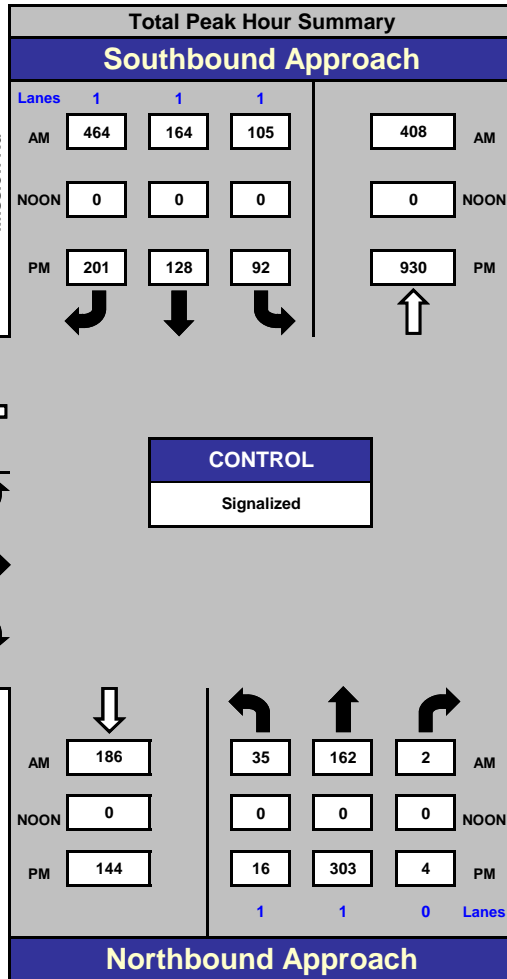
Mission Rd and 1st St, Los Angeles

Date: 11/5/2015

Day: Thursday

Project #: 15-5663-028

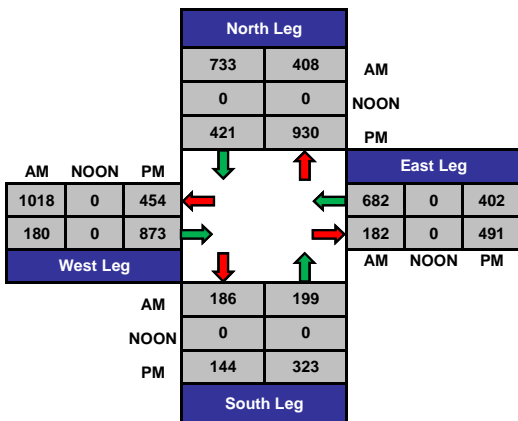
City: Los Angeles



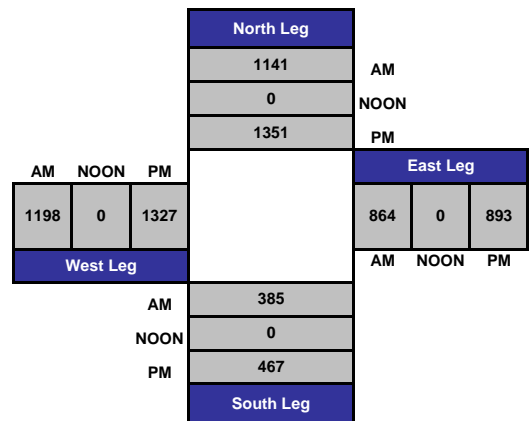
AM Peak Hour	715 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 0.5	WR 0.5	
6:00 AM	4	11	0	8	8	44	13	8	1	3	113	23	236
6:15 AM	1	16	4	8	15	52	9	8	3	0	152	22	290
6:30 AM	3	17	1	4	18	71	22	7	3	1	157	12	316
6:45 AM	0	8	0	11	19	88	14	17	1	3	203	16	380
7:00 AM	11	35	1	19	34	98	21	11	5	4	178	17	434
7:15 AM	4	33	0	24	40	111	23	18	2	0	146	26	427
7:30 AM	9	42	1	30	31	125	38	14	1	3	116	44	454
7:45 AM	12	51	0	28	37	119	21	24	5	5	115	55	472
8:00 AM	10	36	1	23	56	109	13	19	2	4	142	26	441
8:15 AM	10	26	2	17	41	86	26	24	2	3	146	32	415
8:30 AM	5	22	6	21	42	136	16	28	1	0	146	23	446
8:45 AM	3	14	1	25	48	118	23	21	5	0	146	27	431
TOTAL VOLUMES :	72	311	17	218	389	1157	239	199	31	26	1760	323	4742
APPROACH %'s :	18.00%	77.75%	4.25%	12.36%	22.05%	65.59%	50.96%	42.43%	6.61%	1.23%	83.45%	15.32%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	35	162	2	105	164	464	95	75	10	12	519	151	1794
PEAK HR FACTOR :	0.790			0.975			0.849			0.974			0.950

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 0.5	WR 0.5	
3:00 PM	2	31	2	24	24	27	57	50	4	2	47	37	307
3:15 PM	3	26	1	23	28	27	43	52	2	2	46	50	303
3:30 PM	2	25	4	26	45	28	54	85	2	1	38	27	337
3:45 PM	2	23	2	27	22	43	69	87	5	2	48	18	348
4:00 PM	5	45	1	17	20	30	81	85	4	0	41	23	352
4:15 PM	0	44	4	25	38	35	92	95	5	2	54	26	420
4:30 PM	3	43	1	24	23	34	102	83	4	3	57	27	404
4:45 PM	3	49	2	22	27	37	99	85	3	0	57	33	417
5:00 PM	3	62	1	26	31	50	109	86	1	1	51	38	459
5:15 PM	6	57	1	24	41	58	113	120	2	2	63	36	523
5:30 PM	5	89	2	20	30	54	120	103	3	1	50	36	513
5:45 PM	2	95	0	22	26	39	126	86	4	2	73	49	524
TOTAL VOLUMES :	NL 36	NT 589	NR 21	SL 280	ST 355	SR 462	EL 1065	ET 1017	ER 39	WL 18	WT 625	WR 400	TOTAL 4907
APPROACH %'s :	5.57%	91.18%	3.25%	25.52%	32.36%	42.11%	50.21%	47.95%	1.84%	1.73%	59.92%	38.35%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	16	303	4	92	128	201	468	395	10	6	237	159	2019
PEAK HR FACTOR :	0.832			0.856			0.929			0.810			0.963

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5	
6:00 AM	4	6	0	8	7	43	11	8	1	3	112	21	224
6:15 AM	1	13	3	8	12	51	9	6	2	0	151	21	277
6:30 AM	3	14	1	4	16	69	19	7	3	1	151	12	300
6:45 AM	0	6	0	11	16	88	13	15	1	3	197	14	364
7:00 AM	9	30	0	18	31	96	21	10	5	4	176	16	416
7:15 AM	4	31	0	23	39	107	21	15	2	0	142	26	410
7:30 AM	9	40	1	30	30	124	34	13	0	3	112	44	440
7:45 AM	12	47	0	28	35	117	20	22	5	5	113	54	458
8:00 AM	10	28	1	23	55	107	11	15	2	4	136	23	415
8:15 AM	10	23	2	17	40	85	23	23	2	1	144	29	399
8:30 AM	5	19	4	19	38	129	16	27	1	0	145	18	421
8:45 AM	3	10	1	25	46	115	21	21	5	0	143	21	411
TOTAL VOLUMES :	70	267	13	214	365	1131	219	182	29	24	1722	299	4535
APPROACH %'s :	20.00%	76.29%	3.71%	12.51%	21.35%	66.14%	50.93%	42.33%	6.74%	1.17%	84.21%	14.62%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	35	146	2	104	159	455	86	65	9	12	503	147	1723
PEAK HR FACTOR :	0.775			0.970			0.851			0.962			0.941

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 1	NR 0	SL 1	ST 1	SR 1	EL 1	ET 0.5	ER 0.5	WL 1	WT 0.5	WR 0.5	
3:00 PM	2	31	2	23	21	27	55	49	4	2	42	34	292
3:15 PM	3	25	1	21	24	27	42	50	1	2	45	50	291
3:30 PM	2	24	3	26	37	28	54	85	2	0	36	26	323
3:45 PM	2	22	1	26	22	42	68	87	5	2	46	17	340
4:00 PM	5	45	1	16	20	29	81	83	4	0	39	23	346
4:15 PM	0	41	4	23	31	34	92	94	5	2	52	25	403
4:30 PM	2	37	0	23	21	34	101	83	4	2	55	26	388
4:45 PM	3	47	2	22	25	37	98	83	3	0	56	33	409
5:00 PM	3	61	1	25	29	50	107	84	1	1	50	37	449
5:15 PM	6	56	0	23	37	58	111	119	2	2	61	35	510
5:30 PM	5	88	2	20	28	54	120	103	3	1	50	36	510
5:45 PM	2	95	0	22	23	38	126	84	4	1	72	46	513
TOTAL VOLUMES :	35	572	17	270	318	458	1055	1004	38	15	604	388	4774
APPROACH %'s :	5.61%	91.67%	2.72%	25.81%	30.40%	43.79%	50.31%	47.88%	1.81%	1.49%	59.98%	38.53%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	16	300	3	90	117	200	464	390	10	5	233	154	1982
PEAK HR FACTOR :	0.822			0.862			0.931			0.824			0.966

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Central Ave

East/West 1st St

Day: Thursday Date: November 5, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	43	0	47	77
BUSES	20	3	48	106
BUSES	3	0	58	17

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	62	6.45	0	0.00	92	8.15	180	7.15
PM PK 15 MIN	142	17.30	0	0.00	254	16.45	147	17.45
AM PK HOUR	196	7.45	0	0.00	349	8.00	686	7.15
PM PK HOUR	512	17.00	0	0.00	952	16.30	560	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	95	0	55	150
7-8	184	0	1	185
8-9	181	0	0	181
15-16	134	0	89	223
16-17	176	0	133	309
17-18	247	0	265	512
TOTAL	1017	0	543	1560

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
150	45	4	37	0
185	40	0	96	0
181	66	0	96	0
223	114	0	145	0
309	116	1	163	0
512	161	1	177	0
1560	542	6	714	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	96	87	183
7-8	1	1	265	267
8-9	0	0	349	349
15-16	0	499	158	657
16-17	1	747	154	902
17-18	0	702	203	905
TOTAL	2	2045	1216	3263

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	100	527	0	627
7-8	140	524	0	664
8-9	132	547	0	679
15-16	85	273	0	358
16-17	106	350	0	456
17-18	103	457	0	560
TOTAL	666	2678	0	3344

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
810	16	0	3	0
931	62	0	7	0
1028	58	0	15	0
1015	185	4	20	0
1358	212	0	39	0
1465	185	0	41	0
6607	718	4	125	0

ITM Peak Hour Summary

Prepared by:

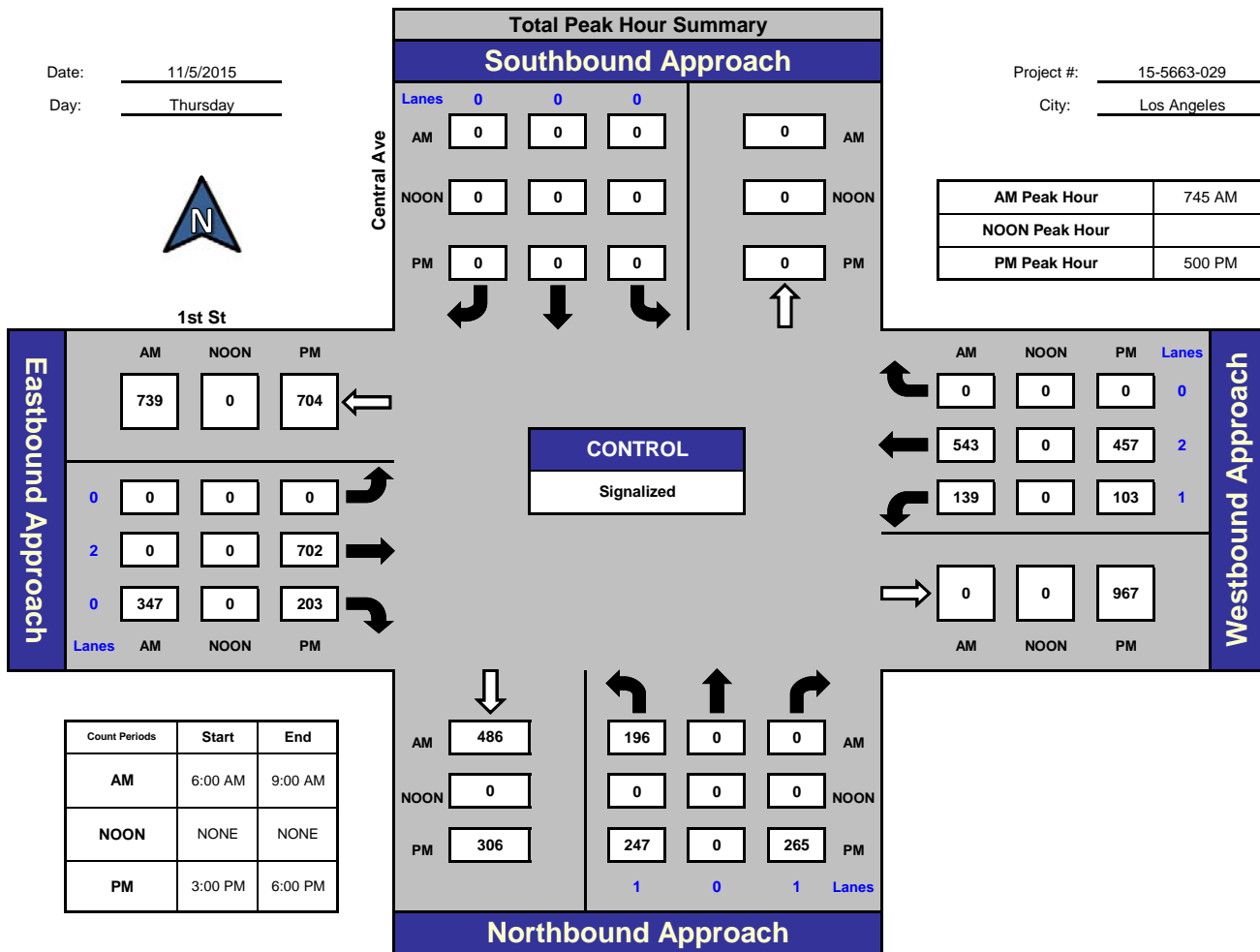


National Data & Surveying Services

Central Ave and 1st St, Los Angeles

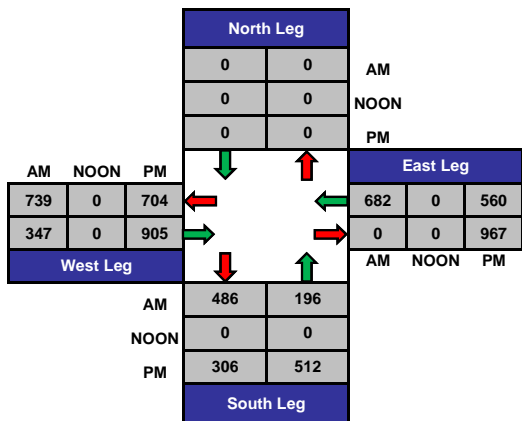
Date: 11/5/2015
Day: Thursday

Project #: 15-5663-029
City: Los Angeles

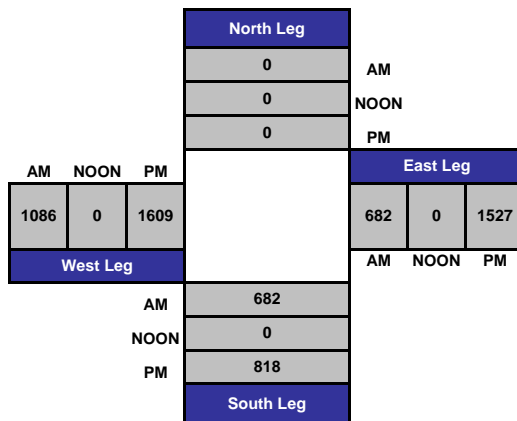


Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

AM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	0	1	0	0	0	0	2	0	1	2	0	
6:00 AM	10	0	7	0	0	0	0	14	17	19	101	0	168
6:15 AM	16	0	15	0	0	0	0	21	22	18	139	0	231
6:30 AM	22	0	18	0	0	0	0	27	19	30	144	0	260
6:45 AM	47	0	15	0	0	0	0	34	29	33	143	0	301
7:00 AM	36	0	0	0	0	0	1	1	53	17	130	0	238
7:15 AM	41	0	1	0	0	0	0	0	55	31	149	0	277
7:30 AM	50	0	0	0	0	0	0	0	75	51	113	0	289
7:45 AM	57	0	0	0	0	0	0	0	82	41	132	0	312
8:00 AM	40	0	0	0	0	0	0	0	86	41	128	0	295
8:15 AM	41	0	0	0	0	0	0	0	92	20	145	0	298
8:30 AM	58	0	0	0	0	0	0	0	87	37	138	0	320
8:45 AM	42	0	0	0	0	0	0	0	84	34	136	0	296
TOTAL VOLUMES :	460	0	56	0	0	0	1	97	701	372	1598	0	3285
APPROACH %'s :	89.15%	0.00%	10.85%	#DIV/0!	#DIV/0!	#DIV/0!	0.13%	12.14%	87.73%	18.88%	81.12%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	196	0	0	0	0	0	0	0	347	139	543	0	1225
PEAK HR FACTOR :	0.845			0.000			0.943			0.974			0.957

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/5/2015

PM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	33	0	29	0	0	0	0	108	38	18	63	0	289
3:15 PM	25	0	19	0	0	0	0	85	47	14	65	0	255
3:30 PM	30	0	22	0	0	0	0	138	39	27	86	0	342
3:45 PM	46	0	19	0	0	0	0	168	34	26	59	0	352
4:00 PM	40	0	15	0	0	0	0	173	29	29	82	0	368
4:15 PM	37	0	28	0	0	0	0	165	37	26	72	0	365
4:30 PM	52	0	45	0	0	0	1	199	44	24	88	0	453
4:45 PM	47	0	45	0	0	0	0	210	44	27	108	0	481
5:00 PM	60	0	49	0	0	0	0	181	39	32	103	0	464
5:15 PM	52	0	69	0	0	0	0	187	47	16	119	0	490
5:30 PM	75	0	67	0	0	0	0	172	72	27	116	0	529
5:45 PM	60	0	80	0	0	0	0	162	45	28	119	0	494
TOTAL VOLUMES :	557	0	487	0	0	0	1	1948	515	294	1080	0	4882
APPROACH %'s :	53.35%	0.00%	46.65%	#DIV/0!	#DIV/0!	#DIV/0!	0.04%	79.06%	20.90%	21.40%	78.60%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	247	0	265	0	0	0	0	702	203	103	457	0	1977
PEAK HR FACTOR :	0.901			0.000			0.927			0.952			0.934

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

AM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	2	0	1	2	0	
6:00 AM	10	0	7	0	0	0	0	11	17	15	100	0	160
6:15 AM	15	0	13	0	0	0	0	19	21	16	138	0	222
6:30 AM	22	0	16	0	0	0	0	23	18	28	142	0	249
6:45 AM	46	0	12	0	0	0	0	30	28	29	140	0	285
7:00 AM	36	0	0	0	0	0	1	1	48	17	128	0	231
7:15 AM	40	0	0	0	0	0	0	0	53	30	145	0	268
7:30 AM	48	0	0	0	0	0	0	0	71	50	109	0	278
7:45 AM	55	0	0	0	0	0	0	0	77	39	130	0	301
8:00 AM	40	0	0	0	0	0	0	0	84	41	127	0	292
8:15 AM	41	0	0	0	0	0	0	0	86	19	141	0	287
8:30 AM	56	0	0	0	0	0	0	0	82	37	134	0	309
8:45 AM	37	0	0	0	0	0	0	0	81	33	132	0	283
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	446	0	48	0	0	0	1	84	666	354	1566	0	3165
	90.28%	0.00%	9.72%				0.13%	11.19%	88.68%	18.44%	81.56%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	192	0	0	0	0	0	0	0	329	136	532	0	1189
PEAK HR FACTOR :	0.857			0.000			0.956			0.977			0.962

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

CARS

Date: 11/5/2015

PM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	33	0	27	0	0	0	0	103	34	18	58	0	273
3:15 PM	24	0	16	0	0	0	0	80	45	14	63	0	242
3:30 PM	28	0	20	0	0	0	0	136	39	24	84	0	331
3:45 PM	45	0	18	0	0	0	0	165	33	25	58	0	344
4:00 PM	40	0	14	0	0	0	0	170	29	24	75	0	352
4:15 PM	37	0	28	0	0	0	0	161	36	25	67	0	354
4:30 PM	51	0	45	0	0	0	1	195	42	23	85	0	442
4:45 PM	46	0	40	0	0	0	0	207	42	27	107	0	469
5:00 PM	60	0	49	0	0	0	0	177	38	31	100	0	455
5:15 PM	52	0	66	0	0	0	0	185	46	16	118	0	483
5:30 PM	75	0	67	0	0	0	0	167	72	27	115	0	523
5:45 PM	60	0	79	0	0	0	0	159	45	28	118	0	489
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	551	0	469	0	0	0	1	1905	501	282	1048	0	4757
	54.02%	0.00%	45.98%				0.04%	79.14%	20.81%	21.20%	78.80%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	247	0	261	0	0	0	0	688	201	102	451	0	1950
PEAK HR FACTOR :	0.894			0.000			0.930			0.947			0.932

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St
 East/West Ord St_Main St
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	317	312	10	0
BUSES	62	58	4	4
BUSES	119	45	45	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	171	7.45	426	7.45	20	8.00	0	0.00
PM PK 15 MIN	459	17.45	206	15.30	33	15.00	0	0.00
AM PK HOUR	638	7.45	1526	7.45	65	8.00	0	0.00
PM PK HOUR	1801	17.00	776	15.15	101	15.00	0	0.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	30	181	158	369
7-8	55	324	194	573
8-9	54	351	227	632
15-16	89	720	318	1127
16-17	69	1025	472	1566
17-18	97	1078	626	1801
TOTAL	394	3679	1995	6068

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	1	898	67	966
7-8	1	1336	183	1520
8-9	2	1269	229	1500
15-16	4	720	48	772
16-17	2	694	49	745
17-18	2	643	49	694
TOTAL	12	5560	625	6197

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1335	0	0	4	0
2093	0	0	0	0
2132	0	0	0	0
1899	0	0	1	0
2311	1	0	0	0
2495	0	0	0	0
12265	1	0	5	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	32	32
7-8	0	0	52	52
8-9	0	0	65	65
15-16	0	0	101	101
16-17	1	2	72	75
17-18	1	1	78	80
TOTAL	2	3	400	405

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
32	73	0	19	0
52	60	1	20	0
65	52	0	20	0
101	64	1	15	0
75	54	3	20	0
80	51	0	18	0
405	354	5	112	0

ITM Peak Hour Summary

Prepared by:

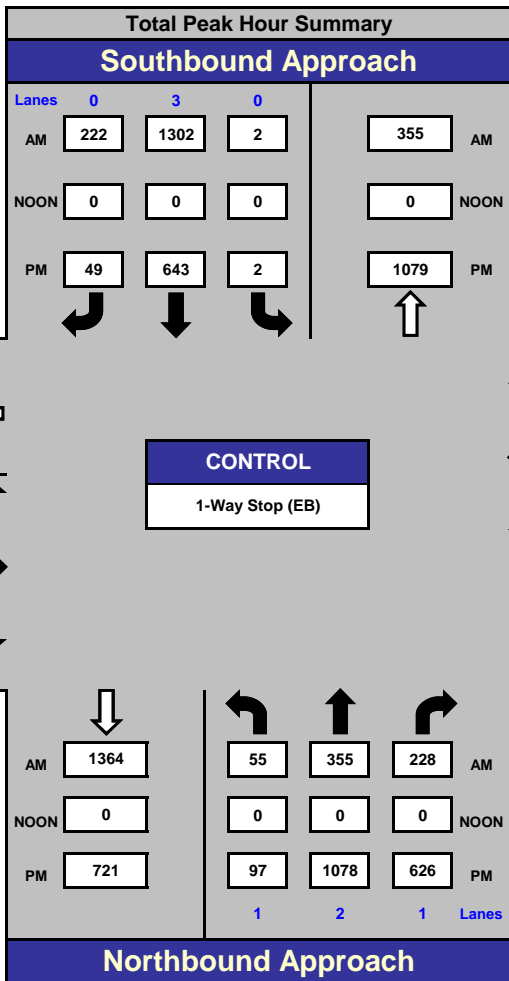


National Data & Surveying Services

Alameda St and Ord St Main St, Los Angeles

Date: 11/19/2015
Day: Thursday

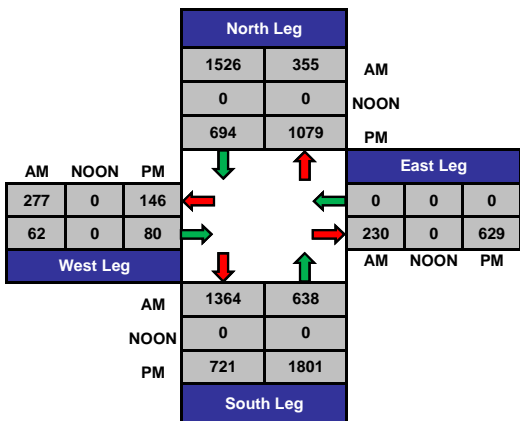
Project #: 15-5779-005
City: Los Angeles



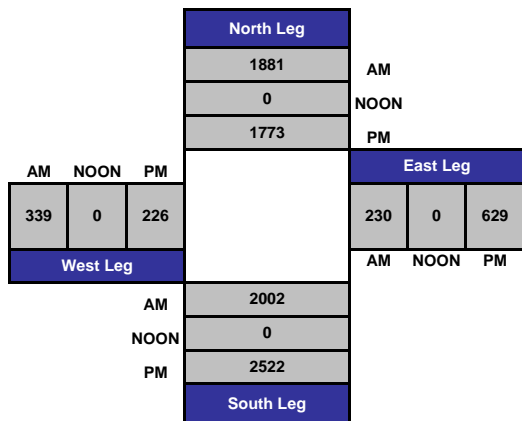
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-005

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Ord St_Main St			Ord St_Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 0	ST 3	SR 0	EL 0	ET 0	ER 1	WL 0	WT 0	WR 0	
6:00 AM	7	41	42	0	147	10	0	0	5	0	0	0	252
6:15 AM	7	29	28	0	215	9	0	0	7	0	0	0	295
6:30 AM	8	54	37	0	243	10	0	0	7	0	0	0	359
6:45 AM	8	57	51	1	293	38	0	0	13	0	0	0	461
7:00 AM	10	70	40	0	353	33	0	0	12	0	0	0	518
7:15 AM	18	79	44	1	337	45	0	0	13	0	0	0	537
7:30 AM	14	79	48	0	277	48	0	0	15	0	0	0	481
7:45 AM	13	96	62	0	369	57	0	0	12	0	0	0	609
8:00 AM	13	93	50	0	268	46	0	0	20	0	0	0	490
8:15 AM	16	77	76	2	332	62	0	0	13	0	0	0	578
8:30 AM	13	89	40	0	333	57	0	0	17	0	0	0	549
8:45 AM	12	92	61	0	336	64	0	0	15	0	0	0	580
TOTAL VOLUMES :	NL 139	NT 856	NR 579	SL 4	ST 3503	SR 479	EL 0	ET 0	ER 149	WL 0	WT 0	WR 0	TOTAL 5709
APPROACH %'s :	8.83%	54.38%	36.79%	0.10%	87.88%	12.02%	0.00%	0.00%	100.00%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	55	355	228	2	1302	222	0	0	62	0	0	0	2226
PEAK HR FACTOR :	0.933			0.896			0.775			0.000			0.914

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-005

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Ord St_Main St			Ord St_Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 0	ST 3	SR 0	EL 0	ET 0	ER 1	WL 0	WT 0	WR 0	
3:00 PM	18	161	71	1	177	12	0	0	33	0	0	0	473
3:15 PM	28	151	88	1	175	10	0	0	20	0	0	0	473
3:30 PM	18	202	73	0	191	15	0	0	26	0	0	0	525
3:45 PM	25	206	86	2	177	11	0	0	22	0	0	0	529
4:00 PM	14	240	94	1	179	14	0	1	15	0	0	0	558
4:15 PM	15	252	95	0	161	11	1	1	23	0	0	0	559
4:30 PM	17	266	127	0	178	10	0	0	17	0	0	0	615
4:45 PM	23	267	156	1	176	14	0	0	17	0	0	0	654
5:00 PM	16	275	148	0	146	7	1	0	20	0	0	0	613
5:15 PM	20	259	170	0	181	13	0	1	24	0	0	0	668
5:30 PM	30	276	148	0	154	13	0	0	15	0	0	0	636
5:45 PM	31	268	160	2	162	16	0	0	19	0	0	0	658
TOTAL VOLUMES :	255	2823	1416	8	2057	146	2	3	251	0	0	0	6961
APPROACH %'s :	5.67%	62.82%	31.51%	0.36%	93.03%	6.60%	0.78%	1.17%	98.05%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	97	1078	626	2	643	49	1	1	78	0	0	0	2575
PEAK HR FACTOR :	0.981		0.894			0.800			0.000			0.964	

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-005

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Ord St_Main St			Ord St_Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	0	3	0	0	0	1	0	0	0	
6:00 AM	6	35	35	0	101	7	0	0	4	0	0	0	188
6:15 AM	4	25	23	0	169	8	0	0	5	0	0	0	234
6:30 AM	5	49	31	0	221	10	0	0	5	0	0	0	321
6:45 AM	5	54	48	1	274	36	0	0	10	0	0	0	428
7:00 AM	8	66	32	0	339	33	0	0	10	0	0	0	488
7:15 AM	16	69	39	1	326	44	0	0	10	0	0	0	505
7:30 AM	13	74	43	0	268	47	0	0	13	0	0	0	458
7:45 AM	11	88	52	0	356	57	0	0	9	0	0	0	573
8:00 AM	11	82	44	0	251	46	0	0	18	0	0	0	452
8:15 AM	15	65	59	2	323	62	0	0	10	0	0	0	536
8:30 AM	10	78	29	0	319	57	0	0	14	0	0	0	507
8:45 AM	10	74	47	0	317	62	0	0	13	0	0	0	523
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	114	759	482	4	3264	469	0	0	121	0	0	0	5213
	8.41%	56.01%	35.57%	0.11%	87.34%	12.55%	0.00%	0.00%	100.00%				
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	47	313	184	2	1249	222	0	0	51	0	0	0	2068
PEAK HR FACTOR :	0.901		0.892			0.708			0.000			0.902	

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-005

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Ord St_Main St			Ord St_Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 0	ST 3	SR 0	EL 0	ET 0	ER 1	WL 0	WT 0	WR 0	
3:00 PM	14	154	62	1	166	10	0	0	28	0	0	0	435
3:15 PM	27	145	81	1	166	10	0	0	18	0	0	0	448
3:30 PM	16	192	67	0	179	13	0	0	24	0	0	0	491
3:45 PM	22	198	77	2	162	11	0	0	20	0	0	0	492
4:00 PM	14	229	88	1	172	14	0	1	12	0	0	0	531
4:15 PM	12	245	87	0	151	10	1	1	22	0	0	0	529
4:30 PM	15	256	116	0	174	9	0	0	15	0	0	0	585
4:45 PM	23	253	147	1	173	12	0	0	15	0	0	0	624
5:00 PM	13	268	138	0	138	7	1	0	20	0	0	0	585
5:15 PM	19	254	165	0	173	13	0	1	19	0	0	0	644
5:30 PM	29	267	141	0	150	13	0	0	14	0	0	0	614
5:45 PM	30	261	152	2	154	15	0	0	17	0	0	0	631
TOTAL VOLUMES :	NL 234	NT 2722	NR 1321	SL 8	ST 1958	SR 137	EL 2	ET 3	ER 224	WL 0	WT 0	WR 0	TOTAL 6609
APPROACH %'s :	5.47%	63.64%	30.89%	0.38%	93.11%	6.51%	0.87%	1.31%	97.82%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	91	1050	596	2	615	48	1	1	70	0	0	0	2474
PEAK HR FACTOR :	0.980			0.894			0.857			0.000			0.960

CONTROL : 1-Way Stop (EB)



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St
 East/West Main St
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	210	305	128	16
BUSES	33	51	22	2
BUSES	69	88	72	2

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	133	8.15	384	7.45	65	8.45	15	8.45
PM PK 15 MIN	237	17.30	228	15.30	252	17.45	53	15.00
AM PK HOUR	498	8.00	1396	7.00	217	8.00	41	8.00
PM PK HOUR	913	17.00	832	15.00	973	17.00	172	15.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	265	23	288
7-8	0	417	36	453
8-9	0	442	56	498
15-16	0	686	34	720
16-17	0	843	21	864
17-18	0	901	12	913
TOTAL	0	3554	182	3736

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	19	908	0	927
7-8	23	1373	0	1396
8-9	48	1287	0	1335
15-16	18	814	0	832
16-17	12	759	0	771
17-18	3	711	0	714
TOTAL	123	5852	0	5975

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1215	13	0	0	0
1849	9	0	1	0
1833	17	0	0	0
1552	40	0	2	0
1635	19	2	0	0
1627	10	0	0	0
9711	108	2	3	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	93	6	12	111
7-8	157	13	15	185
8-9	158	42	17	217
15-16	336	25	28	389
16-17	670	11	24	705
17-18	915	22	36	973
TOTAL	2329	119	132	2580

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	3	0	8	11
7-8	19	0	3	22
8-9	21	0	20	41
15-16	105	0	67	172
16-17	68	0	51	119
17-18	41	0	35	76
TOTAL	257	0	184	441

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
122	41	1	36	1
207	73	0	44	0
258	64	1	58	0
561	98	2	43	0
824	65	0	47	0
1049	47	0	47	0
3021	388	4	275	1

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

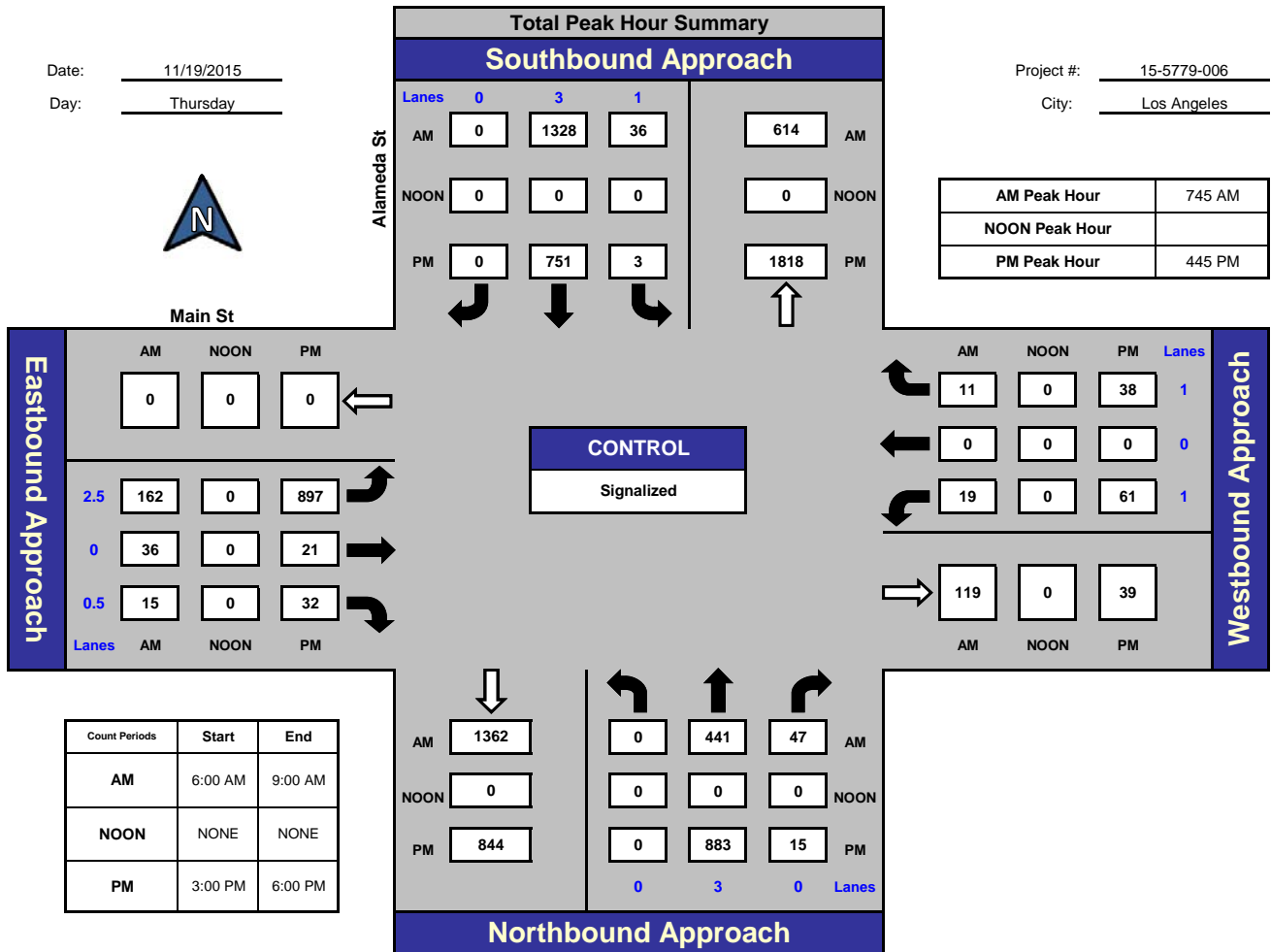
Alameda St and Main St, Los Angeles

Date: 11/19/2015

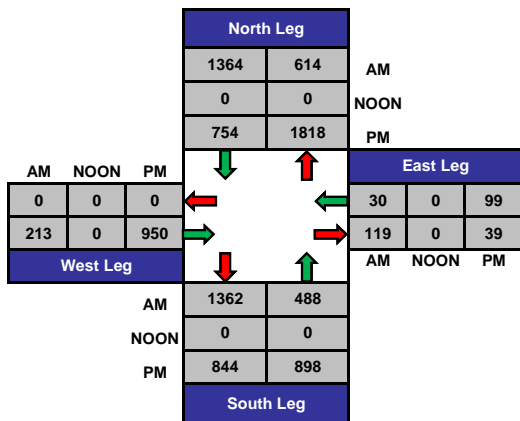
Day: Thursday

Project #: 15-5779-006

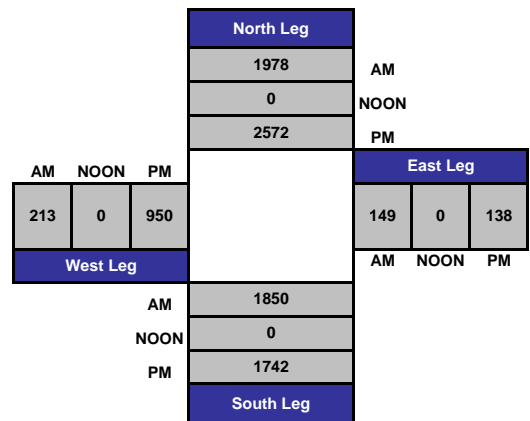
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-006

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Main St			Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	2.5	0	0.5	1	0	1	
6:00 AM	0	58	6	2	151	0	30	0	3	1	0	1	252
6:15 AM	0	47	6	3	211	0	17	3	2	0	0	3	292
6:30 AM	0	79	4	5	242	0	14	1	4	1	0	3	353
6:45 AM	0	81	7	9	304	0	32	2	3	1	0	1	440
7:00 AM	0	92	9	6	358	0	23	2	4	6	0	1	501
7:15 AM	0	104	15	5	349	0	41	3	3	5	0	1	526
7:30 AM	0	107	7	6	288	0	42	2	4	4	0	1	461
7:45 AM	0	114	5	6	378	0	51	6	4	4	0	0	568
8:00 AM	0	111	11	10	275	0	35	9	3	5	0	3	462
8:15 AM	0	117	16	9	332	0	40	12	5	7	0	2	540
8:30 AM	0	99	15	11	343	0	36	9	3	3	0	6	525
8:45 AM	0	115	14	18	337	0	47	12	6	6	0	9	564
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1124	115	90	3568	0	408	61	44	43	0	31	5484
	0.00%	90.72%	9.28%	2.46%	97.54%	0.00%	79.53%	11.89%	8.58%	58.11%	0.00%	41.89%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	441	47	36	1328	0	162	36	15	19	0	11	2095
PEAK HR FACTOR :	0.917			0.888			0.873			0.833			0.922

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-006

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Main St			Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	1	3	0	2.5	0	0.5	1	0	1	
3:00 PM	0	154	9	9	204	0	72	9	10	32	0	21	520
3:15 PM	0	161	6	2	187	0	71	8	3	21	0	14	473
3:30 PM	0	187	8	4	224	0	87	4	5	35	0	16	570
3:45 PM	0	184	11	3	199	0	106	4	10	17	0	16	550
4:00 PM	0	209	4	3	195	0	121	0	10	19	0	15	576
4:15 PM	0	213	3	6	169	0	134	3	4	12	0	14	558
4:30 PM	0	207	8	3	190	0	194	4	6	11	0	11	634
4:45 PM	0	214	6	0	205	0	221	4	4	26	0	11	691
5:00 PM	0	213	5	2	172	0	213	7	9	10	0	14	645
5:15 PM	0	222	1	0	195	0	223	5	13	9	0	9	677
5:30 PM	0	234	3	1	179	0	240	5	6	16	0	4	688
5:45 PM	0	232	3	0	165	0	239	5	8	6	0	8	666
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	2430	67	33	2284	0	1921	58	88	214	0	153	7248
	0.00%	97.32%	2.68%	1.42%	98.58%	0.00%	92.94%	2.81%	4.26%	58.31%	0.00%	41.69%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	883	15	3	751	0	897	21	32	61	0	38	2701
PEAK HR FACTOR :	0.947		0.920			0.946			0.669			0.977	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-006

CARS

Day: Thursday

City: Los Angeles

AM

Date: 11/19/2015

NS/EW Streets:	Alameda St			Alameda St			Main St			Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	2.5	0	0.5	1	0	1	
6:00 AM	0	49	5	1	102	0	27	0	2	1	0	0	187
6:15 AM	0	40	5	3	163	0	15	3	0	0	0	2	231
6:30 AM	0	67	4	5	217	0	12	1	3	1	0	3	313
6:45 AM	0	75	7	9	283	0	31	2	2	1	0	0	410
7:00 AM	0	79	9	6	340	0	22	2	3	6	0	1	468
7:15 AM	0	93	14	5	338	0	35	2	2	5	0	1	495
7:30 AM	0	96	6	6	274	0	40	1	1	3	0	1	428
7:45 AM	0	99	5	6	361	0	47	6	3	4	0	0	531
8:00 AM	0	97	10	10	261	0	31	9	2	3	0	2	425
8:15 AM	0	97	16	9	317	0	33	12	3	4	0	2	493
8:30 AM	0	82	15	11	327	0	27	9	3	3	0	6	483
8:45 AM	0	87	14	17	317	0	38	11	5	5	0	9	503
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	961	110	88	3300	0	358	58	29	36	0	27	4967
	0.00%	89.73%	10.27%	2.60%	97.40%	0.00%	80.45%	13.03%	6.52%	57.14%	0.00%	42.86%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	375	46	36	1266	0	138	36	11	14	0	10	1932
PEAK HR FACTOR :	0.931			0.887			0.826			0.667			0.910

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-006

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Main St			Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	2.5	0	0.5	1	0	1	
3:00 PM	0	142	9	9	189	0	66	9	9	32	0	20	485
3:15 PM	0	154	6	2	176	0	64	7	2	21	0	14	446
3:30 PM	0	175	8	4	207	0	81	3	5	35	0	16	534
3:45 PM	0	176	10	3	185	0	95	2	9	17	0	14	511
4:00 PM	0	197	3	3	186	0	117	0	9	19	0	14	548
4:15 PM	0	207	3	6	158	0	124	3	3	10	0	14	528
4:30 PM	0	195	7	3	184	0	184	4	5	11	0	11	604
4:45 PM	0	206	6	0	197	0	206	3	4	26	0	11	659
5:00 PM	0	203	5	2	164	0	202	4	7	10	0	14	611
5:15 PM	0	217	1	0	185	0	217	5	13	8	0	9	655
5:30 PM	0	228	1	1	174	0	229	2	6	16	0	4	661
5:45 PM	0	224	3	0	156	0	227	3	6	6	0	8	633
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0.00%	97.40%	2.60%	1.50%	98.50%	0.00%	93.64%	2.33%	4.03%	58.61%	0.00%	41.39%	6875
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	854	13	3	720	0	854	14	30	60	0	38	2586
PEAK HR FACTOR :	0.947			0.918			0.947			0.662			0.978

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Main St
 East/West Cesar E. Chavez Ave
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED	200	0	96	100
BIKES	56	15	42	31
BUSES	90	0	262	336

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	99	8.15	0	0.00	163	7.45	408	6.45
PM PK 15 MIN	412	17.45	0	0.00	294	17.15	319	17.30
AM PK HOUR	364	8.00	0	0.00	629	7.30	1542	6.30
PM PK HOUR	1492	17.00	0	0.00	1111	16.30	1192	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	39	79	49	167
7-8	104	121	84	309
8-9	116	156	92	364
15-16	197	324	188	709
16-17	336	641	214	1191
17-18	402	856	234	1492
TOTAL	1194	2177	861	4232

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
167	34	0	31	0
309	29	1	47	0
364	34	0	53	0
709	55	22	125	0
1191	82	5	137	0
1492	81	3	101	0
4232	315	31	494	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	25	344	0	369
7-8	47	536	0	583
8-9	61	537	0	598
15-16	61	807	0	868
16-17	61	983	0	1044
17-18	76	979	0	1055
TOTAL	331	4186	0	4517

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	1	1266	12	1279
7-8	0	1439	13	1452
8-9	0	1452	19	1471
15-16	0	822	21	843
16-17	0	920	23	943
17-18	0	1170	22	1192
TOTAL	1	7069	110	7180

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1648	1	0	29	0
2035	2	0	46	0
2069	0	0	50	0
1711	0	0	79	5
1987	4	1	90	0
2247	0	0	84	0
11697	7	1	378	5

ITM Peak Hour Summary

Prepared by:

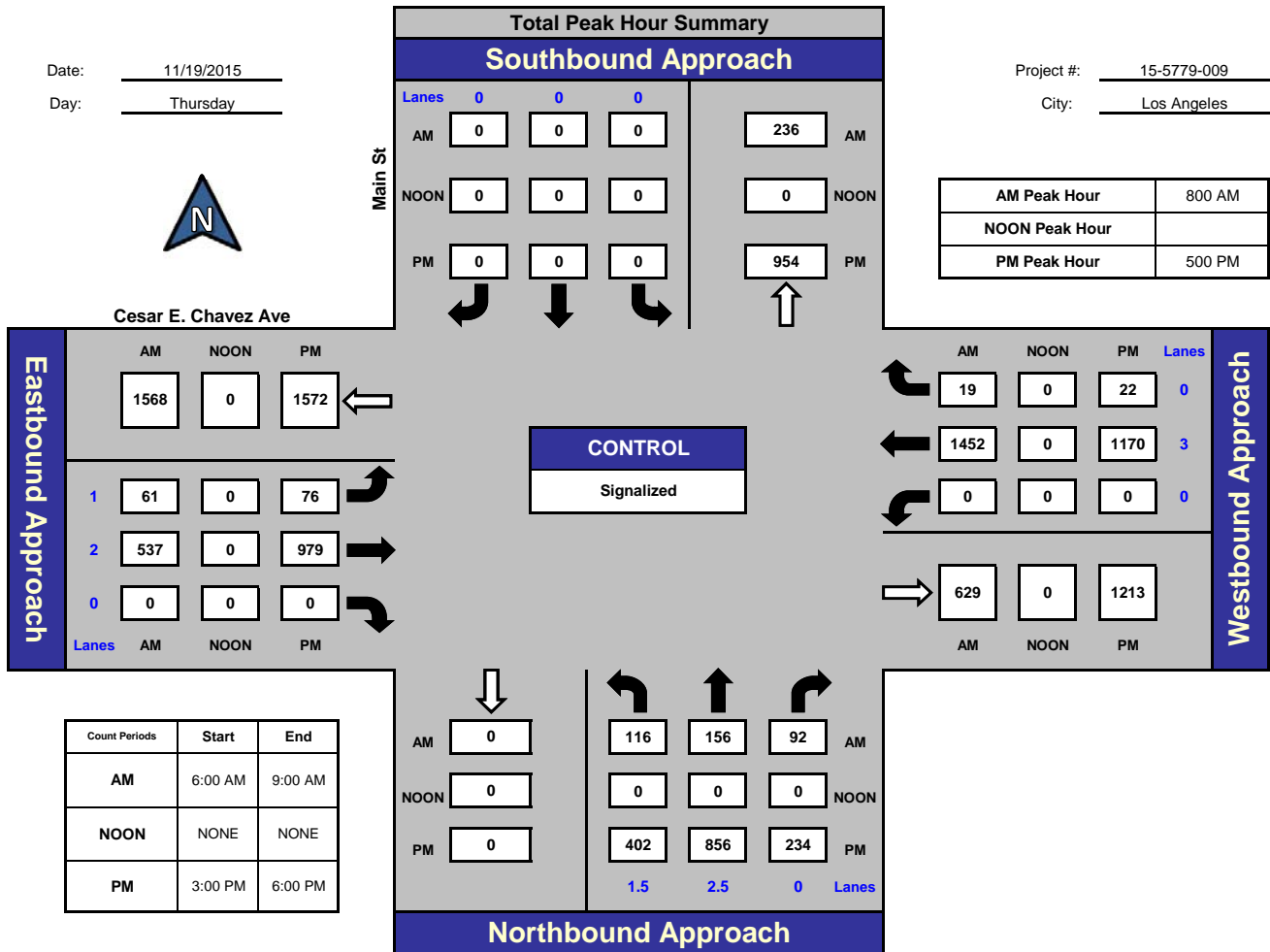


National Data & Surveying Services

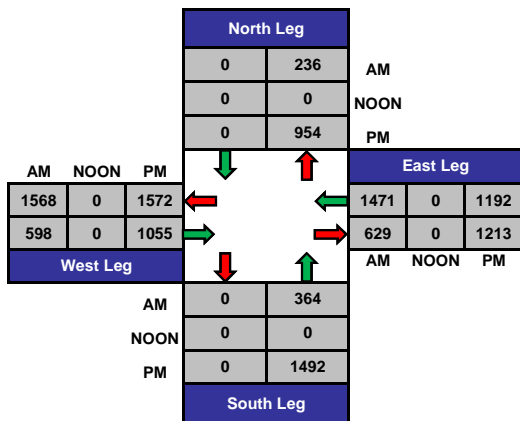
Main St and Cesar E. Chavez Ave, Los Angeles

Date: 11/19/2015
Day: Thursday

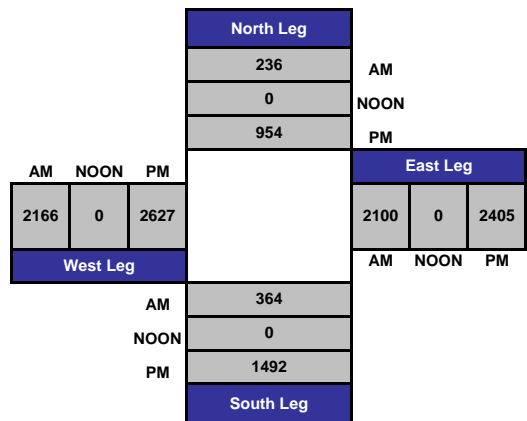
Project #: 15-5779-009
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-009

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Main St			Main St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	2.5	0	0	0	0	1	2	0	0	3	0	
6:00 AM	6	23	9	0	0	0	11	91	0	0	178	3	321
6:15 AM	5	14	10	0	0	0	4	79	0	0	321	1	434
6:30 AM	15	14	12	0	0	0	5	89	0	0	366	2	503
6:45 AM	13	28	18	0	0	0	5	85	0	1	401	6	557
7:00 AM	21	25	20	0	0	0	8	117	0	0	404	2	597
7:15 AM	20	32	23	0	0	0	9	128	0	0	355	5	572
7:30 AM	30	31	25	0	0	0	15	143	0	0	324	2	570
7:45 AM	33	33	16	0	0	0	15	148	0	0	356	4	605
8:00 AM	30	34	20	0	0	0	15	140	0	0	375	3	617
8:15 AM	34	41	24	0	0	0	17	136	0	0	368	5	625
8:30 AM	32	38	20	0	0	0	13	133	0	0	334	4	574
8:45 AM	20	43	28	0	0	0	16	128	0	0	375	7	617
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	259	356	225	0	0	0	133	1417	0	1	4157	44	6592
	30.83%	42.38%	26.79%	#DIV/0!	#DIV/0!	#DIV/0!	8.58%	91.42%	0.00%	0.02%	98.93%	1.05%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	116	156	92	0	0	0	61	537	0	0	1452	19	2433
PEAK HR FACTOR :	0.919			0.000			0.965			0.963			0.973

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-009

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Main St			Main St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	2.5	0	0	0	0	1	2	0	0	3	0	
3:00 PM	45	77	41	0	0	0	15	166	0	0	180	5	529
3:15 PM	39	67	33	0	0	0	12	222	0	0	181	6	560
3:30 PM	46	83	52	0	0	0	16	215	0	0	233	3	648
3:45 PM	67	97	62	0	0	0	18	204	0	0	228	7	683
4:00 PM	83	120	56	0	0	0	9	230	0	0	235	3	736
4:15 PM	63	135	49	0	0	0	19	227	0	0	203	8	704
4:30 PM	110	187	60	0	0	0	11	266	0	0	244	5	883
4:45 PM	80	199	49	0	0	0	22	260	0	0	238	7	855
5:00 PM	85	206	59	0	0	0	15	243	0	0	289	7	904
5:15 PM	111	207	56	0	0	0	18	276	0	0	286	4	958
5:30 PM	76	227	53	0	0	0	20	235	0	0	315	4	930
5:45 PM	130	216	66	0	0	0	23	225	0	0	280	7	947
TOTAL VOLUMES :	935	1821	636	0	0	0	198	2769	0	0	2912	66	9337
APPROACH %'s :	27.56%	53.69%	18.75%	#DIV/0!	#DIV/0!	#DIV/0!	6.67%	93.33%	0.00%	0.00%	97.78%	2.22%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	402	856	234	0	0	0	76	979	0	0	1170	22	3739
PEAK HR FACTOR :	0.905			0.000			0.897			0.934			0.976

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-009

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Main St			Main St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1.5	2.5	0	0	0	0	1	2	0	0	3	0	
6:00 AM	6	19	8	0	0	0	9	84	0	0	156	3	285
6:15 AM	5	10	4	0	0	0	3	72	0	0	297	0	391
6:30 AM	15	14	9	0	0	0	3	79	0	0	342	1	463
6:45 AM	13	26	13	0	0	0	4	75	0	1	373	6	511
7:00 AM	21	22	14	0	0	0	6	105	0	0	379	2	549
7:15 AM	18	27	19	0	0	0	8	114	0	0	337	3	526
7:30 AM	27	28	19	0	0	0	13	130	0	0	301	2	520
7:45 AM	32	31	12	0	0	0	15	135	0	0	334	3	562
8:00 AM	29	28	16	0	0	0	13	121	0	0	358	2	567
8:15 AM	33	37	19	0	0	0	16	126	0	0	349	4	584
8:30 AM	32	32	17	0	0	0	10	118	0	0	320	3	532
8:45 AM	17	35	20	0	0	0	11	120	0	0	352	7	562
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	248	309	170	0	0	0	111	1279	0	1	3898	36	6052
	34.11%	42.50%	23.38%				7.99%	92.01%	0.00%	0.03%	99.06%	0.91%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	111	132	72	0	0	0	50	485	0	0	1379	16	2245
PEAK HR FACTOR :	0.885			0.000			0.942			0.969			0.961

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-009

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Main St			Main St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	2.5	0	0	0	0	1	2	0	0	3	0	
3:00 PM	45	70	36	0	0	0	15	154	0	0	168	4	492
3:15 PM	36	60	29	0	0	0	10	212	0	0	165	5	517
3:30 PM	46	79	46	0	0	0	14	197	0	0	219	3	604
3:45 PM	67	87	56	0	0	0	15	190	0	0	211	6	632
4:00 PM	82	115	48	0	0	0	8	217	0	0	223	3	696
4:15 PM	61	128	43	0	0	0	15	212	0	0	189	6	654
4:30 PM	109	183	54	0	0	0	7	253	0	0	232	5	843
4:45 PM	80	183	40	0	0	0	20	242	0	0	225	6	796
5:00 PM	85	196	53	0	0	0	14	224	0	0	273	6	851
5:15 PM	111	202	45	0	0	0	16	264	0	0	279	4	921
5:30 PM	76	216	50	0	0	0	18	222	0	0	295	4	881
5:45 PM	130	208	60	0	0	0	19	211	0	0	273	5	906
TOTAL VOLUMES :	928	1727	560	0	0	0	171	2598	0	0	2752	57	8793
APPROACH %'s :	28.86%	53.72%	17.42%				6.18%	93.82%	0.00%	0.00%	97.97%	2.03%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	402	822	208	0	0	0	67	921	0	0	1120	19	3559
PEAK HR FACTOR :	0.899			0.000			0.882			0.952			0.966

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St
 East/West Cesar E. Chavez Ave
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	241	326	147	82
BUSES	59	32	34	36
	93	114	295	337

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	168	7.45	378	7.45	167	7.30	396	6.45
PM PK 15 MIN	242	17.30	259	15.00	340	16.30	307	17.30
AM PK HOUR	646	7.45	1320	7.00	643	7.30	1452	6.30
PM PK HOUR	900	16.45	957	15.00	1263	16.30	1167	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	75	192	61	328
7-8	110	361	115	586
8-9	121	404	118	643
15-16	116	582	139	837
16-17	111	654	122	887
17-18	104	687	108	899
TOTAL	637	2880	663	4180

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	61	753	102	916
7-8	107	1114	99	1320
8-9	81	1077	122	1280
15-16	105	707	145	957
16-17	99	638	118	855
17-18	92	570	104	766
TOTAL	545	4859	690	6094

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1244	40	2	36	0
1906	53	0	37	2
1923	31	0	52	0
1794	44	0	111	0
1742	48	0	114	2
1665	39	0	89	0
10274	255	2	439	4

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	44	304	56	404
7-8	42	476	87	605
8-9	47	476	102	625
15-16	63	751	183	997
16-17	92	906	197	1195
17-18	92	912	182	1186
TOTAL	380	3825	807	5012

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	96	1086	42	1224
7-8	100	1195	47	1342
8-9	119	1146	49	1314
15-16	118	585	83	786
16-17	130	733	126	989
17-18	122	937	108	1167
TOTAL	685	5682	455	6822

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1628	43	3	58	0
1947	73	1	48	0
1939	58	0	51	0
1783	83	0	113	0
2184	79	0	92	0
2353	90	0	66	0
11834	426	4	428	0

ITM Peak Hour Summary

Prepared by:

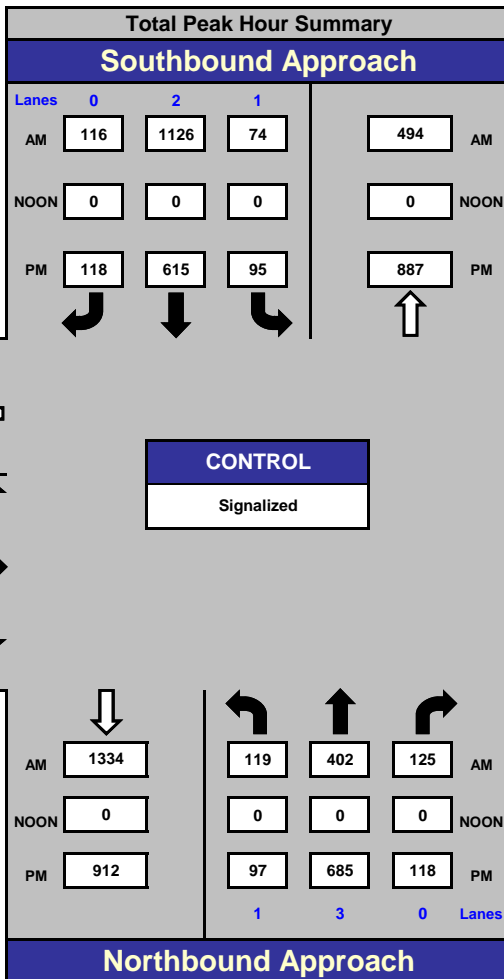


National Data & Surveying Services

Alameda St and Cesar E. Chavez Ave, Los Angeles

Date: 11/19/2015
Day: Thursday

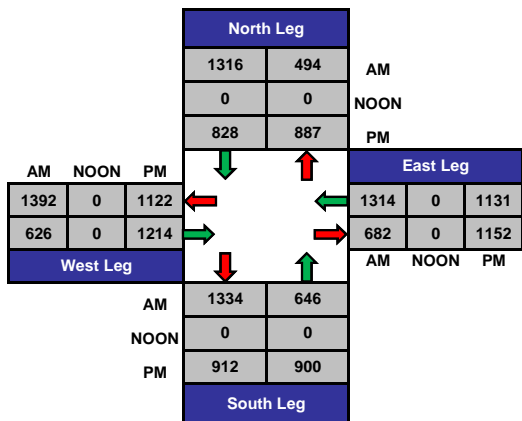
Project #: 15-5779-010
City: Los Angeles



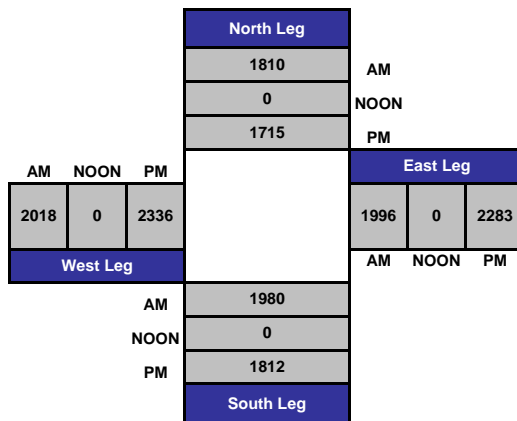
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	445 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-010

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 3	WR 0	
6:00 AM	14	44	15	10	128	16	11	78	16	14	151	7	504
6:15 AM	17	31	13	17	166	38	8	68	14	20	267	12	671
6:30 AM	24	63	18	17	199	25	10	81	10	34	314	9	804
6:45 AM	20	54	15	17	260	23	15	77	16	28	354	14	893
7:00 AM	25	76	29	23	278	41	10	107	15	27	340	11	982
7:15 AM	26	88	22	29	270	19	14	110	22	22	282	17	921
7:30 AM	36	90	26	34	240	8	8	133	26	27	274	15	917
7:45 AM	23	107	38	21	326	31	10	126	24	24	299	4	1033
8:00 AM	37	95	24	22	248	21	15	113	24	26	317	13	955
8:15 AM	30	107	31	14	267	30	15	122	27	33	285	14	975
8:30 AM	29	93	32	17	285	34	7	122	21	29	256	14	939
8:45 AM	25	109	31	28	277	37	10	119	30	31	288	8	993
TOTAL VOLUMES :	NL 306	NT 957	NR 294	SL 249	ST 2944	SR 323	EL 133	ET 1256	ER 245	WL 315	WT 3427	WR 138	TOTAL 10587
APPROACH %'s :	19.65%	61.46%	18.88%	7.08%	83.73%	9.19%	8.14%	76.87%	14.99%	8.12%	88.32%	3.56%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	119	402	125	74	1126	116	47	483	96	112	1157	45	3902
PEAK HR FACTOR :	0.961			0.870			0.954			0.923			0.944

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-010

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 3	WR 0	
3:00 PM	25	143	43	24	194	41	6	161	35	24	114	19	829
3:15 PM	22	137	31	28	150	29	17	180	51	34	141	18	838
3:30 PM	35	160	28	28	185	44	21	200	49	28	168	14	960
3:45 PM	34	142	37	25	178	31	19	210	48	32	162	32	950
4:00 PM	27	166	24	30	163	32	20	216	44	34	180	36	972
4:15 PM	30	152	40	23	144	21	13	202	49	33	163	35	905
4:30 PM	30	167	26	14	169	28	31	253	56	38	190	23	1025
4:45 PM	24	169	32	32	162	37	28	235	48	25	200	32	1024
5:00 PM	19	165	27	18	133	28	18	237	48	27	232	29	981
5:15 PM	26	170	26	27	173	25	22	240	47	31	227	21	1035
5:30 PM	28	181	33	18	147	28	20	227	44	27	248	32	1033
5:45 PM	31	171	22	29	117	23	32	208	43	37	230	26	969
TOTAL VOLUMES :	331	1923	369	296	1915	367	247	2569	562	370	2255	317	11521
APPROACH %'s :	12.62%	73.31%	14.07%	11.48%	74.28%	14.24%	7.31%	76.05%	16.64%	12.58%	76.65%	10.77%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	97	685	118	95	615	118	88	939	187	110	907	114	4073
PEAK HR FACTOR :	0.930			0.896			0.976			0.921			0.984

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-010

CARS

Day: Thursday

City: Los Angeles

AM

Date: 11/19/2015

NS/EW Streets:	Alameda St			Alameda St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 3	WR 0	
6:00 AM	13	34	14	10	79	15	11	69	16	13	133	7	414
6:15 AM	16	23	10	16	121	33	7	56	14	19	248	12	575
6:30 AM	22	51	16	16	178	22	10	70	9	34	293	7	728
6:45 AM	20	49	12	16	240	21	15	62	16	27	331	13	822
7:00 AM	24	65	25	22	264	40	10	89	15	25	318	10	907
7:15 AM	23	77	20	26	258	19	14	92	22	20	264	15	850
7:30 AM	33	83	23	32	224	8	6	120	23	27	255	12	846
7:45 AM	20	94	35	20	310	29	8	107	24	22	279	4	952
8:00 AM	32	80	22	20	236	21	14	94	22	24	303	12	880
8:15 AM	25	90	29	13	248	28	14	107	26	31	272	14	897
8:30 AM	28	78	27	16	273	32	7	105	21	27	244	13	871
8:45 AM	22	83	27	27	257	33	10	106	30	28	268	7	898
TOTAL VOLUMES :	NL 278	NT 807	NR 260	SL 234	ST 2688	SR 301	EL 126	ET 1077	ER 238	WL 297	WT 3208	WR 126	TOTAL 9640
APPROACH %'s :	20.67%	60.00%	19.33%	7.26%	83.40%	9.34%	8.74%	74.74%	16.52%	8.18%	88.35%	3.47%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	105	342	113	69	1067	110	43	413	93	104	1098	43	3600
PEAK HR FACTOR :	0.940			0.868			0.934			0.918			0.945

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-010

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 3	NR 0	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 3	WR 0	
3:00 PM	24	134	41	23	181	39	6	148	33	23	103	16	771
3:15 PM	21	131	28	26	141	27	17	168	49	30	127	18	783
3:30 PM	35	149	28	28	172	39	20	181	47	28	159	12	898
3:45 PM	30	132	36	23	163	30	19	190	46	30	148	32	879
4:00 PM	27	157	22	27	155	30	17	199	43	31	170	33	911
4:15 PM	28	146	36	22	133	19	12	184	47	31	151	35	844
4:30 PM	30	153	25	14	163	27	30	234	55	37	178	20	966
4:45 PM	23	167	32	32	159	34	26	211	46	24	190	31	975
5:00 PM	18	158	27	15	127	24	18	216	43	25	221	27	919
5:15 PM	26	166	25	26	163	25	21	219	46	26	220	21	984
5:30 PM	27	176	31	18	144	26	18	214	43	27	232	31	987
5:45 PM	29	164	19	29	106	21	30	192	41	34	226	25	916
TOTAL VOLUMES :	318	1833	350	283	1807	341	234	2356	539	346	2125	301	10833
APPROACH %'s :	12.71%	73.29%	13.99%	11.64%	74.33%	14.03%	7.48%	75.30%	17.23%	12.48%	76.66%	10.86%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	94	667	115	91	593	109	83	860	178	102	863	110	3865
PEAK HR FACTOR :	0.936			0.881			0.980			0.927			0.979

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Vignes St
 East/West Cesar E. Chavez Ave
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	218	143	110	126
BUSES	24	27	26	30
	198	74	318	215

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	153	7.45	156	7.45	175	7.30	486	6.45
PM PK 15 MIN	326	16.30	186	16.30	330	17.15	341	17.30
AM PK HOUR	587	7.00	540	7.30	673	7.30	1861	6.45
PM PK HOUR	1180	16.00	636	15.00	1251	16.30	1249	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	130	266	57	453
7-8	176	343	68	587
8-9	163	324	67	554
15-16	186	414	146	746
16-17	262	732	186	1180
17-18	279	677	145	1101
TOTAL	1196	2756	669	4621

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	172	191	44	407
7-8	142	321	24	487
8-9	99	298	41	438
15-16	266	307	63	636
16-17	260	303	50	613
17-18	238	302	47	587
TOTAL	1177	1722	269	3168

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
860	27	0	16	0
1074	28	1	28	1
992	19	0	12	0
1382	39	1	19	0
1793	46	2	27	0
1688	28	0	6	0
7789	187	4	108	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	63	209	127	399
7-8	43	405	179	627
8-9	54	413	181	648
15-16	51	826	188	1065
16-17	44	912	242	1198
17-18	46	922	257	1225
TOTAL	301	3687	1174	5162

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	164	1108	290	1562
7-8	211	1270	320	1801
8-9	260	1176	315	1751
15-16	44	519	134	697
16-17	63	642	167	872
17-18	114	842	293	1249
TOTAL	856	5557	1519	7932

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1961	213	5	15	0
2428	250	0	17	0
2399	272	0	7	0
1762	249	1	24	0
2070	312	0	18	0
2474	181	0	17	0
13094	1477	6	98	0

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

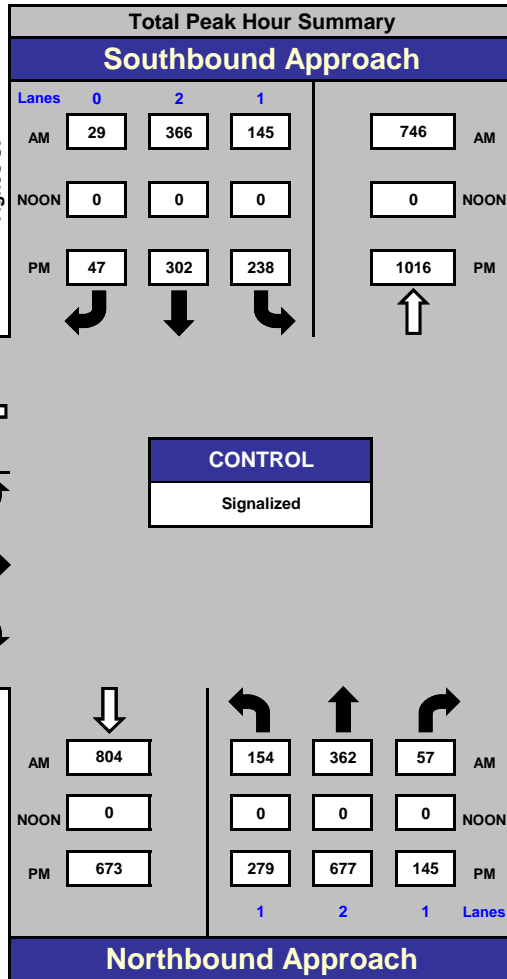
Vignes St and Cesar E. Chavez Ave, Los Angeles

Date: 11/19/2015

Day: Thursday

Project #: 15-5779-012

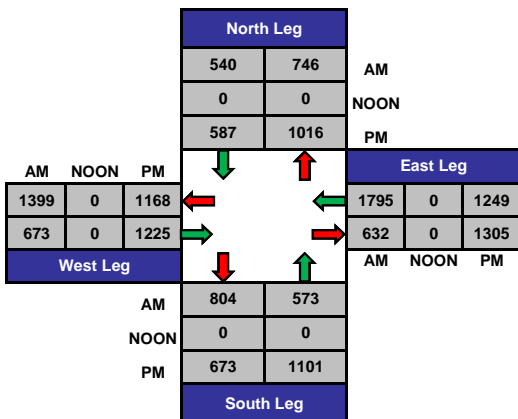
City: Los Angeles



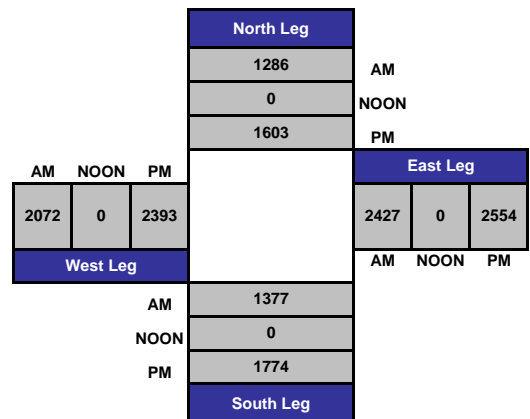
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	500 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-012

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St			Vignes St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	
6:00 AM	31	87	16	58	48	8	22	42	40	30	141	78	601
6:15 AM	23	63	14	54	47	13	21	45	21	50	286	81	718
6:30 AM	38	57	16	32	38	11	8	70	32	37	322	51	712
6:45 AM	38	59	11	28	58	12	12	52	34	47	359	80	790
7:00 AM	55	74	17	27	60	13	12	85	36	41	344	69	833
7:15 AM	39	77	27	23	67	3	10	98	46	62	329	72	853
7:30 AM	40	93	12	46	88	4	12	113	50	64	304	90	916
7:45 AM	42	99	12	46	106	4	9	109	47	44	293	89	900
8:00 AM	36	93	15	30	89	14	13	99	49	69	296	94	897
8:15 AM	36	77	18	23	83	7	16	109	47	68	323	61	868
8:30 AM	45	87	13	28	70	15	10	107	42	58	246	77	798
8:45 AM	46	67	21	18	56	5	15	98	43	65	311	83	828
TOTAL VOLUMES :	NL 469	NT 933	NR 192	SL 413	ST 810	SR 109	EL 160	ET 1027	ER 487	WL 635	WT 3554	WR 925	TOTAL 9714
APPROACH %'s :	29.42%	58.53%	12.05%	31.01%	60.81%	8.18%	9.56%	61.35%	29.09%	12.42%	69.50%	18.09%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	154	362	57	145	366	29	50	430	193	245	1216	334	3581
PEAK HR FACTOR :	0.936			0.865			0.961			0.978			0.977

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-012

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St			Vignes St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	
3:00 PM	37	101	39	58	81	20	15	211	45	15	107	16	745
3:15 PM	39	83	30	62	79	19	14	191	35	8	131	44	735
3:30 PM	51	102	47	85	82	16	10	209	61	11	130	45	849
3:45 PM	59	128	30	61	65	8	12	215	47	10	151	29	815
4:00 PM	76	179	53	55	76	18	8	224	58	23	149	36	955
4:15 PM	65	166	41	71	77	9	11	233	61	18	156	43	951
4:30 PM	59	210	57	84	89	13	13	224	68	11	168	40	1036
4:45 PM	62	177	35	50	61	10	12	231	55	11	169	48	921
5:00 PM	82	181	36	55	81	15	13	249	56	15	177	53	1013
5:15 PM	68	143	41	62	81	13	9	251	70	40	210	77	1065
5:30 PM	71	175	38	68	69	7	14	216	71	34	231	76	1070
5:45 PM	58	178	30	53	71	12	10	206	60	25	224	87	1014
TOTAL VOLUMES :	727	1823	477	764	912	160	141	2660	687	221	2003	594	11169
APPROACH %'s :	24.02%	60.22%	15.76%	41.61%	49.67%	8.71%	4.04%	76.26%	19.70%	7.84%	71.08%	21.08%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	279	677	145	238	302	47	46	922	257	114	842	293	4162
PEAK HR FACTOR :	0.921			0.941			0.928			0.916			0.972

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-012

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St			Vignes St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	
6:00 AM	21	82	14	54	39	8	21	35	34	26	129	77	540
6:15 AM	13	58	13	51	39	12	20	42	16	45	277	80	666
6:30 AM	31	55	15	28	36	9	7	63	26	34	308	50	662
6:45 AM	29	56	10	24	54	10	8	46	28	37	343	77	722
7:00 AM	44	72	15	22	52	9	11	76	27	37	329	68	762
7:15 AM	33	71	25	20	58	3	6	92	38	55	317	70	788
7:30 AM	33	86	9	41	81	1	12	105	42	61	294	88	853
7:45 AM	33	92	10	42	98	3	7	102	37	40	283	87	834
8:00 AM	30	88	10	27	84	12	9	90	39	66	286	91	832
8:15 AM	30	69	13	19	80	7	11	102	40	65	312	61	809
8:30 AM	40	75	11	25	65	10	9	97	35	56	238	71	732
8:45 AM	38	56	16	15	50	3	15	87	37	60	298	77	752
TOTAL VOLUMES :	NL 375	NT 860	NR 161	SL 368	ST 736	SR 87	EL 136	ET 937	ER 399	WL 582	WT 3414	WR 897	TOTAL 8952
APPROACH %'s :	26.86%	61.60%	11.53%	30.90%	61.80%	7.30%	9.24%	63.65%	27.11%	11.89%	69.77%	18.33%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	126	335	42	129	343	23	39	399	158	232	1175	327	3328
PEAK HR FACTOR :	0.931			0.865			0.937			0.979			0.975

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-012

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St			Vignes St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 1	ET 2	ER 1	WL 1	WT 2	WR 1	
3:00 PM	31	98	38	57	76	19	14	201	39	11	100	15	699
3:15 PM	34	70	30	58	74	18	12	184	31	5	122	43	681
3:30 PM	46	92	45	83	76	14	9	198	54	10	123	44	794
3:45 PM	51	118	30	61	60	7	11	204	41	9	146	27	765
4:00 PM	70	173	51	52	71	16	7	212	50	20	141	34	897
4:15 PM	56	157	39	70	68	8	9	220	54	17	149	43	890
4:30 PM	52	205	56	81	88	11	13	218	56	10	165	39	994
4:45 PM	56	165	34	49	61	9	9	221	46	11	163	46	870
5:00 PM	76	172	34	55	79	13	11	239	45	13	170	51	958
5:15 PM	62	129	41	60	79	13	8	245	59	38	207	74	1015
5:30 PM	66	152	38	67	65	7	12	211	63	33	221	75	1010
5:45 PM	53	160	29	53	70	12	9	197	50	24	218	81	956
TOTAL VOLUMES :	653	1691	465	746	867	147	124	2550	588	201	1925	572	10529
APPROACH %'s :	23.25%	60.20%	16.55%	42.39%	49.26%	8.35%	3.80%	78.17%	18.03%	7.45%	71.35%	21.20%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	257	613	142	235	293	45	40	892	217	108	816	281	3939
PEAK HR FACTOR :	0.897			0.942			0.921			0.916			0.970

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St (North)

East/West Los Angeles St

Day: Thursday Date: November 19, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	236	322	0	44
BUSES	30	42	6	26
	97	115	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	161	8.15	360	7.45	0	0.00	59	8.00
PM PK 15 MIN	215	17.30	276	15.45	0	0.00	94	16.45
AM PK HOUR	624	8.00	1344	7.45	0	0.00	204	7.30
PM PK HOUR	838	15.45	1025	15.00	0	0.00	303	16.15

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	317	0	317
7-8	0	534	0	534
8-9	0	624	0	624
15-16	0	795	0	795
16-17	1	837	0	838
17-18	0	811	0	811
TOTAL	1	3918	0	3919

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	788	146	934
7-8	0	1005	304	1309
8-9	0	1005	323	1328
15-16	1	917	107	1025
16-17	0	814	128	942
17-18	0	752	117	869
TOTAL	1	5281	1125	6407

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1251	0	0	165	1
1843	0	0	268	0
1952	0	0	197	0
1820	0	0	245	4
1780	0	0	284	0
1680	0	0	336	3
10326	0	0	1495	8

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	98	38	29	165
7-8	93	46	39	178
8-9	102	66	29	197
15-16	130	45	57	232
16-17	125	73	77	275
17-18	117	60	89	266
TOTAL	665	328	320	1313

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
165	15	0	17	0
178	10	0	26	0
197	14	0	26	0
232	23	0	28	0
275	26	0	30	0
266	28	0	20	0
1313	116	0	147	0

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

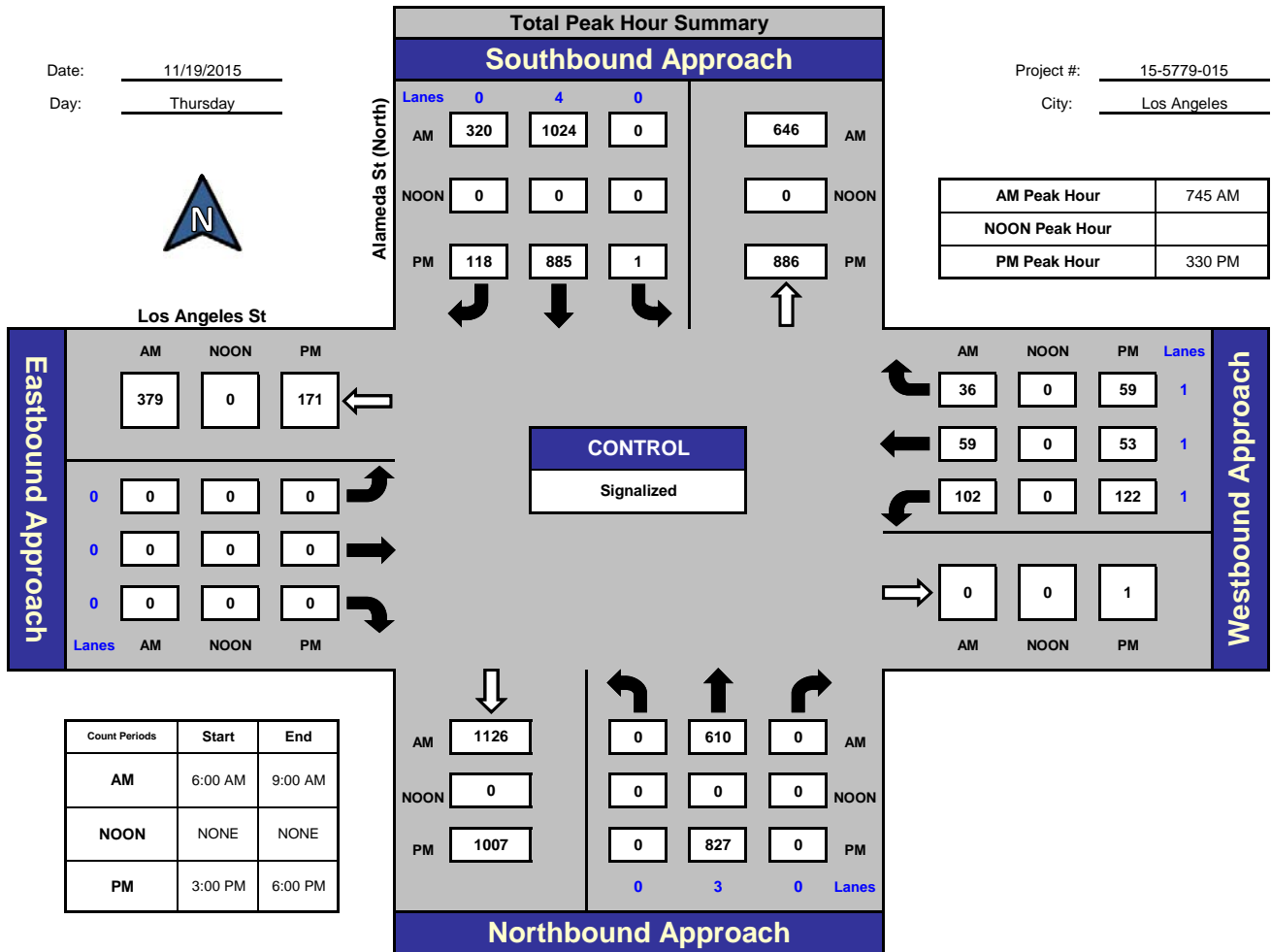
Alameda St (North) and Los Angeles St, Los Angeles

Date: 11/19/2015

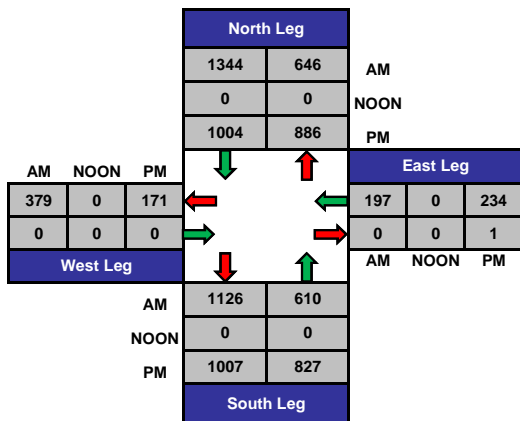
Day: Thursday

Project #: 15-5779-015

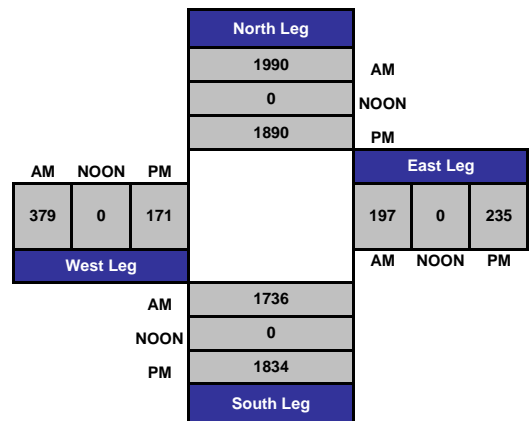
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-015

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St (North)			Alameda St (North)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	0	4	0	0	0	0	1	1	1	
6:00 AM	0	63	0	0	147	17	0	0	0	25	7	9	268
6:15 AM	0	62	0	0	182	29	0	0	0	29	8	8	318
6:30 AM	0	97	0	0	220	31	0	0	0	22	6	9	385
6:45 AM	0	95	0	0	239	69	0	0	0	22	17	3	445
7:00 AM	0	122	0	0	261	64	0	0	0	17	15	11	490
7:15 AM	0	133	0	0	246	63	0	0	0	21	9	7	479
7:30 AM	0	138	0	0	230	85	0	0	0	29	14	9	505
7:45 AM	0	141	0	0	268	92	0	0	0	26	8	12	547
8:00 AM	0	150	0	0	247	64	0	0	0	27	19	13	520
8:15 AM	0	161	0	0	261	79	0	0	0	25	17	5	548
8:30 AM	0	158	0	0	248	85	0	0	0	24	15	6	536
8:45 AM	0	155	0	0	249	95	0	0	0	26	15	5	545
TOTAL VOLUMES :	0	1475	0	0	2798	773	0	0	0	293	150	97	5586
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	78.35%	21.65%	#DIV/0!	#DIV/0!	#DIV/0!	54.26%	27.78%	17.96%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	610	0	0	1024	320	0	0	0	102	59	36	2151
PEAK HR FACTOR :	0.947		0.933			0.000			0.835			0.981	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-015

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St (North)			Alameda St (North)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	0	4	0	0	0	0	1	1	1	
3:00 PM	0	201	0	0	238	27	0	0	0	35	14	17	532
3:15 PM	0	183	0	0	206	20	0	0	0	31	11	12	463
3:30 PM	0	200	0	0	227	31	0	0	0	34	10	16	518
3:45 PM	0	211	0	1	246	29	0	0	0	30	10	12	539
4:00 PM	0	208	0	0	220	29	0	0	0	24	14	14	509
4:15 PM	0	208	0	0	192	29	0	0	0	34	19	17	499
4:30 PM	0	211	0	0	208	33	0	0	0	28	13	18	511
4:45 PM	1	210	0	0	194	37	0	0	0	39	27	28	536
5:00 PM	0	194	0	0	179	33	0	0	0	36	16	28	486
5:15 PM	0	204	0	0	220	21	0	0	0	27	14	19	505
5:30 PM	0	215	0	0	175	34	0	0	0	32	15	22	493
5:45 PM	0	198	0	0	178	29	0	0	0	22	15	20	462
TOTAL VOLUMES :	1	2443	0	1	2483	352	0	0	0	372	178	223	6053
APPROACH %'s :	0.04%	99.96%	0.00%	0.04%	87.55%	12.41%	#DIV/0!	#DIV/0!	#DIV/0!	48.12%	23.03%	28.85%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	827	0	1	885	118	0	0	0	122	53	59	2065
PEAK HR FACTOR :	0.980			0.909			0.000			0.836			0.958

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-015

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St (North)			Alameda St (North)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	4	0	0	0	0	1	1	1	
6:00 AM	0	50	0	0	100	12	0	0	0	25	7	9	203
6:15 AM	0	47	0	0	139	25	0	0	0	29	8	8	256
6:30 AM	0	84	0	0	197	29	0	0	0	21	4	9	344
6:45 AM	0	81	0	0	225	65	0	0	0	22	15	3	411
7:00 AM	0	106	0	0	249	58	0	0	0	17	14	11	455
7:15 AM	0	119	0	0	236	60	0	0	0	21	7	7	450
7:30 AM	0	120	0	0	216	81	0	0	0	28	11	9	465
7:45 AM	0	127	0	0	255	88	0	0	0	26	6	12	514
8:00 AM	0	132	0	0	231	62	0	0	0	27	18	13	483
8:15 AM	0	136	0	0	245	75	0	0	0	24	15	5	500
8:30 AM	0	132	0	0	234	83	0	0	0	23	13	5	490
8:45 AM	0	131	0	0	232	90	0	0	0	26	13	5	497
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1265	0	0	2559	728	0	0	0	289	131	96	5068
	0.00%	100.00%	0.00%	0.00%	77.85%	22.15%				56.01%	25.39%	18.60%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	527	0	0	965	308	0	0	0	100	52	35	1987
PEAK HR FACTOR :	0.969			0.928			0.000			0.806			0.966

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-015

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St (North)			Alameda St (North)			Los Angeles St			Los Angeles St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
	0	3	0	0	4	0	0	0	0	1	1	1																											
3:00 PM	0	189	0	0	219	20	0	0	0	35	14	17	494																										
3:15 PM	0	174	0	0	198	16	0	0	0	30	10	12	440																										
3:30 PM	0	189	0	0	219	29	0	0	0	34	10	15	496																										
3:45 PM	0	201	0	1	234	23	0	0	0	29	9	12	509																										
4:00 PM	0	198	0	0	213	23	0	0	0	23	14	14	485																										
4:15 PM	0	195	0	0	179	26	0	0	0	34	18	17	469																										
4:30 PM	0	201	0	0	200	31	0	0	0	27	13	18	490																										
4:45 PM	1	199	0	0	182	34	0	0	0	39	25	26	506																										
5:00 PM	0	182	0	0	173	30	0	0	0	36	15	28	464																										
5:15 PM	0	196	0	0	218	18	0	0	0	24	12	19	487																										
5:30 PM	0	209	0	0	170	30	0	0	0	32	14	22	477																										
5:45 PM	0	187	0	0	169	28	0	0	0	22	14	20	440																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	1	2320	0	1	2374	308	0	0	0	365	168	220	5757																										
	0.04%	99.96%	0.00%	0.04%	88.48%	11.48%				48.47%	22.31%	29.22%																											
PEAK HR START TIME :	330 PM												TOTAL																										
PEAK HR VOL :	0			783			0			1			845			101			0			0			0			120			51			58			1959		
PEAK HR FACTOR :	0.974			0.918			0.000			0.830			0.962																										

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St

East/West US-101 NB Ramp

Day: Thursday Date: November 19, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	301	311	0	1
BUSES	36	40	0	1
BUSES	50	46	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	251	7.30	287	7.45	0	0.00	1	7.30
PM PK 15 MIN	213	15.30	287	15.45	0	0.00	0	0.00
AM PK HOUR	976	7.30	1100	7.45	0	0.00	1	7.30
PM PK HOUR	836	15.00	1085	15.00	0	0.00	0	0.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	329	417	0	746
7-8	353	600	0	953
8-9	330	627	0	957
15-16	206	630	0	836
16-17	152	586	0	738
17-18	149	478	0	627
TOTAL	1519	3338	0	4857

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	539	294	833
7-8	0	899	173	1072
8-9	0	881	203	1084
15-16	0	841	244	1085
16-17	0	723	192	915
17-18	0	752	179	931
TOTAL	0	4635	1285	5920

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1579	1	0	0	0
2025	0	0	0	0
2041	0	0	0	0
1921	0	0	1	0
1653	0	0	0	0
1558	0	0	0	0
10777	1	0	1	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
TOTAL	0	0	0	0

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	1	1
TOTAL	0	0	1	1

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1	48	1	12	2
1	277	12	101	20

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

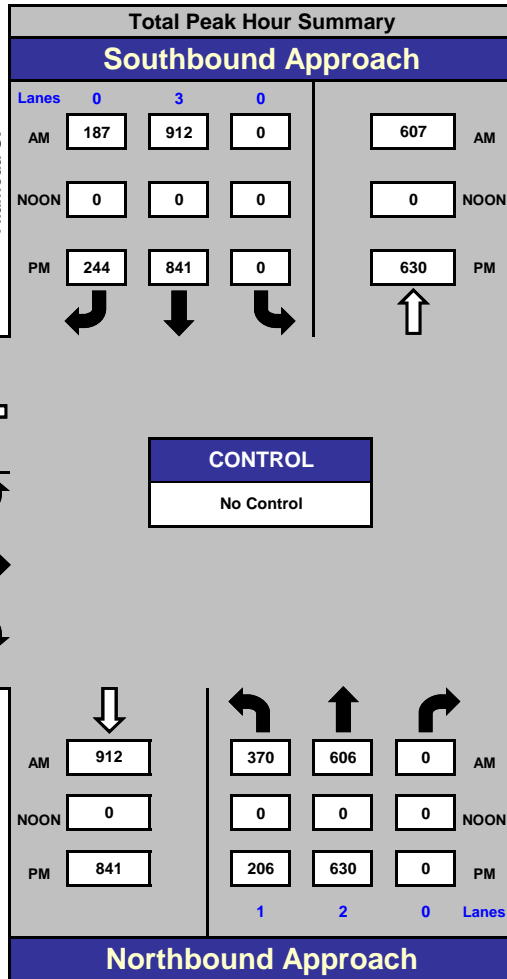
Alameda St and US-101 NB Ramp, Los Angeles

Date: 11/19/2015

Day: Thursday

Project #: 15-5779-016

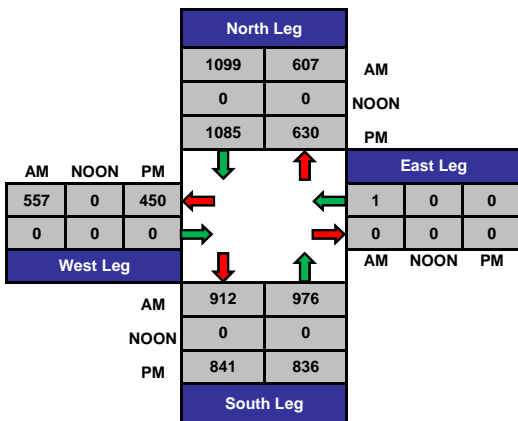
City: Los Angeles



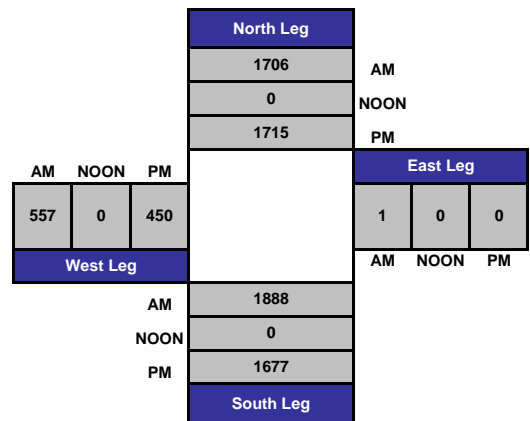
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	300 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-016

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			US-101 NB Ramp			US-101 NB Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 3	SR 0	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	
6:00 AM	57	97	0	0	92	63	0	0	0	0	0	0	309
6:15 AM	83	103	0	0	107	83	0	0	0	0	0	0	376
6:30 AM	104	112	0	0	133	88	0	0	0	0	0	0	437
6:45 AM	85	105	0	0	207	60	0	0	0	0	0	0	457
7:00 AM	75	146	0	0	219	51	0	0	0	0	0	0	491
7:15 AM	77	155	0	0	212	44	0	0	0	0	0	0	488
7:30 AM	97	154	0	0	220	39	0	0	0	0	0	1	511
7:45 AM	104	145	0	0	248	39	0	0	0	0	0	0	536
8:00 AM	82	152	0	0	211	57	0	0	0	0	0	0	502
8:15 AM	87	155	0	0	233	52	0	0	0	0	0	0	527
8:30 AM	79	158	0	0	221	39	0	0	0	0	0	0	497
8:45 AM	82	162	0	0	216	55	0	0	0	0	0	0	515
TOTAL VOLUMES :	NL 1012	NT 1644	NR 0	SL 0	ST 2319	SR 670	EL 0	ET 0	ER 0	WL 0	WT 0	WR 1	TOTAL 5646
APPROACH %'s :	38.10%	61.90%	0.00%	0.00%	77.58%	22.42%	#DIV/0!	#DIV/0!	#DIV/0!	0.00%	0.00%	100.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	370	606	0	0	912	187	0	0	0	0	0	1	2076
PEAK HR FACTOR :	0.972			0.957			0.000			0.250			0.968

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-016

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			US-101 NB Ramp			US-101 NB Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 3	SR 0	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	
3:00 PM	50	159	0	0	204	63	0	0	0	0	0	0	476
3:15 PM	49	157	0	0	212	46	0	0	0	0	0	0	464
3:30 PM	54	159	0	0	207	66	0	0	0	0	0	0	486
3:45 PM	53	155	0	0	218	69	0	0	0	0	0	0	495
4:00 PM	46	150	0	0	173	51	0	0	0	0	0	0	420
4:15 PM	37	155	0	0	189	43	0	0	0	0	0	0	424
4:30 PM	36	150	0	0	192	45	0	0	0	0	0	0	423
4:45 PM	33	131	0	0	169	53	0	0	0	0	0	0	386
5:00 PM	31	113	0	0	178	54	0	0	0	0	0	0	376
5:15 PM	43	109	0	0	227	47	0	0	0	0	0	0	426
5:30 PM	33	133	0	0	164	37	0	0	0	0	0	0	367
5:45 PM	42	123	0	0	183	41	0	0	0	0	0	0	389
TOTAL VOLUMES :	507	1694	0	0	2316	615	0	0	0	0	0	0	5132
APPROACH %'s :	23.03%	76.97%	0.00%	0.00%	79.02%	20.98%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	206	630	0	0	841	244	0	0	0	0	0	0	1921
PEAK HR FACTOR :	0.981			0.945			0.000			0.000			0.970

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-016

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			US-101 NB Ramp			US-101 NB Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 3	SR 0	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	TOTAL
6:00 AM	51	87	0	0	81	31	0	0	0	0	0	0	250
6:15 AM	74	94	0	0	100	60	0	0	0	0	0	0	328
6:30 AM	95	101	0	0	121	77	0	0	0	0	0	0	394
6:45 AM	81	102	0	0	197	54	0	0	0	0	0	0	434
7:00 AM	65	130	0	0	211	46	0	0	0	0	0	0	452
7:15 AM	71	143	0	0	202	40	0	0	0	0	0	0	456
7:30 AM	90	139	0	0	210	36	0	0	0	0	0	0	475
7:45 AM	97	132	0	0	237	36	0	0	0	0	0	0	502
8:00 AM	76	135	0	0	200	49	0	0	0	0	0	0	460
8:15 AM	79	136	0	0	216	48	0	0	0	0	0	0	479
8:30 AM	74	140	0	0	208	36	0	0	0	0	0	0	458
8:45 AM	79	135	0	0	201	53	0	0	0	0	0	0	468
TOTAL VOLUMES :	NL 932	NT 1474	NR 0	SL 0	ST 2184	SR 566	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	TOTAL 5156
APPROACH %'s :	38.74%	61.26%	0.00%	0.00%	79.42%	20.58%							
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	342	542	0	0	863	169	0	0	0	0	0	0	1916
PEAK HR FACTOR :	0.965			0.945			0.000			0.000			0.954

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-016

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			US-101 NB Ramp			US-101 NB Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 0	ST 3	SR 0	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	
3:00 PM	45	150	0	0	193	61	0	0	0	0	0	0	449
3:15 PM	49	151	0	0	200	44	0	0	0	0	0	0	444
3:30 PM	50	151	0	0	196	66	0	0	0	0	0	0	463
3:45 PM	50	149	0	0	207	67	0	0	0	0	0	0	473
4:00 PM	44	143	0	0	165	49	0	0	0	0	0	0	401
4:15 PM	36	149	0	0	180	43	0	0	0	0	0	0	408
4:30 PM	35	139	0	0	186	42	0	0	0	0	0	0	402
4:45 PM	32	127	0	0	166	51	0	0	0	0	0	0	376
5:00 PM	31	106	0	0	172	52	0	0	0	0	0	0	361
5:15 PM	42	104	0	0	220	45	0	0	0	0	0	0	411
5:30 PM	32	126	0	0	163	35	0	0	0	0	0	0	356
5:45 PM	42	117	0	0	174	36	0	0	0	0	0	0	369
TOTAL VOLUMES :	NL 488	NT 1612	NR 0	SL 0	ST 2222	SR 591	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	TOTAL 4913
APPROACH %'s :	23.24%	76.76%	0.00%	0.00%	78.99%	21.01%							
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	194	601	0	0	796	238	0	0	0	0	0	0	1829
PEAK HR FACTOR :	0.989			0.943			0.000			0.000			0.967

CONTROL : No Control



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St

East/West Express Lanes Entrance_Exit

Day: Thursday Date: November 19, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	<u>N/B</u>	<u>S/B</u>	<u>E/B</u>	<u>W/B</u>
DUAL-WHEELED BIKES	343	187	0	0
BUSES	32	37	0	0
BUSES	303	43	0	0

	<u>N/B</u>	<u>TIME</u>	<u>S/B</u>	<u>TIME</u>	<u>E/B</u>	<u>TIME</u>	<u>W/B</u>	<u>TIME</u>
<i>AM PK 15 MIN</i>	272	8.45	239	7.45	0	0.00	0	0.00
<i>PM PK 15 MIN</i>	478	15.30	225	17.15	0	0.00	0	0.00
<i>AM PK HOUR</i>	1034	8.00	888	7.45	0	0.00	0	0.00
<i>PM PK HOUR</i>	1841	15.30	813	15.00	0	0.00	0	0.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	737	31	768
7-8	1	953	46	1000
8-9	0	980	54	1034
15-16	0	845	865	1710
16-17	0	741	1071	1812
17-18	0	619	1101	1720
TOTAL	1	4875	3168	8044

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	5	512	0	517
7-8	17	849	0	866
8-9	10	853	0	863
15-16	167	646	0	813
16-17	150	557	0	707
17-18	164	571	0	735
TOTAL	513	3988	0	4501

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1285	0	0	0	0
1866	0	0	0	0
1897	0	0	0	0
2523	0	0	0	0
2519	1	0	0	0
2455	0	0	0	0
12545	1	0	0	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
TOTAL	0	0	0	0

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
TOTAL	0	0	0	0

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
0	32	0	2639	4

ITM Peak Hour Summary

Prepared by:

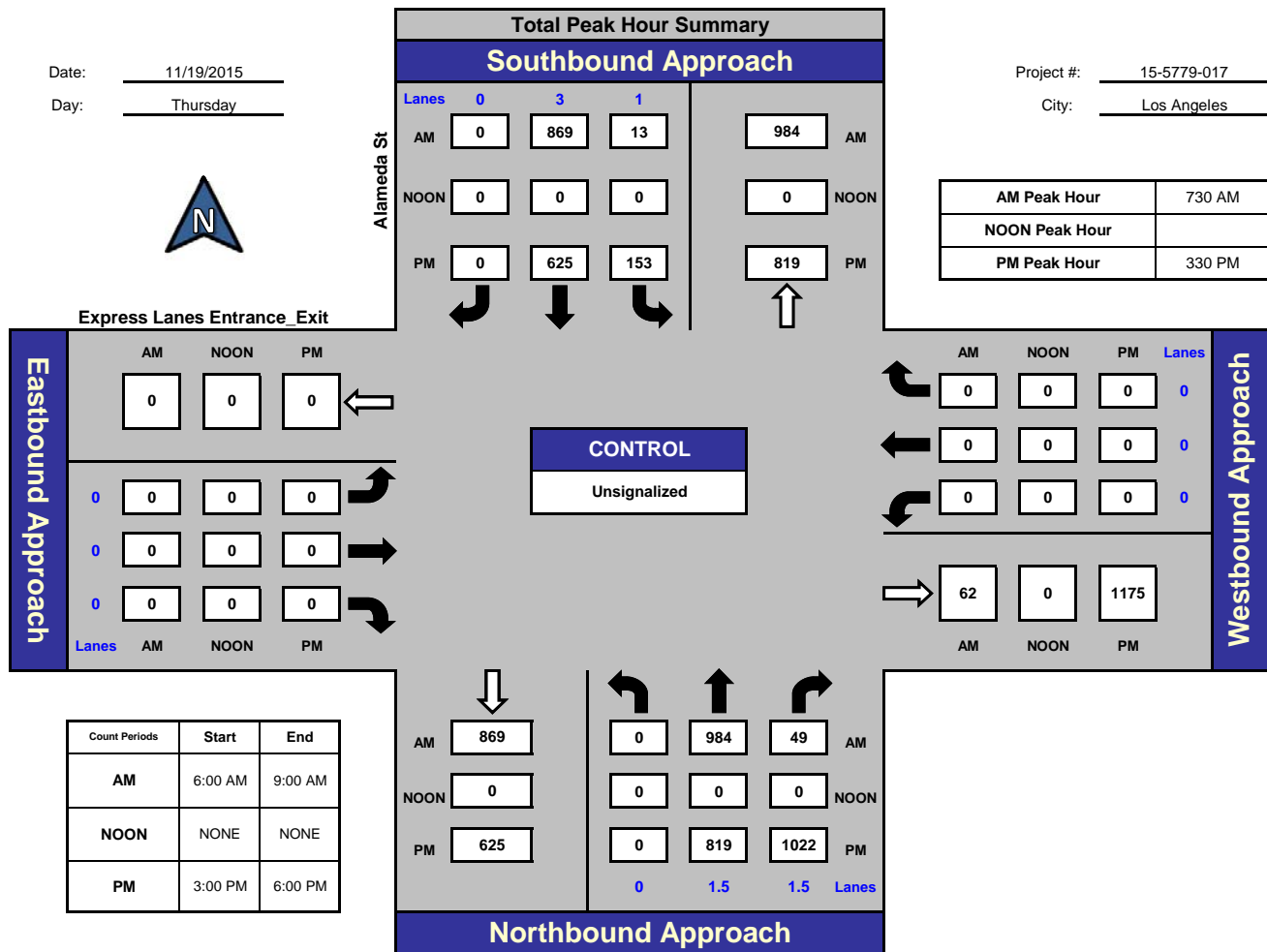


National Data & Surveying Services

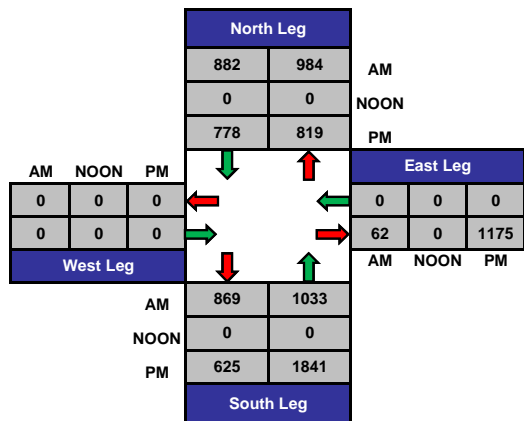
Alameda St and Express Lanes Entrance Exit, Los Angeles

Date: 11/19/2015
Day: Thursday

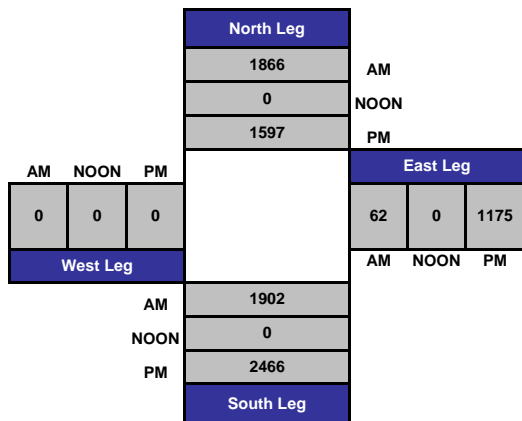
Project #: 15-5779-017
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-017

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Express Lanes Entrance_Exit			Express Lanes Entrance_Exit			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1.5	1.5	1	3	0	0	0	0	0	0	0	
6:00 AM	0	149	8	2	93	0	0	0	0	0	0	0	252
6:15 AM	0	180	7	1	104	0	0	0	0	0	0	0	292
6:30 AM	0	216	11	1	130	0	0	0	0	0	0	0	358
6:45 AM	0	192	5	1	185	0	0	0	0	0	0	0	383
7:00 AM	0	225	10	8	207	0	0	0	0	0	0	0	450
7:15 AM	1	233	14	1	194	0	0	0	0	0	0	0	443
7:30 AM	0	255	9	7	210	0	0	0	0	0	0	0	481
7:45 AM	0	240	13	1	238	0	0	0	0	0	0	0	492
8:00 AM	0	242	15	3	196	0	0	0	0	0	0	0	456
8:15 AM	0	247	12	2	225	0	0	0	0	0	0	0	486
8:30 AM	0	236	10	3	220	0	0	0	0	0	0	0	469
8:45 AM	0	255	17	2	212	0	0	0	0	0	0	0	486
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	2670	131	32	2214	0	0	0	0	0	0	0	5048
	0.04%	95.29%	4.68%	1.42%	98.58%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	984	49	13	869	0	0	0	0	0	0	0	1915
PEAK HR FACTOR :	0.978			0.923			0.000			0.000			0.973

CONTROL : Unsignalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-017

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Express Lanes Entrance_Exit			Express Lanes Entrance_Exit			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1.5	1.5	1	3	0	0	0	0	0	0	0	
3:00 PM	0	212	175	32	176	0	0	0	0	0	0	0	595
3:15 PM	0	202	180	46	137	0	0	0	0	0	0	0	565
3:30 PM	0	224	254	47	160	0	0	0	0	0	0	0	685
3:45 PM	0	207	256	42	173	0	0	0	0	0	0	0	678
4:00 PM	0	201	247	28	140	0	0	0	0	0	0	0	616
4:15 PM	0	187	265	36	152	0	0	0	0	0	0	0	640
4:30 PM	0	184	267	49	139	0	0	0	0	0	0	0	639
4:45 PM	0	169	292	37	126	0	0	0	0	0	0	0	624
5:00 PM	0	142	277	44	131	0	0	0	0	0	0	0	594
5:15 PM	0	157	267	47	178	0	0	0	0	0	0	0	649
5:30 PM	0	161	276	27	130	0	0	0	0	0	0	0	594
5:45 PM	0	159	281	46	132	0	0	0	0	0	0	0	618
TOTAL VOLUMES :	0	2205	3037	481	1774	0	0	0	0	0	0	0	7497
APPROACH %'s :	0.00%	42.06%	57.94%	21.33%	78.67%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	819	1022	153	625	0	0	0	0	0	0	0	2619
PEAK HR FACTOR :		0.963			0.905			0.000			0.000		0.956

CONTROL : Unsignalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-017

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Express Lanes Entrance_Exit			Express Lanes Entrance_Exit			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1.5	1.5	1	3	0	0	0	0	0	0	0	
6:00 AM	0	135	2	2	83	0	0	0	0	0	0	0	222
6:15 AM	0	165	3	1	95	0	0	0	0	0	0	0	264
6:30 AM	0	197	1	0	121	0	0	0	0	0	0	0	319
6:45 AM	0	184	0	0	177	0	0	0	0	0	0	0	361
7:00 AM	0	198	2	4	199	0	0	0	0	0	0	0	403
7:15 AM	1	216	1	1	184	0	0	0	0	0	0	0	403
7:30 AM	0	233	1	6	201	0	0	0	0	0	0	0	441
7:45 AM	0	220	3	1	227	0	0	0	0	0	0	0	451
8:00 AM	0	216	8	2	187	0	0	0	0	0	0	0	413
8:15 AM	0	218	3	1	210	0	0	0	0	0	0	0	432
8:30 AM	0	212	2	3	207	0	0	0	0	0	0	0	424
8:45 AM	0	226	7	2	196	0	0	0	0	0	0	0	431
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	2420	33	23	2087	0	0	0	0	0	0	0	4564
	0.04%	98.61%	1.34%	1.09%	98.91%	0.00%							
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	887	15	10	825	0	0	0	0	0	0	0	1737
PEAK HR FACTOR :	0.964		0.916			0.000			0.000			0.963	

CONTROL : Unsignalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-017

CARS

Day: Thursday

City: Los Angeles

PM

Date: 11/19/2015

NS/EW Streets:	Alameda St			Alameda St			Express Lanes Entrance_Exit			Express Lanes Entrance_Exit			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1.5	1.5	1	3	0	0	0	0	0	0	0	
3:00 PM	0	199	169	32	167	0	0	0	0	0	0	0	567
3:15 PM	0	194	168	45	129	0	0	0	0	0	0	0	536
3:30 PM	0	212	243	47	146	0	0	0	0	0	0	0	648
3:45 PM	0	198	245	42	162	0	0	0	0	0	0	0	647
4:00 PM	0	191	235	28	130	0	0	0	0	0	0	0	584
4:15 PM	0	180	246	36	143	0	0	0	0	0	0	0	605
4:30 PM	0	173	245	49	133	0	0	0	0	0	0	0	600
4:45 PM	0	165	273	37	123	0	0	0	0	0	0	0	598
5:00 PM	0	135	256	44	125	0	0	0	0	0	0	0	560
5:15 PM	0	150	245	47	170	0	0	0	0	0	0	0	612
5:30 PM	0	156	255	26	128	0	0	0	0	0	0	0	565
5:45 PM	0	152	259	46	126	0	0	0	0	0	0	0	583
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	2105	2839	479	1682	0	0	0	0	0	0	0	7105
	0.00%	42.58%	57.42%	22.17%	77.83%	0.00%							
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	781	969	153	581	0	0	0	0	0	0	0	2484
PEAK HR FACTOR :	0.962			0.900			0.000			0.000			0.958

CONTROL : Unsignalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St
 East/West Arcadia St_US-101 NB Off Ramp
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	305	180	0	170
BUSES	39	47	0	7
	274	36	0	436

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	243	7.30	232	8.15	0	0.00	633	7.45
PM PK 15 MIN	420	15.45	174	15.45	0	0.00	265	15.45
AM PK HOUR	960	7.30	892	7.45	0	0.00	2414	7.30
PM PK HOUR	1665	15.45	647	15.00	0	0.00	954	15.30

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	33	579	0	612
7-8	142	784	0	926
8-9	131	814	0	945
15-16	13	1548	0	1561
16-17	21	1641	0	1662
17-18	18	1535	0	1553
TOTAL	358	6901	0	7259

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	483	21	504
7-8	0	797	55	852
8-9	0	809	58	867
15-16	0	621	26	647
16-17	0	543	22	565
17-18	0	538	30	568
TOTAL	0	3791	212	4003

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1116	0	0	69	0
1778	0	0	64	1
1812	0	0	58	1
2208	0	0	90	0
2227	0	0	184	0
2121	0	0	32	0
11262	0	0	497	2

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	325	1482	186	1993
7-8	414	1670	227	2311
8-9	491	1634	213	2338
15-16	230	469	176	875
16-17	242	497	165	904
17-18	195	544	187	926
TOTAL	1897	6296	1154	9347

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
1993	49	0	135	2
2311	47	0	160	9
2338	60	0	161	5
875	100	1	87	0
904	201	0	119	0
926	44	0	95	0
9347	501	1	757	16

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

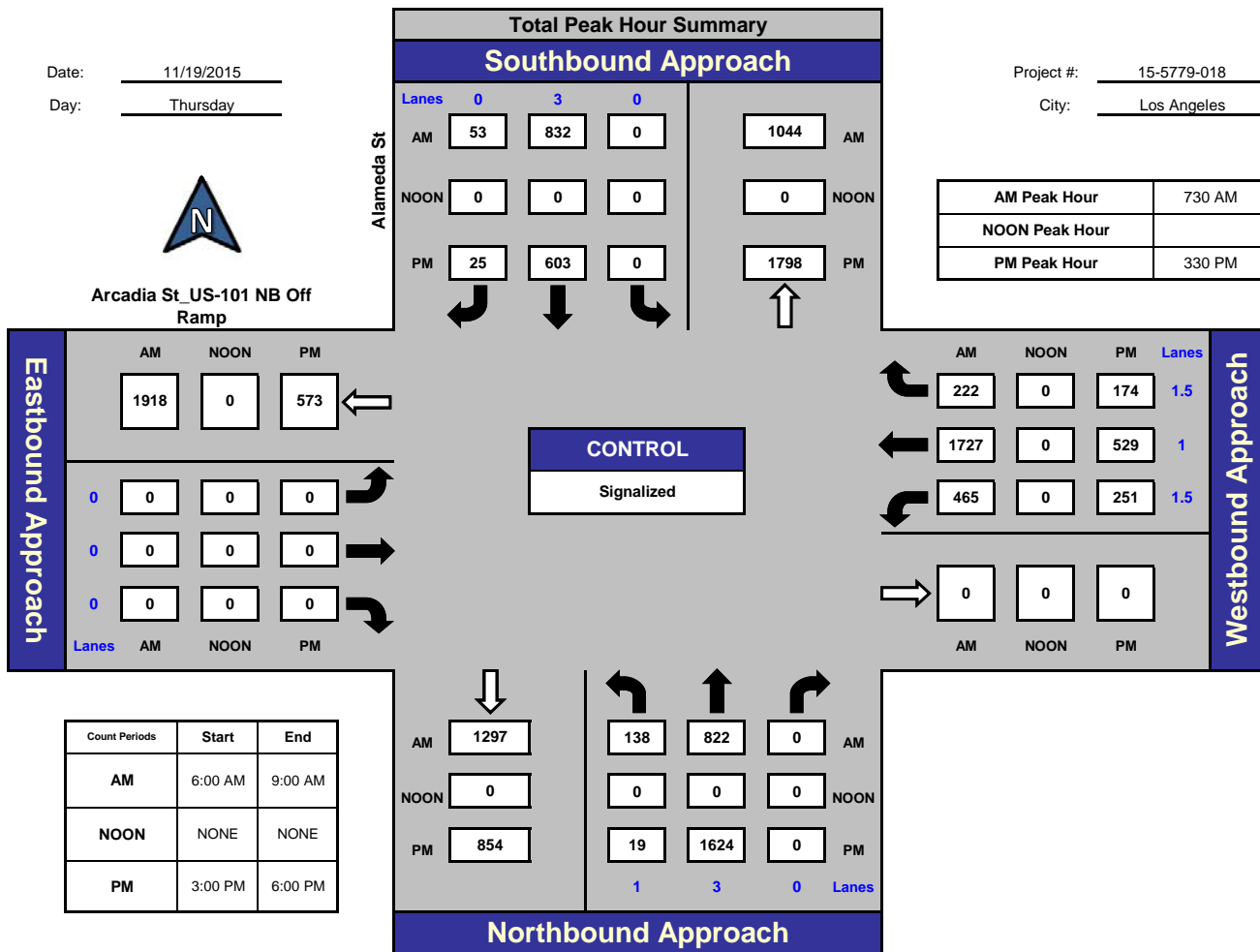
Alameda St and Arcadia St US-101 NB Off Ramp, Los Angeles

Date: 11/19/2015
Day: Thursday

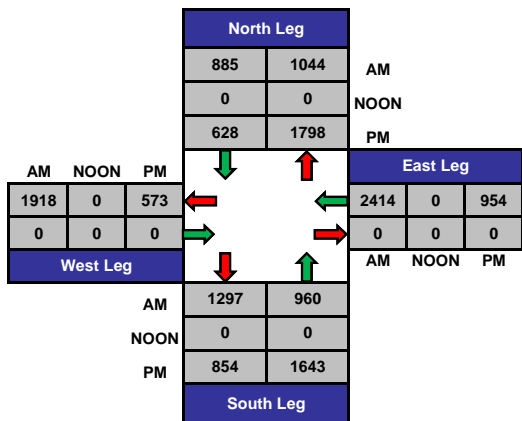
Project #: 15-5779-018
City: Los Angeles



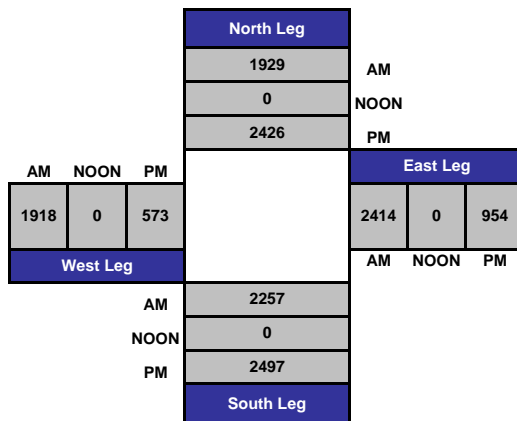
Arcadia St_US-101 NB Off Ramp



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-018

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Arcadia St_US-101 NB Off Ramp			Arcadia St_US-101 NB Off Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	0	3	0	0	0	0	1.5	1	1.5	
6:00 AM	3	107	0	0	84	4	0	0	0	74	319	44	635
6:15 AM	10	141	0	0	103	4	0	0	0	92	383	46	779
6:30 AM	7	174	0	0	113	4	0	0	0	72	375	50	795
6:45 AM	13	157	0	0	183	9	0	0	0	87	405	46	900
7:00 AM	35	190	0	0	195	13	0	0	0	97	389	48	967
7:15 AM	34	185	0	0	181	15	0	0	0	95	400	61	971
7:30 AM	38	205	0	0	204	13	0	0	0	97	432	59	1048
7:45 AM	35	204	0	0	217	14	0	0	0	125	449	59	1103
8:00 AM	34	201	0	0	194	11	0	0	0	135	414	58	1047
8:15 AM	31	212	0	0	217	15	0	0	0	108	432	46	1061
8:30 AM	40	187	0	0	211	13	0	0	0	113	408	57	1029
8:45 AM	26	214	0	0	187	19	0	0	0	135	380	52	1013
TOTAL VOLUMES :	306	2177	0	0	2089	134	0	0	0	1230	4786	626	11348
APPROACH %'s :	12.32%	87.68%	0.00%	0.00%	93.97%	6.03%	#DIV/0!	#DIV/0!	#DIV/0!	18.52%	72.06%	9.42%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	138	822	0	0	832	53	0	0	0	465	1727	222	4259
PEAK HR FACTOR :	0.988			0.954			0.000			0.953			0.965

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-018

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Arcadia St_US-101 NB Off Ramp			Arcadia St_US-101 NB Off Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	0	3	0	0	0	0	1.5	1	1.5	
3:00 PM	5	360	0	0	161	2	0	0	0	50	103	36	717
3:15 PM	2	381	0	0	144	9	0	0	0	48	95	46	725
3:30 PM	1	392	0	0	151	6	0	0	0	58	129	45	782
3:45 PM	5	415	0	0	165	9	0	0	0	74	142	49	859
4:00 PM	10	407	0	0	137	4	0	0	0	62	147	37	804
4:15 PM	3	410	0	0	150	6	0	0	0	57	111	43	780
4:30 PM	6	409	0	0	127	6	0	0	0	65	101	39	753
4:45 PM	2	415	0	0	129	6	0	0	0	58	138	46	794
5:00 PM	5	390	0	0	128	10	0	0	0	53	138	31	755
5:15 PM	4	381	0	0	159	9	0	0	0	44	157	43	797
5:30 PM	6	384	0	0	125	6	0	0	0	52	112	49	734
5:45 PM	3	380	0	0	126	5	0	0	0	46	137	64	761
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	52	4724	0	0	1702	78	0	0	0	667	1510	528	9261
	1.09%	98.91%	0.00%	0.00%	95.62%	4.38%	#DIV/0!	#DIV/0!	#DIV/0!	24.66%	55.82%	19.52%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	19	1624	0	0	603	25	0	0	0	251	529	174	3225
PEAK HR FACTOR :	0.978			0.902			0.000			0.900			0.939

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-018

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Arcadia St_US-101 NB Off Ramp			Arcadia St_US-101 NB Off Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	0	3	0	0	0	0	1.5	1	1.5	
6:00 AM	3	92	0	0	73	3	0	0	0	70	299	40	580
6:15 AM	9	123	0	0	94	4	0	0	0	87	361	45	723
6:30 AM	6	146	0	0	104	4	0	0	0	69	351	47	727
6:45 AM	13	141	0	0	175	9	0	0	0	85	379	45	847
7:00 AM	35	159	0	0	190	13	0	0	0	96	359	43	895
7:15 AM	33	155	0	0	174	15	0	0	0	90	383	60	910
7:30 AM	37	177	0	0	196	12	0	0	0	93	408	57	980
7:45 AM	34	176	0	0	206	14	0	0	0	124	424	58	1036
8:00 AM	33	175	0	0	183	11	0	0	0	129	393	54	978
8:15 AM	31	180	0	0	201	15	0	0	0	107	409	41	984
8:30 AM	39	159	0	0	198	13	0	0	0	109	388	54	960
8:45 AM	25	178	0	0	171	19	0	0	0	128	356	51	928
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	298	1861	0	0	1965	132	0	0	0	1187	4510	595	10548
	13.80%	86.20%	0.00%	0.00%	93.71%	6.29%				18.87%	71.68%	9.46%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	135	708	0	0	786	52	0	0	0	453	1634	210	3978
PEAK HR FACTOR :	0.985			0.952				0.000			0.948		0.960

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-018

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Arcadia St_US-101 NB Off Ramp			Arcadia St_US-101 NB Off Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	1.5	1	1.5	
3:00 PM	5	341	0	0	153	2	0	0	0	47	97	33	678
3:15 PM	2	366	0	0	135	9	0	0	0	45	85	41	683
3:30 PM	1	374	0	0	139	6	0	0	0	56	111	39	726
3:45 PM	5	398	0	0	155	8	0	0	0	71	126	47	810
4:00 PM	10	390	0	0	128	4	0	0	0	61	132	33	758
4:15 PM	3	389	0	0	142	5	0	0	0	53	96	38	726
4:30 PM	6	379	0	0	120	6	0	0	0	57	84	35	687
4:45 PM	2	393	0	0	122	6	0	0	0	53	121	43	740
5:00 PM	5	367	0	0	123	9	0	0	0	50	123	27	704
5:15 PM	4	357	0	0	154	9	0	0	0	41	140	40	745
5:30 PM	6	360	0	0	124	6	0	0	0	50	103	48	697
5:45 PM	3	355	0	0	122	3	0	0	0	45	118	60	706
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	52	4469	0	0	1617	73	0	0	0	629	1336	484	8660
	1.15%	98.85%	0.00%	0.00%	95.68%	4.32%				25.68%	54.55%	19.76%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	19	1551	0	0	564	23	0	0	0	241	465	157	3020
PEAK HR FACTOR :	0.974			0.900			0.000			0.884			0.932

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St

East/West Aliso St Commercial St

Day: Thursday Date: November 19, 2015 Weather: SUNNY

Hours: 6-9 & 3-6 Chekrs: NDS

School Day: YES District: _____ I/S CODE _____

	N/B		S/B		E/B		W/B	
DUAL-WHEELED BIKES	281		220		23		87	
BUSES	52		48		4		2	
BUSES	45		70		253		9	

	N/B TIME		S/B TIME		E/B TIME		W/B TIME	
<i>AM PK 15 MIN</i>	217	8.00	347	7.45	68	7.45	96	8.45
<i>PM PK 15 MIN</i>	341	16.15	245	15.45	135	16.30	75	16.45
<i>AM PK HOUR</i>	848	7.45	1307	7.45	250	7.45	363	8.00
<i>PM PK HOUR</i>	1300	15.30	866	15.30	506	15.00	273	16.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	456	87	543
7-8	0	682	121	803
8-9	0	692	152	844
15-16	0	1028	225	1253
16-17	0	1151	144	1295
17-18	0	1029	122	1151
TOTAL	0	5038	851	5889

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	91	715	0	806
7-8	128	1104	0	1232
8-9	118	1163	0	1281
15-16	148	705	0	853
16-17	115	668	0	783
17-18	127	610	0	737
TOTAL	727	4965	0	5692

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1349	211	1	0	0
2035	243	0	0	0
2125	230	1	0	0
2106	158	0	0	0
2078	206	0	1	0
1888	112	0	0	0
11581	1160	2	1	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	40	25	71	136
7-8	43	47	109	199
8-9	45	34	153	232
15-16	362	75	69	506
16-17	363	64	55	482
17-18	338	41	30	409
TOTAL	1191	286	487	1964

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	121	0	127	248
7-8	122	0	188	310
8-9	161	0	202	363
15-16	82	0	164	246
16-17	119	0	154	273
17-18	74	0	155	229
TOTAL	679	0	990	1669

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
384	40	0	116	0
509	42	0	143	0
595	37	0	145	1
752	107	0	68	0
755	188	3	109	2
638	51	0	71	0
3633	465	3	652	3

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

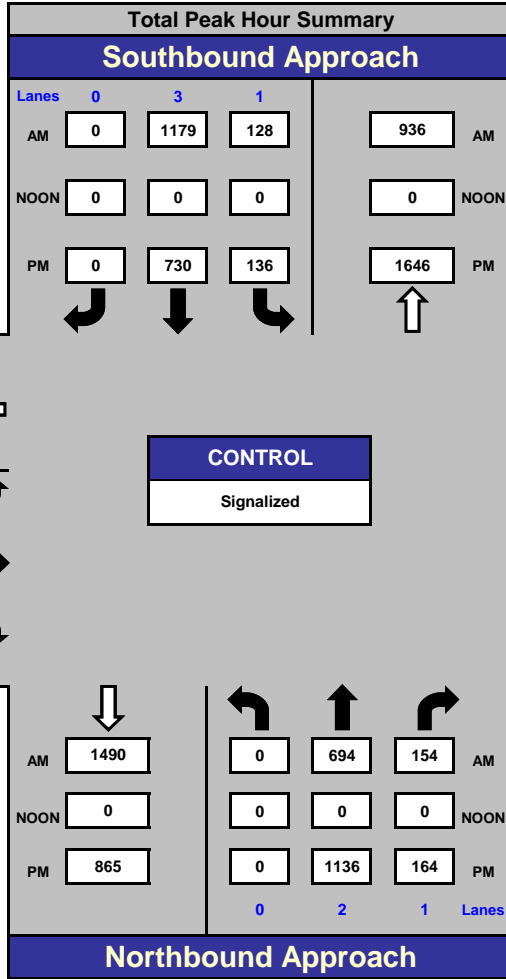
Alameda St and Aliso St Commercial St, Los Angeles

Date: 11/19/2015

Day: Thursday

Project #: 15-5779-019

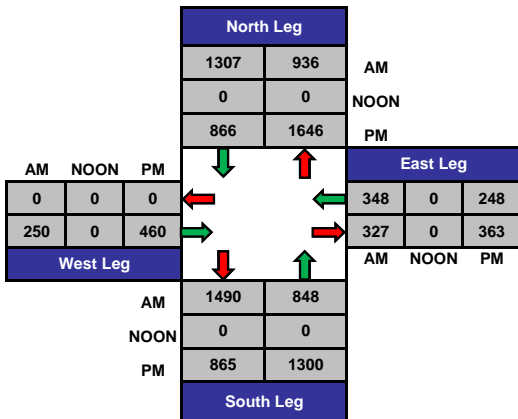
City: Los Angeles



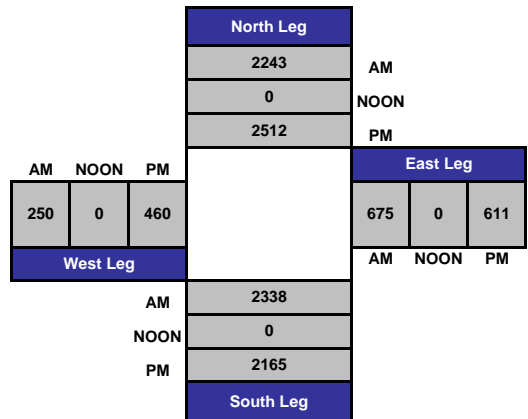
AM Peak Hour	745 AM
NOON Peak Hour	
PM Peak Hour	330 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-019

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Aliso St_Commercial St			Aliso St_Commercial St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																											
	0	2	1	1	3	0	2	1	1	1	0	1																											
6:00 AM	0	76	19	23	140	0	10	9	15	36	0	27	355																										
6:15 AM	0	120	19	20	165	0	6	3	15	37	0	32	417																										
6:30 AM	0	135	22	17	171	0	13	6	20	26	0	36	446																										
6:45 AM	0	125	27	31	239	0	11	7	21	22	0	32	515																										
7:00 AM	0	158	28	25	270	0	8	12	18	29	0	51	599																										
7:15 AM	0	159	33	36	251	0	12	8	19	26	0	42	586																										
7:30 AM	0	187	22	33	270	0	12	10	32	36	0	45	647																										
7:45 AM	0	178	38	34	313	0	11	17	40	31	0	50	712																										
8:00 AM	0	176	41	28	285	0	10	14	38	38	0	48	678																										
8:15 AM	0	176	23	34	286	0	13	8	43	40	0	46	669																										
8:30 AM	0	164	52	32	295	0	9	6	41	40	0	55	694																										
8:45 AM	0	176	36	24	297	0	13	6	31	43	0	53	679																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	0	1830	360	337	2982	0	128	106	333	404	0	517	6997																										
	0.00%	83.56%	16.44%	10.15%	89.85%	0.00%	22.57%	18.69%	58.73%	43.87%	0.00%	56.13%																											
PEAK HR START TIME :	745 AM												TOTAL																										
PEAK HR VOL :	0			694			154			128			1179			0			43			45			162			149			0			199			2753		
PEAK HR FACTOR :	0.977			0.942			0.919			0.916			0.967																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-019

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Aliso St_Commercial St			Aliso St_Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	1	1	3	0	2	1	1	1	0	1	
3:00 PM	0	234	77	36	173	0	81	25	26	22	0	40	714
3:15 PM	0	248	74	34	158	0	98	18	17	23	0	40	710
3:30 PM	0	267	43	40	167	0	96	20	14	23	0	34	704
3:45 PM	0	279	31	38	207	0	87	12	12	14	0	50	730
4:00 PM	0	293	46	24	180	0	78	16	8	30	0	43	718
4:15 PM	0	297	44	34	176	0	89	15	13	21	0	33	722
4:30 PM	0	276	25	30	162	0	100	15	20	32	0	39	699
4:45 PM	0	285	29	27	150	0	96	18	14	36	0	39	694
5:00 PM	0	254	35	27	148	0	93	8	10	21	0	40	636
5:15 PM	0	266	26	32	178	0	77	6	8	17	0	42	652
5:30 PM	0	253	31	32	146	0	96	18	4	10	0	40	630
5:45 PM	0	256	30	36	138	0	72	9	8	26	0	33	608
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	3208	491	390	1983	0	1063	180	154	275	0	473	8217
	0.00%	86.73%	13.27%	16.43%	83.57%	0.00%	76.09%	12.88%	11.02%	36.76%	0.00%	63.24%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	1136	164	136	730	0	350	63	47	88	0	160	2874
PEAK HR FACTOR :	0.953		0.884			0.885			0.849			0.984	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-019

CARS

Day: Thursday

City: Los Angeles

AM

Date: 11/19/2015

NS/EW Streets:	Alameda St			Alameda St			Aliso St_Commercial St			Aliso St_Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	1	1	3	0	2	1	1	1	0	1	
6:00 AM	0	64	18	22	128	0	5	9	15	31	0	27	319
6:15 AM	0	105	19	17	156	0	3	3	15	36	0	30	384
6:30 AM	0	118	21	15	160	0	4	5	18	24	0	35	400
6:45 AM	0	117	24	27	234	0	5	6	20	21	0	31	485
7:00 AM	0	139	27	24	263	0	3	12	18	26	0	46	558
7:15 AM	0	143	30	34	237	0	4	8	19	24	0	37	536
7:30 AM	0	169	20	31	259	0	5	9	30	33	0	41	597
7:45 AM	0	165	36	33	301	0	1	16	38	25	0	44	659
8:00 AM	0	155	39	28	271	0	5	14	38	37	0	42	629
8:15 AM	0	160	19	33	270	0	4	8	40	37	0	40	611
8:30 AM	0	145	49	29	282	0	3	6	41	36	0	51	642
8:45 AM	0	157	32	22	276	0	3	6	30	43	0	46	615
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1637	334	315	2837	0	45	102	322	373	0	470	6435
	0.00%	83.05%	16.95%	9.99%	90.01%	0.00%	9.59%	21.75%	68.66%	44.25%	0.00%	55.75%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	625	143	123	1124	0	13	44	157	135	0	177	2541
PEAK HR FACTOR :	0.955			0.933			0.939			0.897			0.964

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-019

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Aliso St_Commercial St			Aliso St_Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	1	1	3	0	2	1	1	1	0	1	
3:00 PM	0	225	73	36	162	0	76	25	24	22	0	38	681
3:15 PM	0	240	70	33	145	0	91	18	15	23	0	40	675
3:30 PM	0	256	40	35	158	0	89	16	13	21	0	34	662
3:45 PM	0	273	30	38	194	0	76	12	10	13	0	50	696
4:00 PM	0	283	45	24	170	0	70	13	6	29	0	43	683
4:15 PM	0	290	43	32	166	0	74	14	13	21	0	33	686
4:30 PM	0	265	25	28	152	0	83	15	19	31	0	37	655
4:45 PM	0	276	29	26	143	0	80	18	14	36	0	39	661
5:00 PM	0	248	34	27	140	0	75	7	10	17	0	40	598
5:15 PM	0	263	25	31	169	0	59	5	8	17	0	41	618
5:30 PM	0	248	29	32	141	0	78	17	4	9	0	39	597
5:45 PM	0	252	30	36	132	0	55	9	8	26	0	31	579
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	3119	473	378	1872	0	906	169	144	265	0	465	7791
	0.00%	86.83%	13.17%	16.80%	83.20%	0.00%	74.32%	13.86%	11.81%	36.30%	0.00%	63.70%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	1102	158	129	688	0	309	55	42	84	0	160	2727
PEAK HR FACTOR :	0.946			0.880			0.860			0.847			0.980

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Vignes St_US-101 NB Ramps
 East/West Ramirez St
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	64	164	97	234
BUSES	1	13	11	15
BUSES	61	214	460	259

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	112	6.00	212	8.15	80	7.15	162	7.15
PM PK 15 MIN	152	16.15	196	17.15	86	16.15	219	16.00
AM PK HOUR	323	7.45	813	7.30	274	7.00	612	7.15
PM PK HOUR	576	16.00	697	17.00	300	17.00	807	17.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	32	117	145	294
7-8	41	118	94	253
8-9	27	185	86	298
15-16	30	273	60	363
16-17	47	463	66	576
17-18	35	301	77	413
TOTAL	212	1457	528	2197

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	213	109	158	480
7-8	354	130	213	697
8-9	403	149	220	772
15-16	287	171	105	563
16-17	292	213	119	624
17-18	340	222	135	697
TOTAL	1889	994	950	3833

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
774	3	0	57	0
950	0	0	31	1
1070	4	0	29	0
926	1	0	86	0
1200	0	0	68	0
1110	0	0	44	0
6030	8	0	315	1

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	116	71	52	239
7-8	135	71	68	274
8-9	100	65	66	231
15-16	117	63	43	223
16-17	134	77	75	286
17-18	171	63	66	300
TOTAL	773	410	370	1553

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	106	92	237	435
7-8	87	132	386	605
8-9	107	125	321	553
15-16	158	90	337	585
16-17	164	113	509	786
17-18	198	113	496	807
TOTAL	820	665	2286	3771

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
674	0	0	6	0
879	1	0	6	0
784	5	0	10	0
808	2	0	15	0
1072	2	0	11	0
1107	5	0	14	0
5324	15	0	62	0

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

Vignes St US-101 NB Ramps and Ramirez St, Los Angeles

Date: 11/19/2015

Day: Thursday

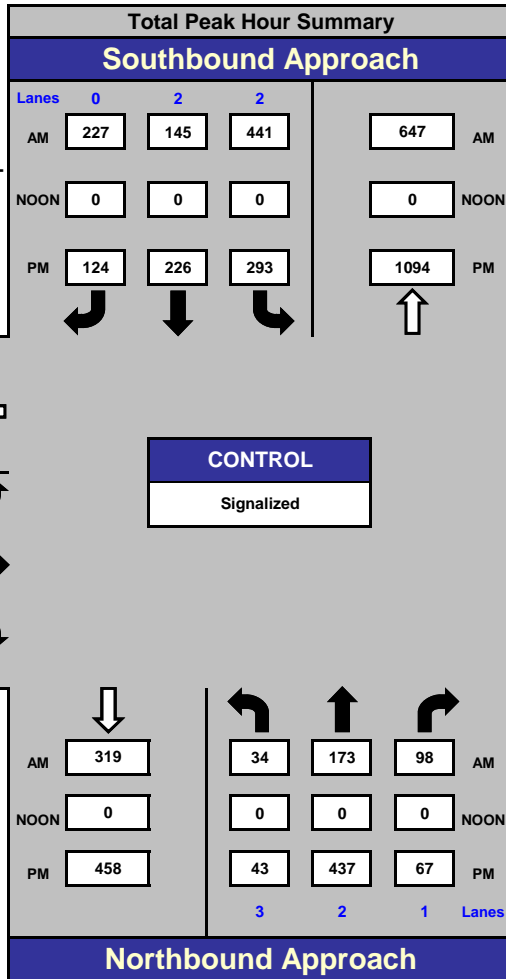
Project #: 15-5779-021

City: Los Angeles



Vignes St_US-101 NB Ramps

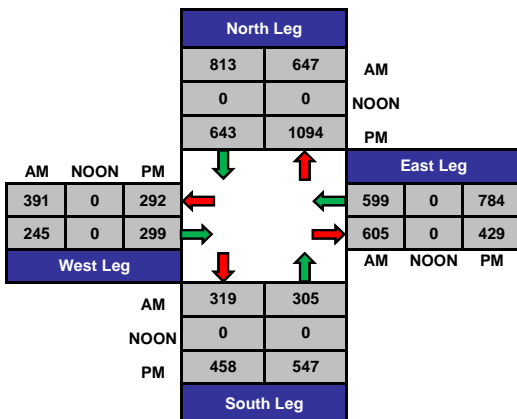
Ramirez St



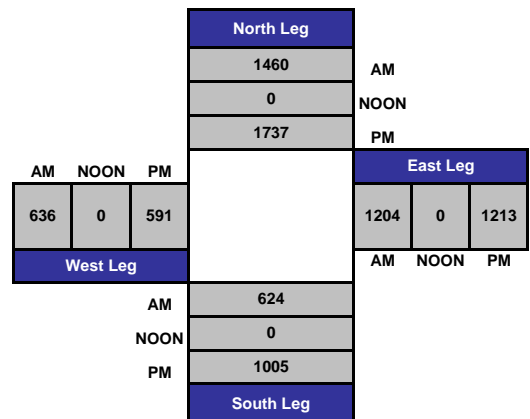
AM Peak Hour	730 AM
NOON Peak Hour	
PM Peak Hour	415 PM

Count Periods	Start	End
AM	6:00 AM	9:00 AM
NOON	NONE	NONE
PM	3:00 PM	6:00 PM

Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-021

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St_US-101 NB Ramps			Vignes St_US-101 NB Ramps			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	3	2	1	2	2	0	1.5	1	0.5	0	2	1	
6:00 AM	13	42	57	44	29	34	36	21	12	15	21	54	378
6:15 AM	6	29	37	58	30	43	23	20	14	38	20	55	373
6:30 AM	8	21	27	54	20	34	32	16	13	24	30	63	342
6:45 AM	5	25	24	57	30	47	25	14	13	29	21	65	355
7:00 AM	11	21	20	68	27	39	39	15	13	27	25	83	388
7:15 AM	7	16	31	76	31	66	41	24	15	17	37	108	469
7:30 AM	11	31	16	101	47	51	30	22	18	22	37	97	483
7:45 AM	12	50	27	109	25	57	25	10	22	21	33	98	489
8:00 AM	7	49	33	118	34	59	29	17	14	29	29	84	502
8:15 AM	4	43	22	113	39	60	27	17	14	34	31	84	488
8:30 AM	4	56	16	91	42	49	21	18	18	22	34	78	449
8:45 AM	12	37	15	81	34	52	23	13	20	22	31	75	415
TOTAL VOLUMES :	100	420	325	970	388	591	351	207	186	300	349	944	5131
APPROACH %'s :	11.83%	49.70%	38.46%	49.77%	19.91%	30.32%	47.18%	27.82%	25.00%	18.83%	21.91%	59.26%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	34	173	98	441	145	227	111	66	68	106	130	363	1962
PEAK HR FACTOR :	0.857			0.959			0.875			0.960			0.977

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-021

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St_US-101 NB Ramps			Vignes St_US-101 NB Ramps			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	3	2	1	2	2	0	1.5	1	0.5	0	2	1	
3:00 PM	9	61	12	76	39	27	26	12	12	37	24	79	414
3:15 PM	9	46	18	70	44	22	26	20	8	31	25	68	387
3:30 PM	3	93	15	79	48	32	34	13	11	51	23	92	494
3:45 PM	9	73	15	62	40	24	31	18	12	39	18	98	439
4:00 PM	16	112	20	66	48	25	31	21	15	63	20	136	573
4:15 PM	8	132	12	79	47	34	38	25	23	36	37	114	585
4:30 PM	13	114	14	90	71	34	38	15	21	37	31	139	617
4:45 PM	10	105	20	57	47	26	27	16	16	28	25	120	497
5:00 PM	12	86	21	67	61	30	47	13	20	51	32	134	574
5:15 PM	11	64	14	103	50	43	49	18	9	56	26	116	559
5:30 PM	9	73	23	95	61	32	33	21	24	49	25	126	571
5:45 PM	3	78	19	75	50	30	42	11	13	42	30	120	513
TOTAL VOLUMES :	112	1037	203	919	606	359	422	203	184	520	316	1342	6223
APPROACH %'s :	8.28%	76.70%	15.01%	48.78%	32.17%	19.06%	52.16%	25.09%	22.74%	23.88%	14.51%	61.62%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	43	437	67	293	226	124	150	69	80	152	125	507	2273
PEAK HR FACTOR :	0.900			0.824			0.869			0.903			0.921

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-021

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St_US-101 NB Ramps			Vignes St_US-101 NB Ramps			Ramirez St			Ramirez St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	3	2	1	2	2	0	1.5	1	0.5	0	2	1	
6:00 AM	9	40	57	36	25	29	26	19	6	15	12	46	320
6:15 AM	5	29	37	50	29	29	12	11	8	34	13	50	307
6:30 AM	6	21	27	53	17	28	24	12	7	23	19	60	297
6:45 AM	3	23	23	54	28	33	17	8	1	23	8	64	285
7:00 AM	7	21	20	66	18	29	28	7	3	26	13	77	315
7:15 AM	5	16	30	66	27	58	34	14	4	15	21	102	392
7:30 AM	8	28	16	91	45	44	21	14	5	21	20	91	404
7:45 AM	9	46	26	102	24	46	16	7	12	20	20	94	422
8:00 AM	6	46	32	112	32	54	19	8	3	26	12	77	427
8:15 AM	2	42	21	110	34	48	17	9	4	30	16	79	412
8:30 AM	1	53	15	87	39	43	13	11	7	21	18	67	375
8:45 AM	10	37	14	75	31	46	19	8	7	20	18	63	348
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	71	402	318	902	349	487	246	128	67	274	190	870	4304
	8.98%	50.82%	40.20%	51.90%	20.08%	28.02%	55.78%	29.02%	15.19%	20.54%	14.24%	65.22%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	25	162	95	415	135	192	73	38	24	97	68	341	1665
PEAK HR FACTOR :	0.839			0.937			0.844			0.944			0.975

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-021

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St_US-101 NB Ramps			Vignes St_US-101 NB Ramps			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	3	2	1	2	2	0	1.5	1	0.5	0	2	1	
3:00 PM	7	60	10	68	37	23	19	8	5	35	13	77	362
3:15 PM	6	44	15	66	43	14	18	12	7	31	15	61	332
3:30 PM	2	89	13	72	47	26	25	8	5	51	11	83	432
3:45 PM	7	71	15	56	40	19	24	8	7	38	9	91	385
4:00 PM	10	110	19	60	47	16	27	13	9	60	15	129	515
4:15 PM	7	128	11	67	47	28	31	13	13	36	18	106	505
4:30 PM	10	114	14	88	69	24	28	11	13	37	18	131	557
4:45 PM	6	102	19	54	47	20	20	7	8	28	14	113	438
5:00 PM	9	83	21	63	59	21	41	8	11	50	21	128	515
5:15 PM	6	63	14	98	49	33	38	14	1	56	21	107	500
5:30 PM	7	71	22	92	61	24	31	11	14	49	19	108	509
5:45 PM	2	76	18	71	48	20	30	9	8	42	20	103	447
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	79	1011	191	855	594	268	332	122	101	513	194	1237	5497
	6.17%	78.92%	14.91%	49.80%	34.60%	15.61%	59.82%	21.98%	18.20%	26.39%	9.98%	63.63%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	32	427	65	272	222	93	120	39	45	151	71	478	2015
PEAK HR FACTOR :	0.897			0.811			0.850			0.879			0.904

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Alameda St (South)
 East/West Los Angeles St
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	214	311	27	0
BUSES	24	27	31	14
	40	48	60	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	162	8.15	289	7.45	49	7.45	0	0.00
PM PK 15 MIN	162	15.00	278	15.45	153	17.30	1	16.15
AM PK HOUR	628	8.00	1125	7.45	172	7.45	0	0.00
PM PK HOUR	627	15.00	1058	15.00	599	17.00	1	16.15

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	270	141	411
7-8	0	460	125	585
8-9	0	531	97	628
15-16	0	563	64	627
16-17	0	504	78	582
17-18	0	408	72	480
TOTAL	0	2736	577	3313

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	50	838	0	888
7-8	52	1038	0	1090
8-9	61	1054	0	1115
15-16	54	1004	0	1058
16-17	89	839	0	928
17-18	60	814	0	874
TOTAL	366	5587	0	5953

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
1299	38	0	1	0
1675	67	1	1	0
1743	72	0	0	0
1685	97	1	0	0
1510	92	2	0	0
1354	53	2	0	0
9266	419	6	2	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	38	48	17	103
7-8	78	55	15	148
8-9	95	50	17	162
15-16	235	55	81	371
16-17	328	79	77	484
17-18	409	83	107	599
TOTAL	1183	370	314	1867

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	0	0	0
7-8	0	0	0	0
8-9	0	0	0	0
15-16	0	0	0	0
16-17	0	0	1	1
17-18	0	0	0	0
TOTAL	0	0	1	1

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
103	14	0	17	0
148	12	0	26	0
162	16	1	30	0
371	25	0	23	1
485	23	1	30	1
599	17	0	40	0
1868	107	2	166	2

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

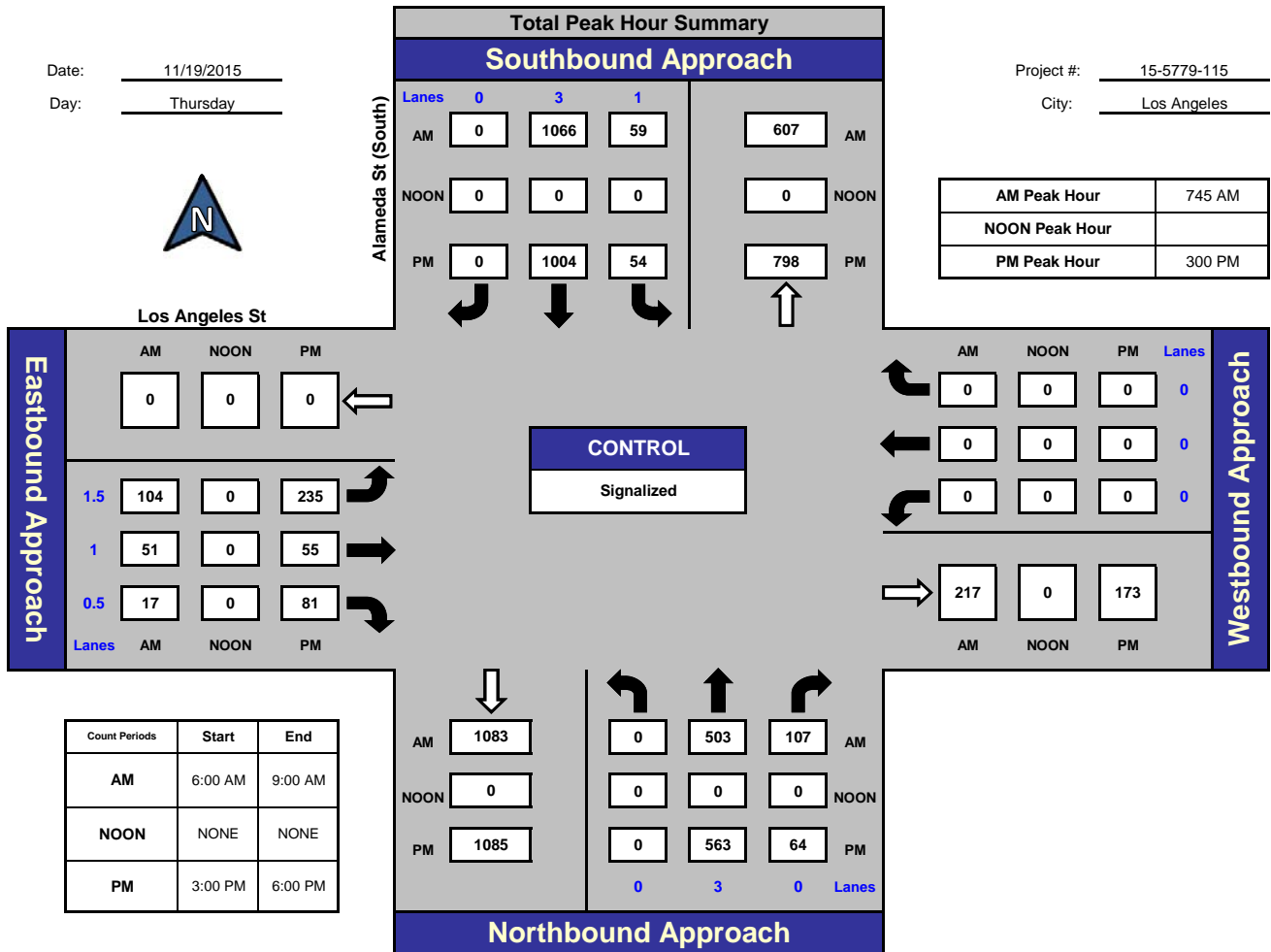
Alameda St (South) and Los Angeles St, Los Angeles

Date: 11/19/2015

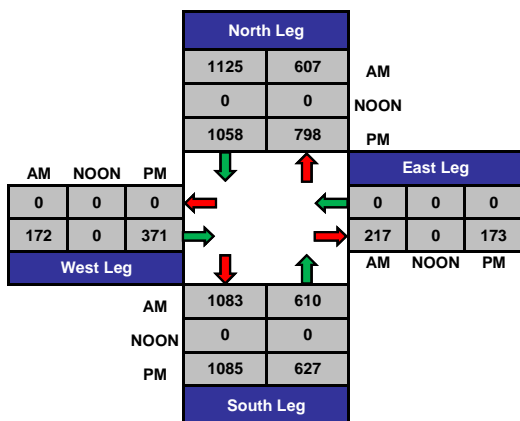
Day: Thursday

Project #: 15-5779-115

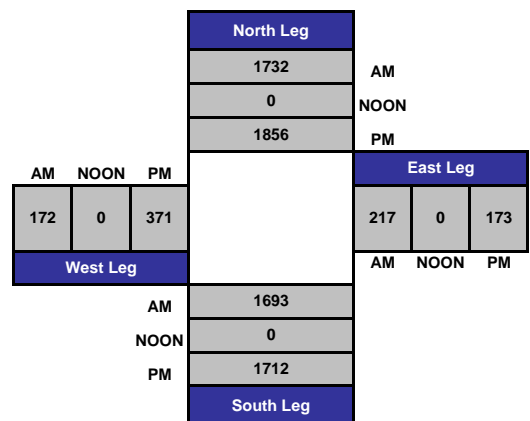
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-115

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St (South)			Alameda St (South)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
6:00 AM	0	53	38	12	161	0	9	7	2	0	0	0	282
6:15 AM	0	50	48	9	200	0	7	16	3	0	0	0	333
6:30 AM	0	83	29	18	222	0	11	7	3	0	0	0	373
6:45 AM	0	84	26	11	255	0	11	18	9	0	0	0	414
7:00 AM	0	105	32	12	261	0	13	11	2	0	0	0	436
7:15 AM	0	117	37	16	248	0	19	14	2	0	0	0	453
7:30 AM	0	125	26	10	254	0	18	15	5	0	0	0	453
7:45 AM	0	113	30	14	275	0	28	15	6	0	0	0	481
8:00 AM	0	120	26	15	262	0	28	11	3	0	0	0	465
8:15 AM	0	133	29	17	270	0	23	13	5	0	0	0	490
8:30 AM	0	137	22	13	259	0	25	12	3	0	0	0	471
8:45 AM	0	141	20	16	263	0	19	14	6	0	0	0	479
TOTAL VOLUMES :	0	1261	363	163	2930	0	211	153	49	0	0	0	5130
APPROACH %'s :	0.00%	77.65%	22.35%	5.27%	94.73%	0.00%	51.09%	37.05%	11.86%	#DIV/0!	#DIV/0!	#DIV/0!	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	503	107	59	1066	0	104	51	17	0	0	0	1907
PEAK HR FACTOR :	0.941		0.973			0.878			0.000			0.973	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-115

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St (South)			Alameda St (South)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
3:00 PM	0	143	19	14	261	0	57	14	10	0	0	0	518
3:15 PM	0	142	15	11	238	0	49	11	28	0	0	0	494
3:30 PM	0	142	17	8	248	0	62	18	28	0	0	0	523
3:45 PM	0	136	13	21	257	0	67	12	15	0	0	0	521
4:00 PM	0	139	12	23	225	0	74	20	10	0	0	0	503
4:15 PM	0	127	25	23	200	0	79	16	18	0	0	1	489
4:30 PM	0	124	21	16	217	0	87	24	25	0	0	0	514
4:45 PM	0	114	20	27	197	0	88	19	24	0	0	0	489
5:00 PM	0	96	19	13	208	0	97	18	29	0	0	0	480
5:15 PM	0	100	14	12	244	0	101	18	30	0	0	0	519
5:30 PM	0	108	22	17	178	0	113	22	18	0	0	0	478
5:45 PM	0	104	17	18	184	0	98	25	30	0	0	0	476
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1475	214	203	2657	0	972	217	265	0	0	1	6004
	0.00%	87.33%	12.67%	7.10%	92.90%	0.00%	66.85%	14.92%	18.23%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	563	64	54	1004	0	235	55	81	0	0	0	2056
PEAK HR FACTOR :	0.968			0.951			0.859			0.000			0.983

CONTROL : [Signalized](#)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-115

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St (South)			Alameda St (South)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
6:00 AM	0	46	38	12	112	0	7	7	2	0	0	0	224
6:15 AM	0	40	48	9	157	0	5	15	3	0	0	0	277
6:30 AM	0	73	29	18	198	0	8	7	3	0	0	0	336
6:45 AM	0	74	26	11	240	0	7	18	9	0	0	0	385
7:00 AM	0	94	32	12	251	0	10	11	2	0	0	0	412
7:15 AM	0	107	37	16	239	0	14	14	2	0	0	0	429
7:30 AM	0	107	26	10	239	0	15	15	5	0	0	0	417
7:45 AM	0	103	28	14	263	0	25	15	6	0	0	0	454
8:00 AM	0	106	26	15	246	0	22	11	3	0	0	0	429
8:15 AM	0	111	29	17	255	0	19	13	5	0	0	0	449
8:30 AM	0	115	22	13	242	0	19	12	3	0	0	0	426
8:45 AM	0	117	20	16	246	0	17	14	6	0	0	0	436
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1093	361	163	2688	0	168	152	49	0	0	0	4674
	0.00%	75.17%	24.83%	5.72%	94.28%	0.00%	45.53%	41.19%	13.28%				
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	435	105	59	1006	0	85	51	17	0	0	0	1758
PEAK HR FACTOR :	0.964			0.961			0.832			0.000			0.968

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-115

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St (South)			Alameda St (South)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
3:00 PM	0	133	19	14	243	0	54	14	10	0	0	0	487
3:15 PM	0	134	15	11	225	0	45	11	28	0	0	0	469
3:30 PM	0	133	17	8	237	0	58	17	28	0	0	0	498
3:45 PM	0	131	13	21	243	0	61	12	15	0	0	0	496
4:00 PM	0	131	12	23	216	0	71	18	10	0	0	0	481
4:15 PM	0	121	25	23	190	0	75	16	18	0	0	1	469
4:30 PM	0	113	21	16	211	0	84	24	25	0	0	0	494
4:45 PM	0	111	20	27	192	0	86	18	24	0	0	0	478
5:00 PM	0	90	19	13	199	0	94	18	29	0	0	0	462
5:15 PM	0	97	13	12	234	0	100	18	30	0	0	0	504
5:30 PM	0	101	22	17	175	0	111	22	18	0	0	0	466
5:45 PM	0	97	17	18	175	0	94	25	30	0	0	0	456
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1392	213	203	2540	0	933	213	265	0	0	1	5760
	0.00%	86.73%	13.27%	7.40%	92.60%	0.00%	66.12%	15.10%	18.78%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	531	64	54	948	0	218	54	81	0	0	0	1950
PEAK HR FACTOR :	0.979			0.949			0.857			0.000			0.979

CONTROL : [Signalized](#)



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Vignes St
 East/West Bauchet St
 Day: Thursday Date: November 19, 2015 Weather: SUNNY
 Hours: 6-9 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	220	104	18	43
BUSES	14	11	1	3
BUSES	67	17	0	80

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	209	7.30	146	7.45	9	8.30	103	6.00
PM PK 15 MIN	274	17.45	128	16.30	13	16.30	128	15.00
AM PK HOUR	756	7.30	479	7.30	18	6.00	312	6.00
PM PK HOUR	998	17.00	438	17.00	38	16.00	393	15.00

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	22	262	342	626
7-8	17	517	172	706
8-9	26	501	156	683
15-16	29	526	64	619
16-17	25	844	64	933
17-18	23	920	55	998
TOTAL	142	3570	853	4565

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	122	145	18	285
7-8	59	378	5	442
8-9	47	306	16	369
15-16	33	329	11	373
16-17	18	341	15	374
17-18	28	405	5	438
TOTAL	307	1904	70	2281

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
911	31	0	18	2
1148	17	0	7	1
1052	26	1	9	1
992	71	2	19	0
1307	74	0	17	0
1436	39	0	5	0
6846	258	3	75	4

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	0	8	10	18
7-8	5	3	9	17
8-9	1	5	7	13
15-16	12	5	19	36
16-17	19	4	15	38
17-18	11	5	19	35
TOTAL	48	30	79	157

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
6-7	247	5	60	312
7-8	95	5	29	129
8-9	96	5	22	123
15-16	263	12	118	393
16-17	211	15	99	325
17-18	134	6	62	202
TOTAL	1046	48	390	1484

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
330	11	1	4	0
146	11	0	1	0
136	7	0	8	0
429	7	0	7	0
363	8	0	3	0
237	1	0	0	0
1641	45	1	23	0

ITM Peak Hour Summary

Prepared by:



National Data & Surveying Services

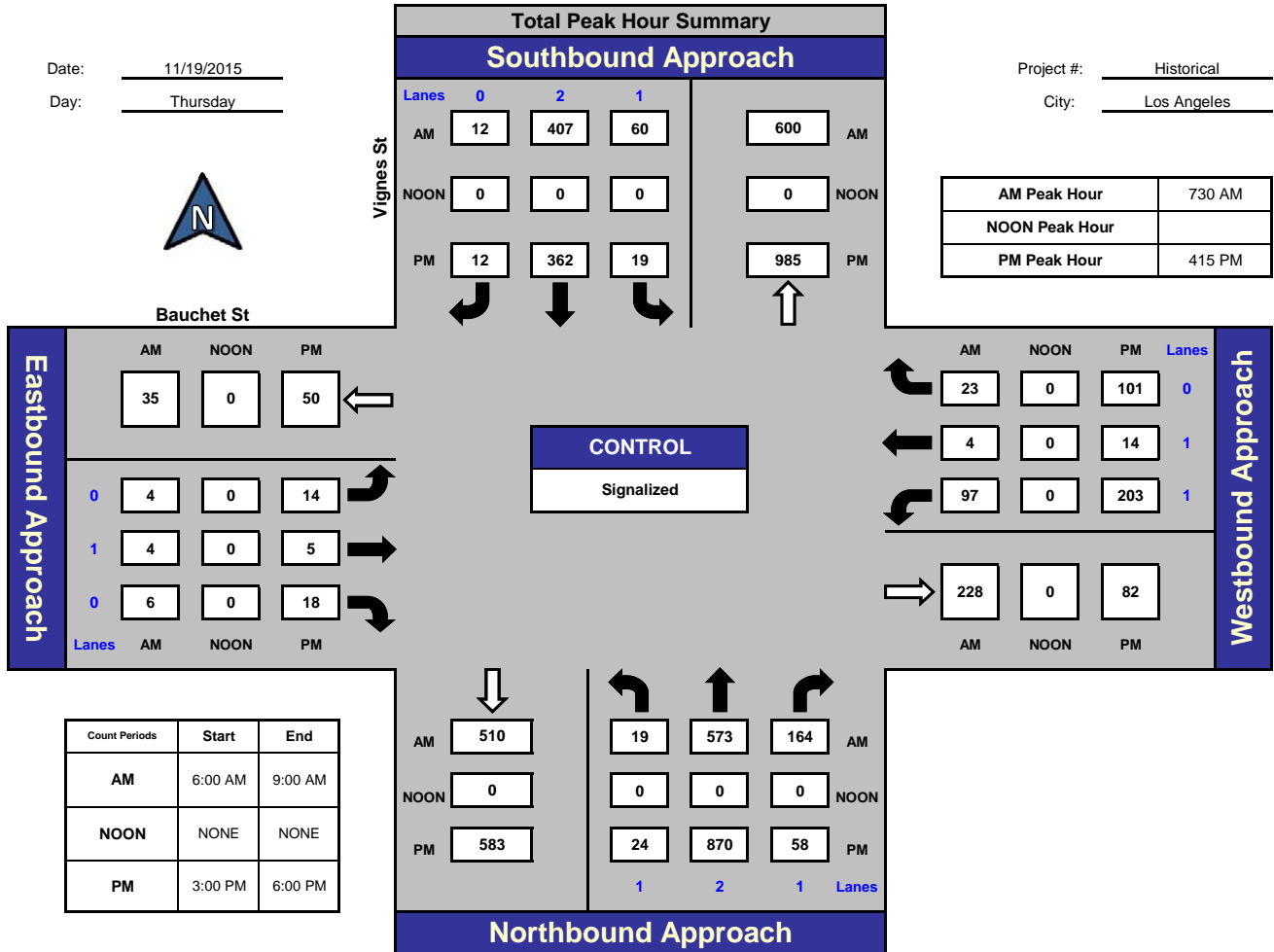
Vignes St and Bauchet St, Los Angeles

Date: 11/19/2015

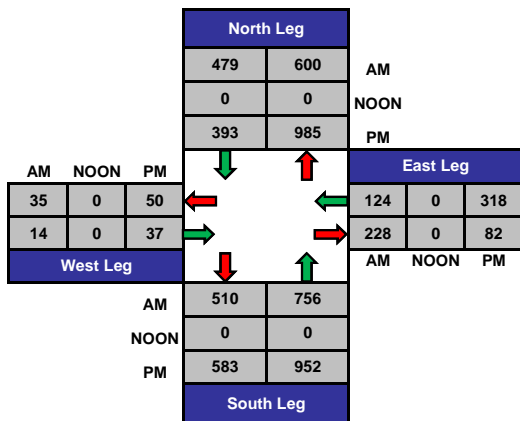
Day: Thursday

Project #: Historical

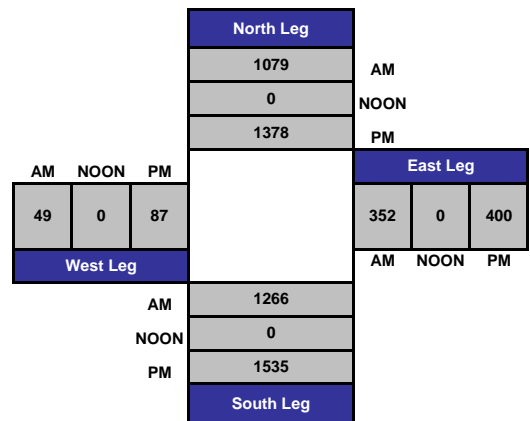
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St			Vignes St			Bauchet St			Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	
6:00 AM	8	60	114	39	25	3	0	3	2	87	0	16	357
6:15 AM	3	54	118	38	31	8	0	1	3	72	1	20	349
6:30 AM	3	61	53	24	38	4	0	2	5	43	2	14	249
6:45 AM	8	87	57	21	51	3	0	2	0	45	2	10	286
7:00 AM	4	96	49	18	76	1	1	0	0	25	0	9	279
7:15 AM	4	112	38	9	71	1	0	0	3	24	2	10	274
7:30 AM	3	161	45	14	103	3	1	2	4	24	2	6	368
7:45 AM	6	148	40	18	128	0	3	1	2	22	1	4	373
8:00 AM	8	154	36	16	94	3	0	0	0	27	0	7	345
8:15 AM	2	110	43	12	82	6	0	1	0	24	1	6	287
8:30 AM	9	117	38	9	72	5	1	2	6	27	1	5	292
8:45 AM	7	120	39	10	58	2	0	2	1	18	3	4	264
TOTAL VOLUMES :	65	1280	670	228	829	39	6	16	26	438	15	111	3723
APPROACH %'s :	3.23%	63.52%	33.25%	20.80%	75.64%	3.56%	12.50%	33.33%	54.17%	77.66%	2.66%	19.68%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	19	573	164	60	407	12	4	4	6	97	4	23	1373
PEAK HR FACTOR :	0.904			0.820			0.500			0.912			0.920

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

TOTALS

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St			Vignes St			Bauchet St			Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	
3:00 PM	7	113	14	6	78	4	3	1	6	91	3	34	360
3:15 PM	7	120	12	7	81	2	1	1	7	63	2	30	333
3:30 PM	4	147	21	9	103	4	4	2	5	64	5	30	398
3:45 PM	11	146	17	11	67	1	4	1	1	45	2	24	330
4:00 PM	9	208	14	6	73	4	7	0	4	62	2	21	410
4:15 PM	7	194	18	4	88	2	4	0	2	43	5	31	398
4:30 PM	6	240	18	5	117	6	2	4	7	66	6	22	499
4:45 PM	3	202	14	3	63	3	6	0	2	40	2	25	363
5:00 PM	8	234	8	7	94	1	2	1	7	54	1	23	440
5:15 PM	5	197	17	5	111	0	2	1	3	34	2	13	390
5:30 PM	3	236	16	8	99	2	5	2	2	21	2	11	407
5:45 PM	7	253	14	8	101	2	2	1	7	25	1	15	436
TOTAL VOLUMES :	NL 77	NT 2290	NR 183	SL 79	ST 1075	SR 31	EL 42	ET 14	ER 53	WL 608	WT 33	WR 279	TOTAL 4764
APPROACH %'s :	3.02%	89.80%	7.18%	6.67%	90.72%	2.62%	38.53%	12.84%	48.62%	66.09%	3.59%	30.33%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	24	870	58	19	362	12	14	5	18	203	14	101	1700
PEAK HR FACTOR :	0.902			0.768			0.712			0.846			0.852

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St			Vignes St			Bauchet St			Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	0	0	1	0	1	1	0	
6:00 AM	6	57	113	39	17	3	0	3	1	80	0	16	335
6:15 AM	3	50	114	36	23	6	0	1	2	70	0	20	325
6:30 AM	3	56	52	24	35	4	0	2	2	41	1	14	234
6:45 AM	6	81	55	21	45	2	0	0	0	42	0	8	260
7:00 AM	4	94	46	18	68	1	1	0	0	17	0	6	255
7:15 AM	2	106	36	9	69	0	0	0	2	12	1	6	243
7:30 AM	3	156	43	14	99	3	0	2	2	17	1	4	344
7:45 AM	6	140	38	17	124	0	3	0	1	15	1	4	349
8:00 AM	6	144	34	15	91	3	0	0	0	21	0	5	319
8:15 AM	1	101	40	10	79	6	0	1	0	19	1	6	264
8:30 AM	8	105	33	8	68	3	1	2	6	21	1	5	261
8:45 AM	7	107	37	9	53	2	0	2	1	15	3	3	239
TOTAL VOLUMES :	55	1197	641	220	771	33	5	13	17	370	9	97	3428
APPROACH %'s :	2.91%	63.23%	33.86%	21.48%	75.29%	3.22%	14.29%	37.14%	48.57%	77.73%	1.89%	20.38%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	16	541	155	56	393	12	3	3	3	72	3	19	1276
PEAK HR FACTOR :	0.881			0.817			0.563			0.904			0.914

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

CARS

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St			Vignes St			Bauchet St			Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 0	EL 0	ET 1	ER 0	WL 1	WT 1	WR 0	
3:00 PM	6	107	13	6	73	4	3	1	6	90	3	33	345
3:15 PM	5	106	12	5	78	2	1	1	6	57	2	30	305
3:30 PM	4	133	20	9	98	3	4	2	5	62	5	30	375
3:45 PM	9	134	17	10	64	1	4	1	1	43	2	22	308
4:00 PM	8	201	14	6	67	3	6	0	4	61	2	21	393
4:15 PM	6	186	18	4	83	2	4	0	2	40	5	31	381
4:30 PM	5	235	16	4	114	5	2	4	7	62	5	21	480
4:45 PM	3	190	14	2	63	3	6	0	2	37	2	24	346
5:00 PM	6	223	8	6	93	1	2	1	7	54	1	23	425
5:15 PM	4	182	17	5	109	0	2	1	3	32	2	12	369
5:30 PM	2	213	14	8	95	2	5	2	2	20	2	11	376
5:45 PM	7	233	14	7	99	2	2	1	4	23	1	14	407
TOTAL VOLUMES :	65	2143	177	72	1036	28	41	14	49	581	32	272	4510
APPROACH %'s :	2.73%	89.85%	7.42%	6.34%	91.20%	2.46%	39.42%	13.46%	47.12%	65.65%	3.62%	30.73%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	20	834	56	16	353	11	14	5	18	193	13	99	1632
PEAK HR FACTOR :	0.889			0.772			0.712			0.866			0.850

CONTROL : Signalized



City Of Los Angeles
 Department Of Transportation
MANUAL TRAFFIC COUNT SUMMARY

STREET: North/South Center St
 East/West Ramirez St
 Day: Thursday Date: June 18, 2015 Weather: SUNNY
 Hours: 7-10 & 3-6 Chekrs: NDS
 School Day: YES District: _____ I/S CODE _____

	N/B	S/B	E/B	W/B
DUAL-WHEELED BIKES	151	147	0	18
BUSES	32	24	0	4
BUSES	293	216	0	0

	N/B	TIME	S/B	TIME	E/B	TIME	W/B	TIME
AM PK 15 MIN	128	7.15	135	7.30	0	0.00	30	8.15
PM PK 15 MIN	211	17.30	126	16.00	0	0.00	52	16.00
AM PK HOUR	478	7.00	472	7.00	0	0.00	97	7.30
PM PK HOUR	809	17.00	442	16.00	0	0.00	145	15.30

NORTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	420	58	478
8-9	0	362	60	422
9-10	0	291	59	350
15-16	0	482	58	540
16-17	0	591	28	619
17-18	0	795	14	809
TOTAL	0	2941	277	3218

SOUTHBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	44	428	0	472
8-9	46	349	0	395
9-10	32	331	0	363
15-16	52	363	0	415
16-17	28	414	0	442
17-18	12	383	0	395
TOTAL	214	2268	0	2482

TOTAL

XING S/L

XING N/L

N-S	Ped	Sch	Ped	Sch
950	0	0	0	0
817	0	0	5	0
713	0	0	0	0
955	0	0	1	0
1061	0	0	0	0
1204	0	0	0	0
5700	0	0	6	0

EASTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	0	0	0	0
8-9	0	0	0	0
9-10	0	0	0	0
15-16	0	0	0	0
16-17	0	0	0	0
17-18	0	0	0	0
TOTAL	0	0	0	0

WESTBOUND Approach

Hours	Lt	Th	Rt	Total
7-8	52	0	41	93
8-9	57	0	35	92
9-10	41	0	39	80
15-16	67	0	49	116
16-17	75	0	39	114
17-18	19	0	16	35
TOTAL	311	0	219	530

TOTAL

XING W/L

XING E/L

E-W	Ped	Sch	Ped	Sch
93	0	0	18	0
92	0	0	13	0
80	0	0	9	0
116	0	0	5	0
114	0	0	12	0
35	0	0	11	1
530	0	0	68	1

ITM Peak Hour Summary

Prepared by:

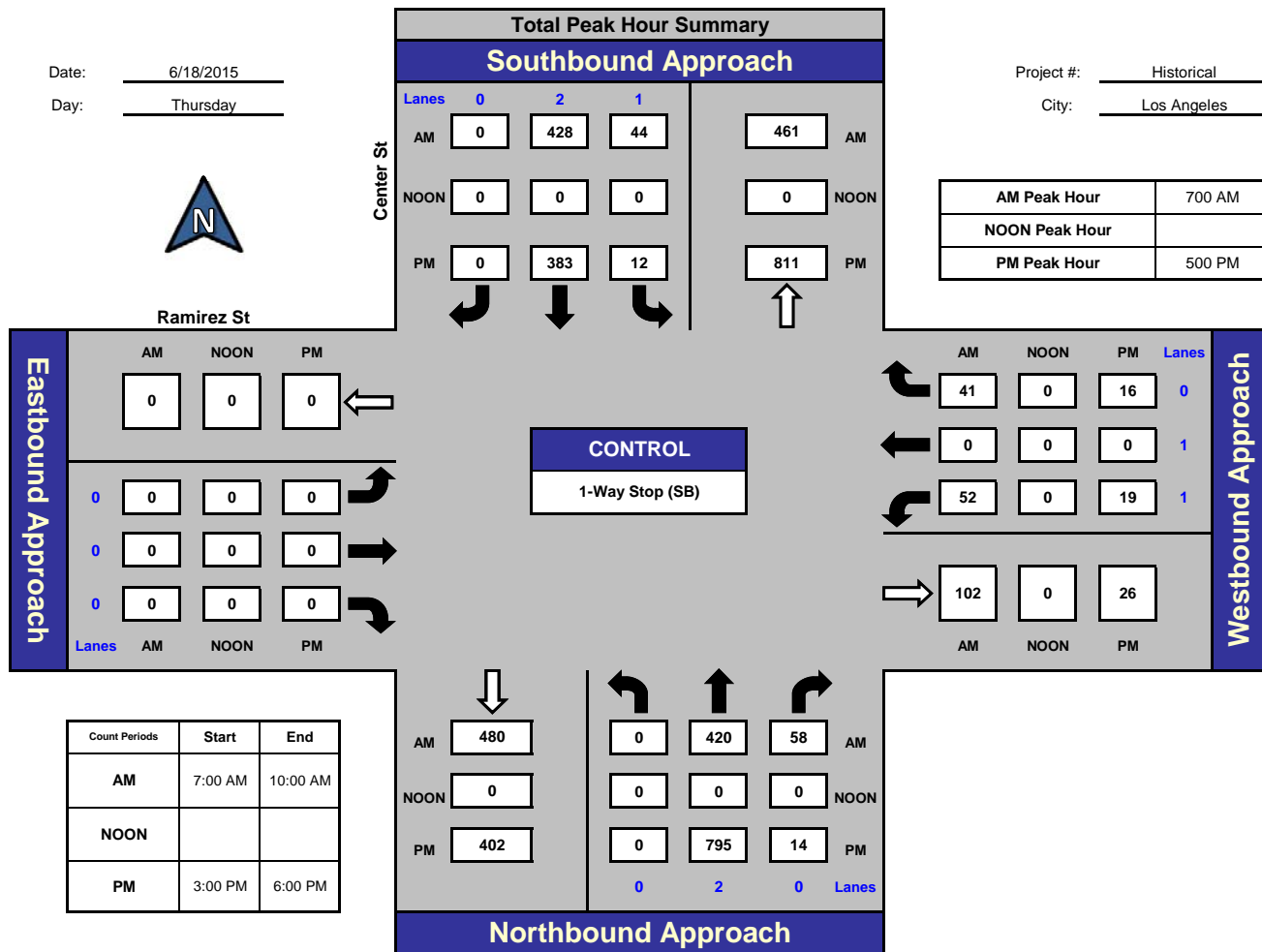


National Data & Surveying Services

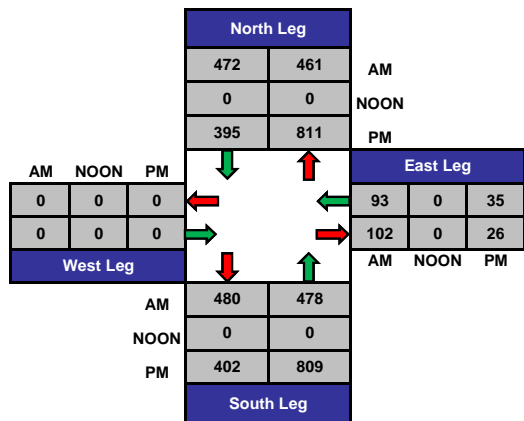
Center St and Ramirez St, Los Angeles

Date: 6/18/2015
Day: Thursday

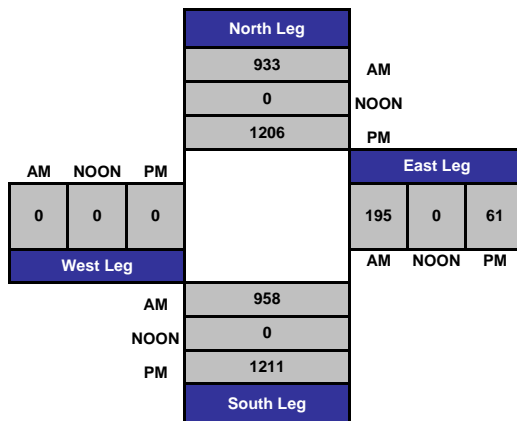
Project #: Historical
City: Los Angeles



Total Ins & Outs



Total Volume Per Leg



Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

TOTALS

Date: 6/18/2015

NS/EW Streets:		AM												TOTAL
		Center St			Center St			Ramirez St			Ramirez St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
		0	2	0	1	2	0	0	0	0	1	1	0	
7:00 AM		0	105	9	12	93	0	0	0	0	15	0	12	246
7:15 AM		0	108	20	15	88	0	0	0	0	9	0	14	254
7:30 AM		0	109	17	9	126	0	0	0	0	12	0	6	279
7:45 AM		0	98	12	8	121	0	0	0	0	16	0	9	264
8:00 AM		0	96	16	15	82	0	0	0	0	13	0	11	233
8:15 AM		0	97	12	6	98	0	0	0	0	20	0	10	243
8:30 AM		0	82	18	10	84	0	0	0	0	9	0	6	209
8:45 AM		0	87	14	15	85	0	0	0	0	15	0	8	224
9:00 AM		0	70	22	8	82	0	0	0	0	8	0	10	200
9:15 AM		0	78	9	8	86	0	0	0	0	10	0	7	198
9:30 AM		0	70	15	8	88	0	0	0	0	11	0	10	202
9:45 AM		0	73	13	8	75	0	0	0	0	12	0	12	193
TOTAL VOLUMES :		0	1073	177	122	1108	0	0	0	0	150	0	115	2745
APPROACH %'s :		0.00%	85.84%	14.16%	9.92%	90.08%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	56.60%	0.00%	43.40%	
PEAK HR START TIME :	700 AM													TOTAL
PEAK HR VOL :		0	420	58	44	428	0	0	0	0	52	0	41	1043
PEAK HR FACTOR :		0.934			0.874			0.000			0.861			0.935

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

TOTALS

Date: 6/18/2015

NS/EW Streets:		PM												TOTAL
		Center St			Center St			Ramirez St			Ramirez St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
		0	2	0	1	2	0	0	0	0	1	1	0	
3:00 PM		0	121	12	17	102	0	0	0	0	13	0	11	276
3:15 PM		0	127	9	14	87	0	0	0	0	16	0	9	262
3:30 PM		0	121	21	12	93	0	0	0	0	18	0	19	284
3:45 PM		0	113	16	9	81	0	0	0	0	20	0	10	249
4:00 PM		0	140	3	10	116	0	0	0	0	36	0	16	321
4:15 PM		0	129	10	8	91	0	0	0	0	18	0	8	264
4:30 PM		0	169	11	6	120	0	0	0	0	16	0	8	330
4:45 PM		0	153	4	4	87	0	0	0	0	5	0	7	260
5:00 PM		0	206	3	5	98	0	0	0	0	10	0	7	329
5:15 PM		0	191	3	4	85	0	0	0	0	3	0	1	287
5:30 PM		0	206	5	2	116	0	0	0	0	4	0	5	338
5:45 PM		0	192	3	1	84	0	0	0	0	2	0	3	285
TOTAL VOLUMES :		0	1868	100	92	1160	0	0	0	0	161	0	104	3485
APPROACH %'s :		0.00%	94.92%	5.08%	7.35%	92.65%	0.00%	#DIV/0!	#DIV/0!	#DIV/0!	60.75%	0.00%	39.25%	
PEAK HR START TIME :	500 PM													TOTAL
PEAK HR VOL :		0	795	14	12	383	0	0	0	0	19	0	16	1239
PEAK HR FACTOR :		0.959			0.837			0.000			0.515			0.916

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

CARS

Date: 6/18/2015

AM

NS/EW Streets:	Center St			Center St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	0	0	0	1	1	0	
7:00 AM	0	89	8	11	78	0	0	0	0	15	0	12	213
7:15 AM	0	84	20	15	75	0	0	0	0	8	0	14	216
7:30 AM	0	91	16	8	109	0	0	0	0	11	0	5	240
7:45 AM	0	76	11	8	104	0	0	0	0	16	0	7	222
8:00 AM	0	74	15	14	72	0	0	0	0	12	0	11	198
8:15 AM	0	79	12	6	81	0	0	0	0	19	0	10	207
8:30 AM	0	62	18	9	74	0	0	0	0	8	0	6	177
8:45 AM	0	66	14	15	67	0	0	0	0	14	0	7	183
9:00 AM	0	60	20	6	66	0	0	0	0	8	0	10	170
9:15 AM	0	61	9	8	69	0	0	0	0	9	0	6	162
9:30 AM	0	57	14	8	73	0	0	0	0	9	0	10	171
9:45 AM	0	57	13	7	63	0	0	0	0	10	0	11	161
TOTAL VOLUMES :	0	856	170	115	931	0	0	0	0	139	0	109	2320
APPROACH %'s :	0.00%	83.43%	16.57%	10.99%	89.01%	0.00%				56.05%	0.00%	43.95%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0	340	55	42	366	0	0	0	0	50	0	38	891
PEAK HR FACTOR :	0.923			0.872			0.000			0.815			0.928

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

CARS

Date: 6/18/2015

PM

NS/EW Streets:	Center St			Center St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	0	0	0	1	1	0	
3:00 PM	0	108	11	17	88	0	0	0	0	13	0	11	248
3:15 PM	0	110	9	13	69	0	0	0	0	16	0	9	226
3:30 PM	0	104	21	11	78	0	0	0	0	18	0	19	251
3:45 PM	0	104	15	9	64	0	0	0	0	20	0	10	222
4:00 PM	0	120	3	10	98	0	0	0	0	36	0	16	283
4:15 PM	0	110	10	8	74	0	0	0	0	18	0	8	228
4:30 PM	0	159	11	6	104	0	0	0	0	16	0	8	304
4:45 PM	0	128	4	4	75	0	0	0	0	5	0	7	223
5:00 PM	0	181	3	5	86	0	0	0	0	10	0	7	292
5:15 PM	0	172	3	4	73	0	0	0	0	3	0	1	256
5:30 PM	0	180	5	1	102	0	0	0	0	4	0	4	296
5:45 PM	0	175	2	1	73	0	0	0	0	2	0	3	256
TOTAL VOLUMES :	0	1651	97	89	984	0	0	0	0	161	0	103	3085
APPROACH %'s :	0.00%	94.45%	5.55%	8.29%	91.71%	0.00%				60.98%	0.00%	39.02%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	708	13	11	334	0	0	0	0	19	0	15	1100
PEAK HR FACTOR :	0.974			0.837			0.000			0.500			0.929

CONTROL : 1-Way Stop (SB)

Appendix B1: ADT Counts

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VOLUME

Alameda St N/O Commercial St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_001

DAILY TOTALS					NB	SB	EB	WB	Total		
					17,107	15,435	0	0	32,542		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	60	39			99	12:00	198	206			404
00:15	66	39			105	12:15	186	253			439
00:30	56	30			86	12:30	205	238			443
00:45	59	241	27	135	86	12:45	184	773	223	920	407
01:00	56	35			91	13:00	191	204			395
01:15	57	26			83	13:15	196	222			418
01:30	43	33			76	13:30	205	224			429
01:45	47	203	26	120	73	13:45	212	804	190	840	402
02:00	43	15			58	14:00	238	180			418
02:15	41	31			72	14:15	266	205			471
02:30	35	28			63	14:30	265	234			499
02:45	35	154	17	91	52	14:45	289	1058	183	802	472
03:00	16	19			35	15:00	295	192			487
03:15	26	19			45	15:15	326	195			521
03:30	23	28			51	15:30	393	232			625
03:45	34	99	30	96	64	15:45	380	1394	205	824	585
04:00	41	30			71	16:00	383	215			598
04:15	49	46			95	16:15	405	208			613
04:30	40	47			87	16:30	400	186			586
04:45	46	176	87	210	133	16:45	389	1577	184	793	573
05:00	56	91			147	17:00	364	183			547
05:15	100	140			240	17:15	367	204			571
05:30	100	206			306	17:30	373	180			553
05:45	110	366	192	629	302	17:45	384	1488	197	764	581
06:00	128	205			333	18:00	359	187			546
06:15	140	203			343	18:15	327	198			525
06:30	187	212			399	18:30	395	178			573
06:45	200	655	277	897	477	18:45	368	1449	152	715	520
07:00	189	285			474	19:00	288	147			435
07:15	194	294			488	19:15	263	115			378
07:30	200	324			524	19:30	226	128			354
07:45	221	804	340	1243	561	19:45	206	983	111	501	317
08:00	192	318			510	20:00	188	110			298
08:15	172	314			486	20:15	145	81			226
08:30	226	321			547	20:30	174	89			263
08:45	242	832	347	1300	589	20:45	143	650	97	377	240
09:00	223	322			545	21:00	159	104			263
09:15	173	321			494	21:15	118	94			212
09:30	162	309			471	21:30	131	91			222
09:45	176	734	306	1258	482	21:45	120	528	91	380	211
10:00	166	268			434	22:00	129	77			206
10:15	172	298			470	22:15	109	56			165
10:30	182	227			409	22:30	98	57			155
10:45	168	688	266	1059	434	22:45	85	421	66	256	151
11:00	175	255			430	23:00	96	39			135
11:15	177	265			442	23:15	79	55			134
11:30	183	277			460	23:30	72	36			108
11:45	180	715	258	1055	438	23:45	68	315	40	170	108
TOTALS	5667	8093			13760	TOTALS	11440	7342			18782
SPLIT %	41.2%	58.8%			42.3%	SPLIT %	60.9%	39.1%			57.7%

DAILY TOTALS					NB	SB	EB	WB	Total
					17,107	15,435	0	0	32,542
AM Peak Hour	08:30	08:30			08:30	PM Peak Hour	16:00	12:00	15:30
AM Pk Volume	864	1311			2175	PM Pk Volume	1577	920	2421
Pk Hr Factor	0.893	0.945			0.923	Pk Hr Factor	0.973	0.909	0.968
7 - 9 Volume	1636	2543	0	0	4179	4 - 6 Volume	3065	1557	0
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:00	16:00	16:00
7 - 9 Pk Volume	832	1300	0	0	2132	4 - 6 Pk Volume	1577	793	0
Pk Hr Factor	0.860	0.937	0.000	0.000	0.905	Pk Hr Factor	0.973	0.922	0.000

VOLUME

Hewitt St S/O Commercial St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_003

DAILY TOTALS					NB	SB	EB	WB	Total		
					642	821	0	0	1,463		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	3	3			6	12:00	8	24			32
00:15	2	0			2	12:15	8	29			37
00:30	1	1			2	12:30	11	15			26
00:45	1	7	0	4	11	12:45	10	37	11	79	116
01:00	4	1			5	13:00	6	13			19
01:15	0	1			1	13:15	11	12			23
01:30	0	1			1	13:30	13	13			26
01:45	1	5	0	3	8	13:45	7	37	16	54	91
02:00	1	3			4	14:00	12	14			26
02:15	0	0			0	14:15	12	14			26
02:30	1	0			1	14:30	7	18			25
02:45	1	3	1	4	7	14:45	9	40	22	68	108
03:00	0	0			0	15:00	11	14			25
03:15	0	1			1	15:15	26	17			43
03:30	0	0			0	15:30	29	18			47
03:45	0	3	4		4	15:45	24	90	14	63	153
04:00	0	0			0	16:00	27	7			34
04:15	0	1			1	16:15	11	4			15
04:30	0	3			3	16:30	19	6			25
04:45	1	1	5	9	10	16:45	6	63	5	22	85
05:00	4	8			12	17:00	6	2			8
05:15	1	20			21	17:15	5	7			12
05:30	5	32			37	17:30	7	5			12
05:45	6	16	46	106	122	17:45	5	23	7	21	44
06:00	3	39			42	18:00	12	7			19
06:15	1	34			35	18:15	2	3			5
06:30	13	34			47	18:30	4	2			6
06:45	20	37	20	127	164	18:45	3	21	4	16	37
07:00	20	17			37	19:00	5	0			5
07:15	16	12			28	19:15	6	3			9
07:30	8	9			17	19:30	5	3			8
07:45	7	51	9	47	98	19:45	2	18	1	7	25
08:00	6	15			21	20:00	1	4			5
08:15	6	8			14	20:15	2	0			2
08:30	13	12			25	20:30	0	5			5
08:45	12	37	11	46	83	20:45	1	4	5	14	18
09:00	12	5			17	21:00	6	3			9
09:15	11	6			17	21:15	1	2			3
09:30	14	6			20	21:30	1	5			6
09:45	8	45	6	23	68	21:45	2	10	1	11	21
10:00	14	12			26	22:00	0	5			5
10:15	7	10			17	22:15	4	3			7
10:30	9	11			20	22:30	2	1			3
10:45	10	40	13	46	86	22:45	3	9	1	10	19
11:00	10	6			16	23:00	5	1			6
11:15	6	7			13	23:15	3	2			5
11:30	10	8			18	23:30	1	0			1
11:45	12	38	11	32	70	23:45	1	10	2	5	15
TOTALS	280	451			731	TOTALS	362	370			732
SPLIT %	38.3%	61.7%			50.0%	SPLIT %	49.5%	50.5%			50.0%

DAILY TOTALS					NB	SB	EB	WB	Total		
					642	821	0	0	1,463		
AM Peak Hour	06:30	05:45			05:45	PM Peak Hour	15:15	12:00	15:15		
AM Pk Volume	69	153			176	PM Pk Volume	106	79	162		
Pk Hr Factor	0.863	0.832			0.846	Pk Hr Factor	0.914	0.681	0.862		
7 - 9 Volume	88	93	0	0	181	4 - 6 Volume	86	43	0	129	
7 - 9 Peak Hour	07:00	07:00			07:00	4 - 6 Peak Hour	16:00	16:00		16:00	
7 - 9 Pk Volume	51	47	0	0	98	4 - 6 Pk Volume	63	22	0	85	
Pk Hr Factor	0.638	0.691	0.000	0.000	0.662	Pk Hr Factor	0.583	0.786	0.000	0.000	0.625

VOLUME

Commercial St W/O Garey St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_004

DAILY TOTALS						NB	SB	EB	WB	Total		
						0	0	6,319	5,522	11,841		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			44	16	60	12:00			106	53	159	
00:15			37	17	54	12:15			107	76	183	
00:30			22	21	43	12:30			110	52	162	
00:45			30	133	17	71	12:45		113	436	75	256
01:00			43	20	63	13:00			105	72	177	
01:15			37	22	59	13:15			113	77	190	
01:30			29	19	48	13:30			105	64	169	
01:45			14	123	9	70	13:45		135	458	64	277
02:00			34	20	54	14:00			136	60	196	
02:15			20	19	39	14:15			116	57	173	
02:30			17	22	39	14:30			131	72	203	
02:45			14	85	14	75	14:45		128	511	44	233
03:00			13	19	32	15:00			154	58	212	
03:15			13	19	32	15:15			123	49	172	
03:30			11	8	19	15:30			149	69	218	
03:45			12	49	17	63	15:45		112	538	47	223
04:00			8	19	27	16:00			95	61	156	
04:15			12	20	32	16:15			90	60	150	
04:30			13	20	33	16:30			103	68	171	
04:45			7	40	39	98	16:45		90	378	59	248
05:00			18	38	56	17:00			89	61	150	
05:15			25	55	80	17:15			82	66	148	
05:30			23	92	115	17:30			65	70	135	
05:45			38	104	118	303	17:45		76	312	60	257
06:00			51	107	158	18:00			58	49	107	
06:15			36	76	112	18:15			72	53	125	
06:30			42	84	126	18:30			76	59	135	
06:45			25	154	70	337	18:45		71	277	49	210
07:00			38	69	107	19:00			78	46	124	
07:15			56	69	125	19:15			77	57	134	
07:30			56	65	121	19:30			78	37	115	
07:45			50	200	90	293	19:45		72	305	43	183
08:00			57	77	134	20:00			72	38	110	
08:15			46	65	111	20:15			65	42	107	
08:30			35	90	125	20:30			89	42	131	
08:45			66	204	149	381	20:45		57	283	19	141
09:00			58	203	261	21:00			74	34	108	
09:15			69	191	260	21:15			86	33	119	
09:30			68	196	264	21:30			65	23	88	
09:45			81	276	160	750	21:45		67	292	21	111
10:00			84	185	269	22:00			66	25	91	
10:15			102	135	237	22:15			72	19	91	
10:30			97	105	202	22:30			69	23	92	
10:45			76	359	62	487	22:45		59	266	28	95
11:00			59	74	133	23:00			64	41	105	
11:15			78	50	128	23:15			48	15	63	
11:30			94	69	163	23:30			52	14	66	
11:45			90	321	70	263	23:45		51	215	27	97
TOTALS			2048	3191	5239	TOTALS			4271	2331	6602	
SPLIT %			39.1%	60.9%	44.2%	SPLIT %			64.7%	35.3%	55.8%	

DAILY TOTALS						NB	SB	EB	WB	Total	
						0	0	6,319	5,522	11,841	
AM Peak Hour			11:45	09:00	09:15	PM Peak Hour			14:45	12:45	14:45
AM Pk Volume			413	750	1034	PM Pk Volume			554	288	774
Pk Hr Factor			0.939	0.924	0.961	Pk Hr Factor			0.899	0.935	0.888
7 - 9 Volume	0	0	404	674	1078	4 - 6 Volume	0	0	690	505	1195
7 - 9 Peak Hour			07:15	08:00	08:00	4 - 6 Peak Hour			16:00	17:00	16:00
7 - 9 Pk Volume	0	0	219	381	585	4 - 6 Pk Volume	0	0	378	257	626
Pk Hr Factor	0.000	0.000	0.961	0.639	0.680	Pk Hr Factor	0.000	0.000	0.917	0.918	0.915

VOLUME

Garey St S/O Commercial St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_005

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,084	909	0	0	2,993		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	4	1			5	12:00	32	14			46
00:15	3	4			7	12:15	36	19			55
00:30	2	1			3	12:30	28	11			39
00:45	2	11	2	8	4	12:45	34	130	10	54	184
01:00	4	1			5	13:00	31	16			47
01:15	2	1			3	13:15	36	23			59
01:30	4	1			5	13:30	36	12			48
01:45	2	12	0	3	2	13:45	33	136	9	60	196
02:00	2	0			2	14:00	29	9			38
02:15	0	0			0	14:15	34	6			40
02:30	0	0			0	14:30	32	10			42
02:45	3	5	1	1	4	14:45	34	129	11	36	165
03:00	2	1			3	15:00	40	9			49
03:15	2	1			3	15:15	48	9			57
03:30	0	0			0	15:30	61	15			76
03:45	1	5	1	3	2	15:45	55	204	5	38	242
04:00	2	4			6	16:00	67	8			75
04:15	2	6			8	16:15	67	5			72
04:30	2	0			2	16:30	74	12			86
04:45	2	8	13	23	15	16:45	91	299	10	35	334
05:00	2	9			11	17:00	106	8			114
05:15	2	12			14	17:15	110	8			118
05:30	5	22			27	17:30	92	6			98
05:45	9	18	21	64	30	17:45	73	381	12	34	415
06:00	10	24			34	18:00	64	5			69
06:15	14	17			31	18:15	27	15			42
06:30	10	22			32	18:30	27	8			35
06:45	9	43	30	93	39	18:45	18	136	8	36	172
07:00	16	16			32	19:00	24	8			32
07:15	8	21			29	19:15	14	5			19
07:30	9	14			23	19:30	11	8			19
07:45	10	43	21	72	31	19:45	10	59	2	23	82
08:00	12	25			37	20:00	8	6			14
08:15	9	19			28	20:15	10	2			12
08:30	12	22			34	20:30	10	7			17
08:45	14	47	24	90	38	20:45	10	38	4	19	57
09:00	19	18			37	21:00	6	7			13
09:15	22	14			36	21:15	5	6			11
09:30	18	18			36	21:30	4	7			11
09:45	20	79	22	72	42	21:45	9	24	3	23	47
10:00	15	9			24	22:00	12	4			16
10:15	17	12			29	22:15	10	4			14
10:30	26	15			41	22:30	5	4			9
10:45	33	91	17	53	50	22:45	7	34	5	17	51
11:00	20	11			31	23:00	7	2			9
11:15	35	9			44	23:15	3	2			5
11:30	36	12			48	23:30	5	1			6
11:45	43	134	12	44	55	23:45	3	18	3	8	26
TOTALS	496	526			1022	TOTALS	1588	383			1971
SPLIT %	48.5%	51.5%			34.1%	SPLIT %	80.6%	19.4%			65.9%

DAILY TOTALS					NB	SB	EB	WB	Total
					2,084	909	0	0	2,993
AM Peak Hour	11:30	06:00			11:30	PM Peak Hour	16:45	12:45	16:45
AM Pk Volume	147	93			204	PM Pk Volume	399	61	431
Pk Hr Factor	0.855	0.775			0.927	Pk Hr Factor	0.907	0.663	0.913
7 - 9 Volume	90	162	0	0	252	4 - 6 Volume	680	69	749
7 - 9 Peak Hour	08:00	08:00			08:00	4 - 6 Peak Hour	16:45	16:30	16:45
7 - 9 Pk Volume	47	90	0	0	137	4 - 6 Pk Volume	399	38	431
Pk Hr Factor	0.839	0.900	0.000	0.000	0.901	Pk Hr Factor	0.907	0.792	0.913

VOLUME

Commercial St E/O Garey St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_006

DAILY TOTALS					NB	SB	EB	WB	Total			
					0	0	4,077	4,350	8,427			
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL	
00:00			21	13	34	12:00			62	47	109	
00:15			19	7	26	12:15			51	50	101	
00:30			11	18	29	12:30			46	64	110	
00:45			12	63	8	46	205	62	223	108	428	
01:00			18	17	35	13:00			72	92	164	
01:15			11	8	19	13:15			56	69	125	
01:30			13	15	28	13:30			58	90	148	
01:45			7	49	9	48	234	75	326	123	560	
02:00			25	17	42	14:00			57	147	204	
02:15			16	15	31	14:15			45	91	136	
02:30			19	20	39	14:30			46	110	156	
02:45			14	74	6	58	181	57	405	90	586	
03:00			12	9	21	15:00			41	78	119	
03:15			9	10	19	15:15			41	58	99	
03:30			8	4	12	15:30			65	120	185	
03:45			25	54	11	34	52	199	53	309	105	508
04:00			17	9	26	16:00			52	108	160	
04:15			38	12	50	16:15			48	71	119	
04:30			35	23	58	16:30			56	99	155	
04:45			48	138	13	57	61	195	53	209	65	343
05:00			65	21	86	17:00			53	89	142	
05:15			87	23	110	17:15			52	74	126	
05:30			75	30	105	17:30			42	69	111	
05:45			96	323	47	121	143	444	49	196	74	306
06:00			77	48	125	18:00			45	96	141	
06:15			66	45	111	18:15			41	64	105	
06:30			59	64	123	18:30			39	49	88	
06:45			70	272	48	205	118	477	33	158	46	255
07:00			51	43	94	19:00			20	43	63	
07:15			53	52	105	19:15			21	28	49	
07:30			63	54	117	19:30			24	35	59	
07:45			51	218	84	233	135	451	35	100	29	135
08:00			51	62	113	20:00			30	35	65	
08:15			58	49	107	20:15			35	37	72	
08:30			60	40	100	20:30			34	37	71	
08:45			90	259	48	199	138	458	35	134	20	129
09:00			75	49	124	21:00			31	55	86	
09:15			76	54	130	21:15			23	18	41	
09:30			66	48	114	21:30			24	28	52	
09:45			84	301	53	204	137	505	30	108	32	133
10:00			74	47	121	22:00			18	38	56	
10:15			51	42	93	22:15			36	22	58	
10:30			55	42	97	22:30			30	41	71	
10:45			50	230	36	167	86	397	25	109	23	124
11:00			37	50	87	23:00			20	19	39	
11:15			44	60	104	23:15			20	15	35	
11:30			40	50	90	23:30			18	20	38	
11:45			63	184	59	219	122	403	21	79	16	70
TOTALS			2165	1592	3757	TOTALS			1912	2758	4670	
SPLIT %			57.6%	42.4%	44.6%	SPLIT %			40.9%	59.1%	55.4%	

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	4,077	4,350	8,427		
AM Peak Hour			05:15	07:15	08:45	PM Peak Hour			13:00	13:45	13:45
AM Pk Volume			335	252	506	PM Pk Volume			234	423	619
Pk Hr Factor			0.872	0.750	0.917	Pk Hr Factor			0.813	0.719	0.759
7 - 9 Volume	0	0	477	432	909	4 - 6 Volume	0	0	405	649	1054
7 - 9 Peak Hour			08:00	07:15	07:30	4 - 6 Peak Hour			16:30	16:00	16:00
7 - 9 Pk Volume	0	0	259	252	472	4 - 6 Pk Volume	0	0	214	343	552
Pk Hr Factor	0.000	0.000	0.719	0.750	0.874	Pk Hr Factor	0.000	0.000	0.955	0.794	0.863

VOLUME

Vignes St S/O Commercial St

Day: Thursday
Date: 9/17/2015City: Los Angeles
Project #: CA15_5565_007

DAILY TOTALS					NB	SB	EB	WB	Total		
					2,026	1,378	0	0	3,404		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	2	7			9	12:00	16	24			40
00:15	6	7			13	12:15	23	22			45
00:30	4	3			7	12:30	21	11			32
00:45	1	13	3	20	4	12:45	27	87	21	78	48
01:00	5	8			13	13:00	27	22			49
01:15	3	2			5	13:15	28	31			59
01:30	5	3			8	13:30	32	21			53
01:45	3	16	6	19	9	13:45	30	117	20	94	50
02:00	5	4			9	14:00	28	21			49
02:15	2	3			5	14:15	27	22			49
02:30	2	1			3	14:30	28	16			44
02:45	2	11	1	9	3	14:45	30	113	27	86	57
03:00	2	1			3	15:00	33	19			52
03:15	4	4			8	15:15	33	16			49
03:30	3	0			3	15:30	40	16			56
03:45	0	9	1	6	1	15:45	32	138	19	70	51
04:00	1	4			5	16:00	48	24			72
04:15	3	9			12	16:15	44	15			59
04:30	1	2			3	16:30	62	17			79
04:45	0	5	2	17	2	16:45	39	193	15	71	54
05:00	2	6			8	17:00	79	14			93
05:15	3	10			13	17:15	54	21			75
05:30	6	7			13	17:30	78	11			89
05:45	11	22	24	47	35	17:45	60	271	13	59	73
06:00	20	19			39	18:00	76	10			86
06:15	23	20			43	18:15	63	9			72
06:30	26	21			47	18:30	42	17			59
06:45	23	92	23	83	46	18:45	32	213	14	50	46
07:00	20	23			43	19:00	14	9			23
07:15	32	25			57	19:15	13	15			28
07:30	34	25			59	19:30	15	4			19
07:45	37	123	26	99	63	19:45	14	56	10	38	24
08:00	30	18			48	20:00	14	6			20
08:15	28	29			57	20:15	6	8			14
08:30	24	31			55	20:30	10	16			26
08:45	34	116	31	109	65	20:45	7	37	6	36	13
09:00	32	44			76	21:00	18	8			26
09:15	36	31			67	21:15	4	2			6
09:30	33	25			58	21:30	3	4			7
09:45	28	129	38	138	66	21:45	2	27	8	22	10
10:00	26	24			50	22:00	10	7			17
10:15	24	29			53	22:15	6	1			7
10:30	19	19			38	22:30	5	7			12
10:45	19	88	16	88	35	22:45	4	25	10	25	14
11:00	19	31			50	23:00	7	4			11
11:15	27	17			44	23:15	3	6			9
11:30	26	15			41	23:30	7	8			15
11:45	31	103	26	89	57	23:45	5	22	7	25	12
TOTALS	727	724			1451	TOTALS	1299	654			1953
SPLIT %	50.1%	49.9%			42.6%	SPLIT %	66.5%	33.5%			57.4%

DAILY TOTALS					NB	SB	EB	WB	Total
					2,026	1,378	0	0	3,404
AM Peak Hour	08:45	09:00	09:00	PM Peak Hour	17:30	12:45	17:00		
AM Pk Volume	135	138	267	PM Pk Volume	277	95	330		
Pk Hr Factor	0.938	0.784	0.878	Pk Hr Factor	0.888	0.766	0.887		
7 - 9 Volume	239	208	0	4 - 6 Volume	464	130	0	594	
7 - 9 Peak Hour	07:15	08:00	07:15	4 - 6 Peak Hour	17:00	16:00	17:00		
7 - 9 Pk Volume	133	109	227	4 - 6 Pk Volume	271	71	330		
Pk Hr Factor	0.899	0.879	0.901	Pk Hr Factor	0.858	0.740	0.887		

VOLUME

Ducommun St Bet. Vignes St & Center St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_008

DAILY TOTALS						NB	SB	EB	WB	Total	
						0	0	139	178	317	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			3	0	3	12:00			0	3	3
00:15			0	0	0	12:15			4	0	4
00:30			0	0	0	12:30			2	1	3
00:45			0	3	0	12:45			2	8	2
01:00			0	0	0	13:00			0	5	5
01:15			0	1	1	13:15			5	2	7
01:30			0	1	1	13:30			1	1	2
01:45			0	0	2	13:45			2	8	3
02:00			0	1	1	14:00			4	1	5
02:15			0	1	1	14:15			1	5	6
02:30			0	1	1	14:30			0	1	1
02:45			0	1	4	14:45			2	7	4
03:00			0	0	0	15:00			5	0	5
03:15			1	0	1	15:15			1	4	5
03:30			0	1	1	15:30			0	3	3
03:45			0	1	0	15:45			2	8	1
04:00			0	2	2	16:00			5	2	7
04:15			0	1	1	16:15			2	8	10
04:30			1	0	1	16:30			2	3	5
04:45			2	3	0	16:45			1	10	4
05:00			1	1	2	17:00			3	4	7
05:15			0	0	0	17:15			0	4	4
05:30			5	0	5	17:30			0	1	1
05:45			2	8	3	17:45			1	4	3
06:00			5	0	5	18:00			1	2	3
06:15			2	1	3	18:15			1	0	1
06:30			0	3	3	18:30			0	4	4
06:45			4	11	6	18:45			2	4	3
07:00			1	4	5	19:00			0	0	0
07:15			2	2	4	19:15			1	2	3
07:30			2	1	3	19:30			1	1	2
07:45			4	9	3	19:45			1	3	2
08:00			2	5	7	20:00			1	3	4
08:15			5	5	10	20:15			0	1	1
08:30			3	6	9	20:30			1	1	2
08:45			3	13	3	20:45			0	2	0
09:00			4	0	4	21:00			1	2	3
09:15			3	3	6	21:15			0	0	0
09:30			5	4	9	21:30			0	1	1
09:45			2	14	4	21:45			0	1	0
10:00			3	2	5	22:00			0	0	0
10:15			1	3	4	22:15			1	0	1
10:30			2	3	5	22:30			0	1	1
10:45			4	10	0	22:45			2	3	1
11:00			1	3	4	23:00			1	0	1
11:15			0	4	4	23:15			0	3	3
11:30			2	1	3	23:30			1	1	2
11:45			4	7	4	23:45			0	2	1
TOTALS			79	84	163	TOTALS			60	94	154
SPLIT %			48.5%	51.5%	51.4%	SPLIT %			39.0%	61.0%	48.6%

DAILY TOTALS						NB	SB	EB	WB	Total	
						0	0	139	178	317	
AM Peak Hour			08:15	07:45	07:45	PM Peak Hour			13:15	16:15	16:00
AM Pk Volume			15	19	33	PM Pk Volume			12	19	27
Pk Hr Factor			0.750	0.792	0.825	Pk Hr Factor			0.600	0.594	0.675
7 - 9 Volume	0	0	22	29	51	4 - 6 Volume	0	0	14	29	43
7 - 9 Peak Hour			07:45	07:45	07:45	4 - 6 Peak Hour			16:00	16:15	16:00
7 - 9 Pk Volume	0	0	14	19	33	4 - 6 Pk Volume	0	0	10	19	27
Pk Hr Factor	0.000	0.000	0.700	0.792	0.825	Pk Hr Factor	0.000	0.000	0.500	0.594	0.675

VOLUME

Jackson St Bet. Vignes St & Center St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_009

DAILY TOTALS						NB	SB	EB	WB	Total	
						0	0	103	129	232	
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	0	0	12:00			1	0	1
00:15			0	1	1	12:15			4	3	7
00:30			0	0	0	12:30			0	2	2
00:45			0	0	0	12:45			0	5	3
01:00			0	1	1	13:00			2	1	3
01:15			0	0	0	13:15			0	0	0
01:30			0	0	0	13:30			5	2	7
01:45			0	0	0	13:45			3	10	3
02:00			0	0	0	14:00			6	2	8
02:15			0	0	0	14:15			1	2	3
02:30			0	0	0	14:30			2	1	3
02:45			0	0	0	14:45			2	11	1
03:00			0	0	0	15:00			6	4	10
03:15			0	1	1	15:15			0	1	1
03:30			0	0	0	15:30			1	0	1
03:45			0	0	0	15:45			1	8	2
04:00			0	0	0	16:00			2	0	2
04:15			0	0	0	16:15			2	3	5
04:30			1	0	1	16:30			1	5	6
04:45			2	3	1	16:45			0	5	1
05:00			2	0	2	17:00			2	3	5
05:15			0	2	2	17:15			2	2	4
05:30			0	0	0	17:30			3	5	8
05:45			0	2	1	17:45			0	7	5
06:00			0	1	1	18:00			2	4	6
06:15			0	0	0	18:15			0	3	3
06:30			2	0	2	18:30			0	3	3
06:45			1	3	1	18:45			0	2	0
07:00			0	1	1	19:00			1	1	2
07:15			1	1	2	19:15			1	2	3
07:30			0	2	2	19:30			0	0	0
07:45			3	4	1	19:45			0	2	0
08:00			4	5	9	20:00			2	0	2
08:15			1	2	3	20:15			0	0	0
08:30			3	2	5	20:30			0	1	1
08:45			0	8	1	20:45			0	2	0
09:00			2	2	4	21:00			1	0	1
09:15			1	2	3	21:15			0	1	1
09:30			4	5	9	21:30			0	0	0
09:45			3	10	5	21:45			0	1	0
10:00			2	4	6	22:00			0	0	0
10:15			3	3	6	22:15			0	0	0
10:30			0	2	2	22:30			0	1	1
10:45			1	6	1	22:45			0	0	0
11:00			2	5	7	23:00			0	0	0
11:15			3	2	5	23:15			1	1	2
11:30			5	4	9	23:30			0	0	0
11:45			3	13	1	23:45			0	1	1
TOTALS			49	60	109	TOTALS			54	69	123
SPLIT %			45.0%	55.0%	47.0%	SPLIT %			43.9%	56.1%	53.0%

DAILY TOTALS						NB	SB	EB	WB	Total	
						0	0	103	129	232	
AM Peak Hour			11:00	09:30	09:30	PM Peak Hour			13:30	17:30	13:30
AM Pk Volume			13	17	29	PM Pk Volume			15	17	24
Pk Hr Factor			0.650	0.850	0.806	Pk Hr Factor			0.625	0.850	0.750
7 - 9 Volume	0	0	12	15	27	4 - 6 Volume	0	0	12	24	36
7 - 9 Peak Hour			07:45	07:30	07:45	4 - 6 Peak Hour			16:45	17:00	17:00
7 - 9 Pk Volume	0	0	11	10	21	4 - 6 Pk Volume	0	0	7	15	22
Pk Hr Factor	0.000	0.000	0.688	0.500	0.583	Pk Hr Factor	0.000	0.000	0.583	0.750	0.688

VOLUME

Temple St Bet. Vignes St & Center St

Day: Thursday
Date: 9/17/2015

City: Los Angeles
Project #: CA15_5565_010

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	584	592	1,176		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			0	1	1	12:00			8	6	14
00:15			0	1	1	12:15			13	7	20
00:30			1	0	1	12:30			19	5	24
00:45			1	2	3	12:45			10	50	24
01:00			1	1	2	13:00			11	29	21
01:15			1	1	2	13:15			15	9	16
01:30			1	0	1	13:30			11	9	24
01:45			0	3	3	13:45			12	48	20
02:00			0	0	0	14:00			9	6	80
02:15			0	0	0	14:15			4	4	15
02:30			0	3	3	14:30			11	6	8
02:45			1	1	2	14:45			11	35	17
03:00			1	0	1	15:00			5	9	19
03:15			1	0	1	15:15			14	9	59
03:30			0	1	1	15:30			11	11	14
03:45			0	2	2	15:45			9	39	22
04:00			2	1	3	16:00			10	12	14
04:15			0	0	0	16:15			12	9	23
04:30			0	0	0	16:30			18	7	21
04:45			0	2	2	16:45			13	53	25
05:00			3	2	5	17:00			10	14	22
05:15			2	3	5	17:15			10	16	21
05:30			3	4	7	17:30			6	19	26
05:45			4	12	16	17:45			13	39	25
06:00			4	3	7	18:00			12	8	19
06:15			5	7	12	18:15			9	8	20
06:30			5	10	15	18:30			3	12	17
06:45			6	20	26	18:45			11	35	15
07:00			7	16	23	19:00			9	10	19
07:15			6	20	26	19:15			6	3	9
07:30			4	10	14	19:30			4	5	9
07:45			7	24	31	19:45			3	22	7
08:00			10	9	19	20:00			3	4	44
08:15			11	9	20	20:15			1	2	7
08:30			11	18	29	20:30			5	3	3
08:45			11	43	54	20:45			2	11	8
09:00			12	9	21	21:00			3	2	21
09:15			10	7	17	21:15			4	5	5
09:30			14	3	17	21:30			0	0	9
09:45			15	51	66	21:45			3	10	0
10:00			12	14	26	22:00			3	5	7
10:15			6	11	17	22:15			4	0	21
10:30			10	14	24	22:30			1	1	4
10:45			3	31	34	22:45			3	11	2
11:00			9	13	22	23:00			1	2	3
11:15			6	7	13	23:15			1	1	2
11:30			14	16	30	23:30			1	1	2
11:45			8	37	45	23:45			0	3	3
TOTALS			228	289	517	TOTALS			356	303	659
SPLIT %			44.1%	55.9%	44.0%	SPLIT %			54.0%	46.0%	56.0%

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	584	592	1,176		
AM Peak Hour			09:00	06:30	09:45	PM Peak Hour			12:30	16:45	16:30
AM Pk Volume			51	57	93	PM Pk Volume			54	58	97
Pk Hr Factor			0.850	0.713	0.894	Pk Hr Factor			0.711	0.763	0.933
7 - 9 Volume	0	0	67	96	163	4 - 6 Volume	0	0	92	92	184
7 - 9 Peak Hour			08:00	07:00	07:45	4 - 6 Peak Hour			16:00	16:45	16:30
7 - 9 Pk Volume	0	0	43	55	84	4 - 6 Pk Volume	0	0	53	58	97
Pk Hr Factor	0.000	0.000	0.977	0.688	0.724	Pk Hr Factor	0.000	0.000	0.736	0.763	0.933

VOLUME

Center St N/O Commercial St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_011

DAILY TOTALS					NB	SB	EB	WB	Total		
					6,916	5,069	0	0	11,985		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	12	23			35	12:00	91	69			160
00:15	23	12			35	12:15	83	64			147
00:30	17	11			28	12:30	77	76			153
00:45	9	61	11	57	20 118	12:45	100	351	86	295	186 646
01:00	11	3			14	13:00	118	70			188
01:15	7	12			19	13:15	108	63			171
01:30	14	10			24	13:30	124	84			208
01:45	8	40	11	36	19 76	13:45	114	464	60	277	174 741
02:00	16	8			24	14:00	144	58			202
02:15	14	9			23	14:15	104	70			174
02:30	15	8			23	14:30	136	59			195
02:45	13	58	8	33	21 91	14:45	112	496	78	265	190 761
03:00	23	6			29	15:00	124	63			187
03:15	11	11			22	15:15	113	65			178
03:30	14	10			24	15:30	123	85			208
03:45	16	64	16	43	32 107	15:45	97	457	60	273	157 730
04:00	15	14			29	16:00	135	60			195
04:15	16	20			36	16:15	118	70			188
04:30	25	28			53	16:30	147	74			221
04:45	42	98	58	120	100 218	16:45	85	485	54	258	139 743
05:00	45	53			98	17:00	109	52			161
05:15	68	72			140	17:15	92	69			161
05:30	90	76			166	17:30	115	59			174
05:45	109	312	88	289	197 601	17:45	81	397	81	261	162 658
06:00	85	102			187	18:00	92	57			149
06:15	97	90			187	18:15	77	49			126
06:30	91	62			153	18:30	71	46			117
06:45	95	368	80	334	175 702	18:45	63	303	43	195	106 498
07:00	109	75			184	19:00	53	35			88
07:15	116	78			194	19:15	46	38			84
07:30	131	61			192	19:30	46	61			107
07:45	146	502	71	285	217 787	19:45	36	181	44	178	80 359
08:00	118	70			188	20:00	36	46			82
08:15	109	85			194	20:15	30	42			72
08:30	123	95			218	20:30	30	34			64
08:45	134	484	96	346	230 830	20:45	31	127	52	174	83 301
09:00	108	123			231	21:00	61	44			105
09:15	109	88			197	21:15	46	48			94
09:30	128	87			215	21:30	46	45			91
09:45	112	457	87	385	199 842	21:45	32	185	49	186	81 371
10:00	129	113			242	22:00	51	31			82
10:15	105	55			160	22:15	45	31			76
10:30	76	61			137	22:30	30	41			71
10:45	88	398	83	312	171 710	22:45	31	157	28	131	59 288
11:00	95	52			147	23:00	25	20			45
11:15	79	60			139	23:15	28	27			55
11:30	96	67			163	23:30	23	32			55
11:45	103	373	63	242	166 615	23:45	22	98	15	94	37 192
TOTALS	3215	2482			5697	TOTALS	3701	2587			6288
SPLIT %	56.4%	43.6%			47.5%	SPLIT %	58.9%	41.1%			52.5%

DAILY TOTALS					NB	SB	EB	WB	Total
					6,916	5,069	0	0	11,985
AM Peak Hour	07:15	08:30		08:30	PM Peak Hour	13:45	12:45		14:45
AM Pk Volume	511	402		876	PM Pk Volume	498	303		763
Pk Hr Factor	0.875	0.817		0.948	Pk Hr Factor	0.865	0.881		0.917
7 - 9 Volume	986	631	0	1617	4 - 6 Volume	882	519	0	1401
7 - 9 Peak Hour	07:15	08:00		08:00	4 - 6 Peak Hour	16:00	17:00		16:00
7 - 9 Pk Volume	511	346	0	830	4 - 6 Pk Volume	485	261	0	743
Pk Hr Factor	0.875	0.901	0.000	0.902	Pk Hr Factor	0.825	0.806	0.000	0.840

VOLUME

Center St S/O Commercial St

Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_012

DAILY TOTALS					NB	SB	EB	WB	Total		
					7,595	8,041	0	0	15,636		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00	17	23			40	12:00	82	121			203
00:15	14	23			37	12:15	73	124			197
00:30	18	18			36	12:30	91	173			264
00:45	13	62	20	84	33	12:45	81	327	141	559	222
01:00	13	10			23	13:00	77	157			234
01:15	13	12			25	13:15	98	141			239
01:30	15	21			36	13:30	85	186			271
01:45	19	60	17	60	36	13:45	86	346	143	627	229
02:00	19	33			52	14:00	106	167			273
02:15	7	17			24	14:15	72	124			196
02:30	7	20			27	14:30	146	116			262
02:45	13	46	16	86	29	14:45	107	431	128	535	235
03:00	9	10			19	15:00	102	119			221
03:15	7	8			15	15:15	107	128			235
03:30	4	11			15	15:30	124	166			290
03:45	11	31	25	54	36	15:45	105	438	136	549	241
04:00	6	12			18	16:00	122	159			281
04:15	16	15			31	16:15	176	169			345
04:30	23	21			44	16:30	135	166			301
04:45	13	58	25	73	38	16:45	171	604	165	659	336
05:00	20	25			45	17:00	238	138			376
05:15	26	48			74	17:15	285	189			474
05:30	41	59			100	17:30	297	151			448
05:45	37	124	56	188	93	17:45	280	1100	142	620	422
06:00	50	52			102	18:00	313	143			456
06:15	54	68			122	18:15	284	132			416
06:30	93	67			160	18:30	244	129			373
06:45	76	273	71	258	147	18:45	154	995	129	533	283
07:00	85	81			166	19:00	97	98			195
07:15	101	84			185	19:15	87	95			182
07:30	113	100			213	19:30	70	73			143
07:45	111	410	107	372	218	19:45	51	305	77	343	128
08:00	115	94			209	20:00	43	67			110
08:15	114	95			209	20:15	50	59			109
08:30	89	89			178	20:30	40	64			104
08:45	106	424	107	385	213	20:45	32	165	60	250	92
09:00	80	100			180	21:00	30	74			104
09:15	103	108			211	21:15	37	71			108
09:30	86	86			172	21:30	36	59			95
09:45	79	348	118	412	197	21:45	35	138	70	274	105
10:00	87	94			181	22:00	30	56			86
10:15	94	76			170	22:15	44	55			99
10:30	73	94			167	22:30	53	32			85
10:45	83	337	73	337	156	22:45	27	154	53	196	80
11:00	80	84			164	23:00	38	41			79
11:15	85	102			187	23:15	22	25			47
11:30	70	144			214	23:30	26	19			45
11:45	82	317	126	456	208	23:45	16	102	46	131	62
TOTALS	2490	2765			5255	TOTALS	5105	5276			10381
SPLIT %	47.4%	52.6%			33.6%	SPLIT %	49.2%	50.8%			66.4%

DAILY TOTALS					NB	SB	EB	WB	Total
					7,595	8,041	0	0	15,636
AM Peak Hour	07:30	11:45			11:45	PM Peak Hour	17:15	16:00	17:15
AM Pk Volume	453	544			872	PM Pk Volume	1175	659	1800
Pk Hr Factor	0.985	0.786			0.826	Pk Hr Factor	0.938	0.975	0.949
7 - 9 Volume	834	757	0	0	1591	4 - 6 Volume	1704	1279	0
7 - 9 Peak Hour	07:30	07:30			07:30	4 - 6 Peak Hour	17:00	16:00	17:00
7 - 9 Pk Volume	453	396	0	0	849	4 - 6 Pk Volume	1100	659	0
Pk Hr Factor	0.985	0.925	0.000	0.000	0.974	Pk Hr Factor	0.926	0.975	0.000

VOLUME

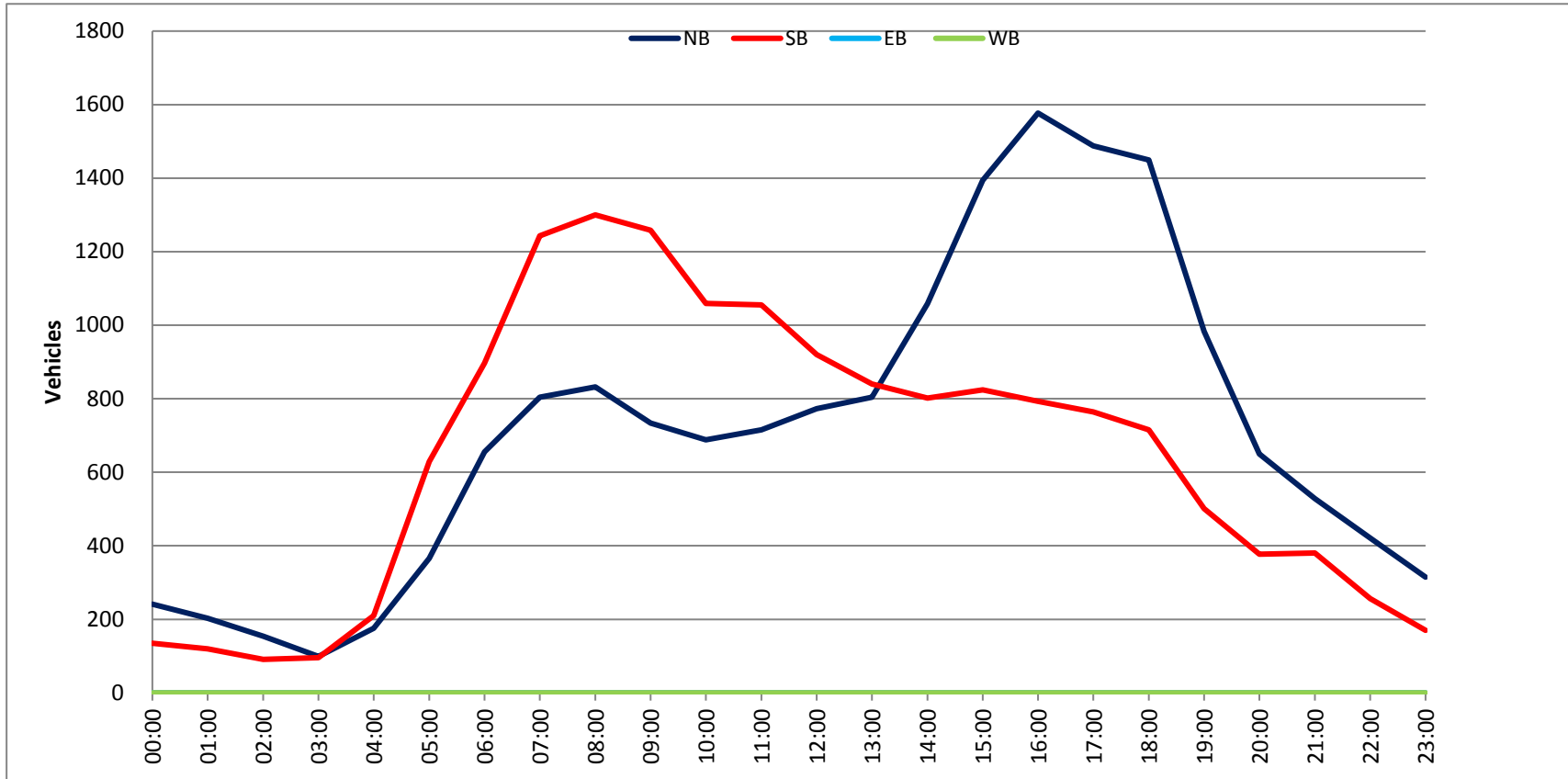
Cesar Chavez Ave E/O Alameda St

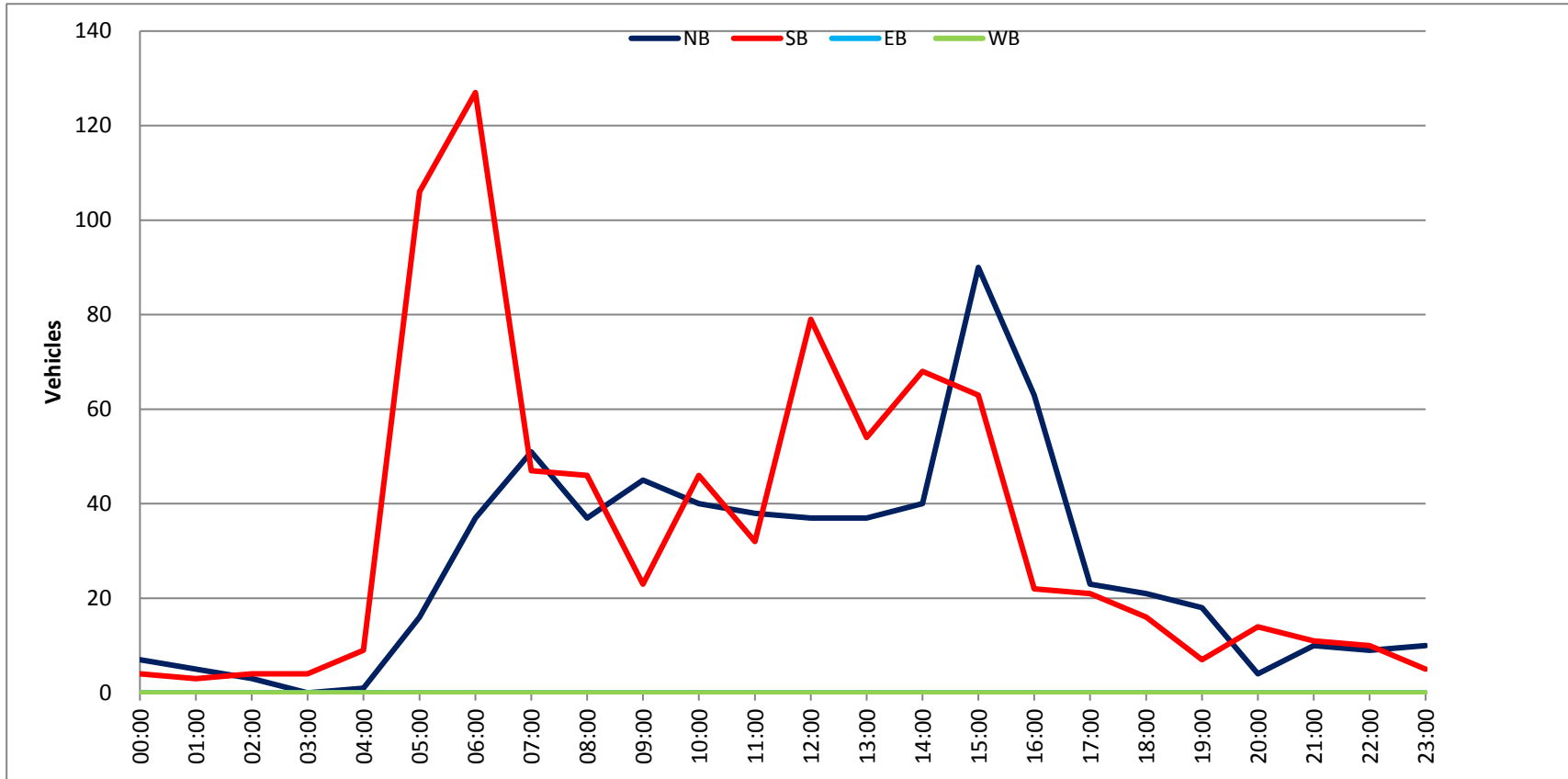
Day: Wednesday
Date: 9/9/2015

City: Los Angeles
Project #: CA15_5565_013

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	11,981	14,113	26,094		
AM Period	NB	SB	EB	WB	TOTAL	PM Period	NB	SB	EB	WB	TOTAL
00:00			37	19	56	12:00			136	162	298
00:15			46	25	71	12:15			182	170	352
00:30			39	24	63	12:30			152	142	294
00:45			27	14	41	12:45			175	645	820
01:00			24	15	39	13:00			180	154	334
01:15			30	13	43	13:15			180	154	334
01:30			24	20	44	13:30			162	164	326
01:45			13	91	12	13:45			174	696	870
02:00			27	15	42	14:00			162	145	307
02:15			28	13	41	14:15			154	163	317
02:30			28	8	36	14:30			173	179	352
02:45			30	113	11	14:45			191	680	871
03:00			18	10	28	15:00			180	142	322
03:15			15	9	24	15:15			188	170	358
03:30			19	20	39	15:30			223	190	413
03:45			34	86	11	15:45			235	826	1061
04:00			26	9	35	16:00			251	188	439
04:15			46	14	60	16:15			297	210	507
04:30			41	20	61	16:30			248	232	480
04:45			64	177	20	16:45			280	1076	1356
05:00			48	32	80	17:00			243	225	468
05:15			83	57	140	17:15			305	228	533
05:30			97	84	181	17:30			272	211	483
05:45			109	337	109	17:45			254	1074	1328
06:00			94	169	263	18:00			229	224	453
06:15			120	244	364	18:15			226	203	429
06:30			107	334	441	18:30			157	182	339
06:45			134	455	356	18:45			157	769	926
07:00			130	396	526	19:00			138	138	276
07:15			171	359	530	19:15			108	97	205
07:30			168	352	520	19:30			136	110	246
07:45			173	642	321	19:45			113	495	608
08:00			150	350	500	20:00			105	79	184
08:15			163	363	526	20:15			100	74	174
08:30			169	342	511	20:30			102	68	170
08:45			173	655	332	20:45			79	386	465
09:00			166	347	513	21:00			77	68	145
09:15			152	339	491	21:15			80	53	133
09:30			143	328	471	21:30			74	68	142
09:45			142	603	333	21:45			84	315	399
10:00			180	305	485	22:00			71	64	135
10:15			161	300	461	22:15			61	48	109
10:30			149	287	436	22:30			73	53	126
10:45			136	626	223	22:45			54	259	313
11:00			138	220	358	23:00			62	47	109
11:15			173	210	383	23:15			47	26	73
11:30			161	159	320	23:30			49	24	73
11:45			151	623	151	23:45			45	203	248
TOTALS			4557	7704	12261	TOTALS			7424	6409	13833
SPLIT %			37.2%	62.8%	47.0%	SPLIT %			53.7%	46.3%	53.0%

DAILY TOTALS					NB	SB	EB	WB	Total		
					0	0	11,981	14,113	26,094		
AM Peak Hour			08:15	06:45	07:00	PM Peak Hour			16:45	17:00	17:00
AM Pk Volume			671	1463	2070	PM Pk Volume			1100	902	1976
Pk Hr Factor			0.970	0.924	0.976	Pk Hr Factor			0.902	0.947	0.927
7 - 9 Volume	0	0	1297	2815	4112	4 - 6 Volume	0	0	2150	1735	3885
7 - 9 Peak Hour			07:15	07:00	07:00	4 - 6 Peak Hour			16:45	17:00	17:00
7 - 9 Pk Volume	0	0	662	1428	2070	4 - 6 Pk Volume	0	0	1100	902	1976
Pk Hr Factor	0.000	0.000	0.957	0.902	0.976	Pk Hr Factor	0.000	0.000	0.902	0.947	0.927





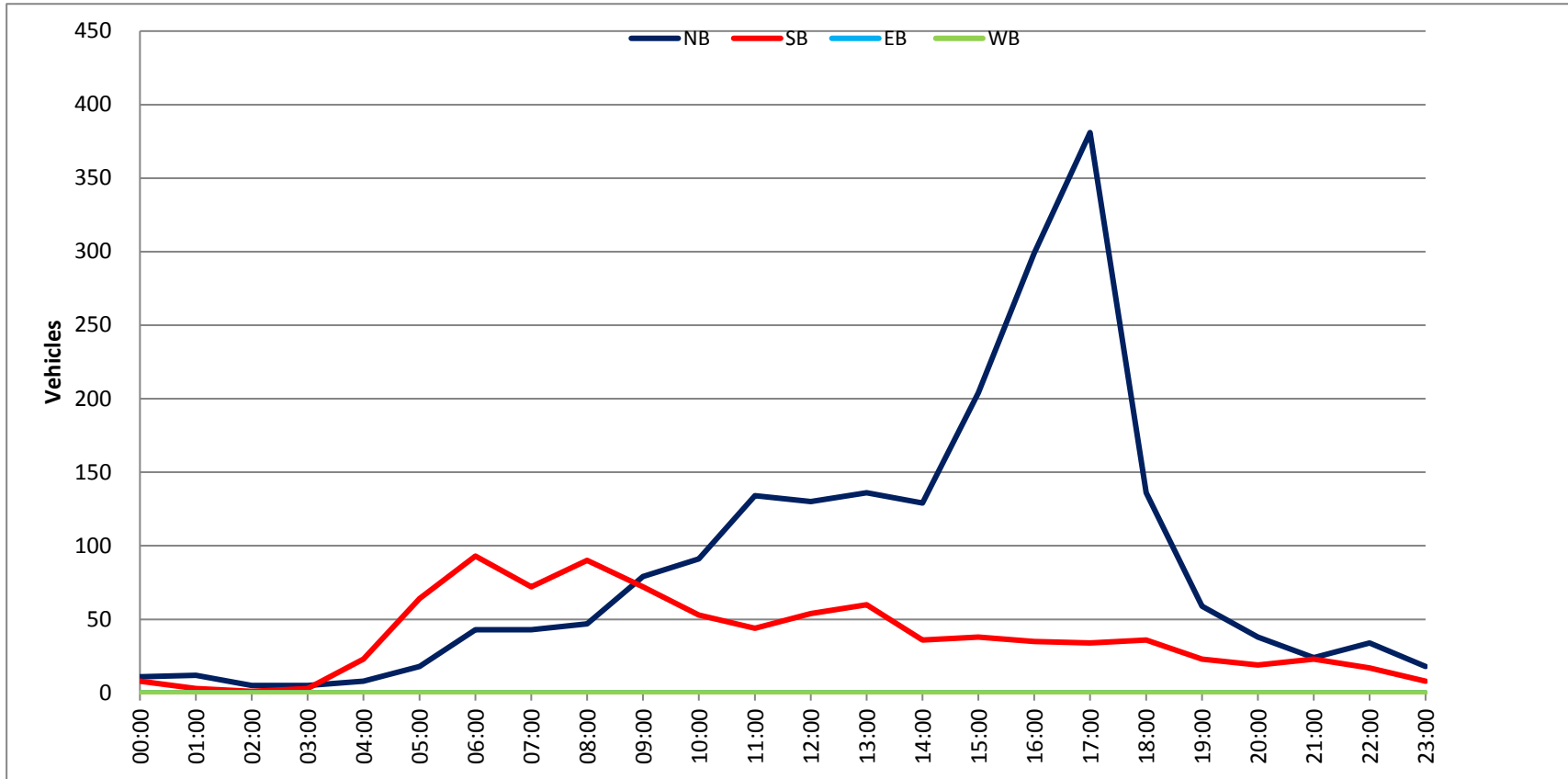
Project #: CA15_5565_004

City: Los Angeles

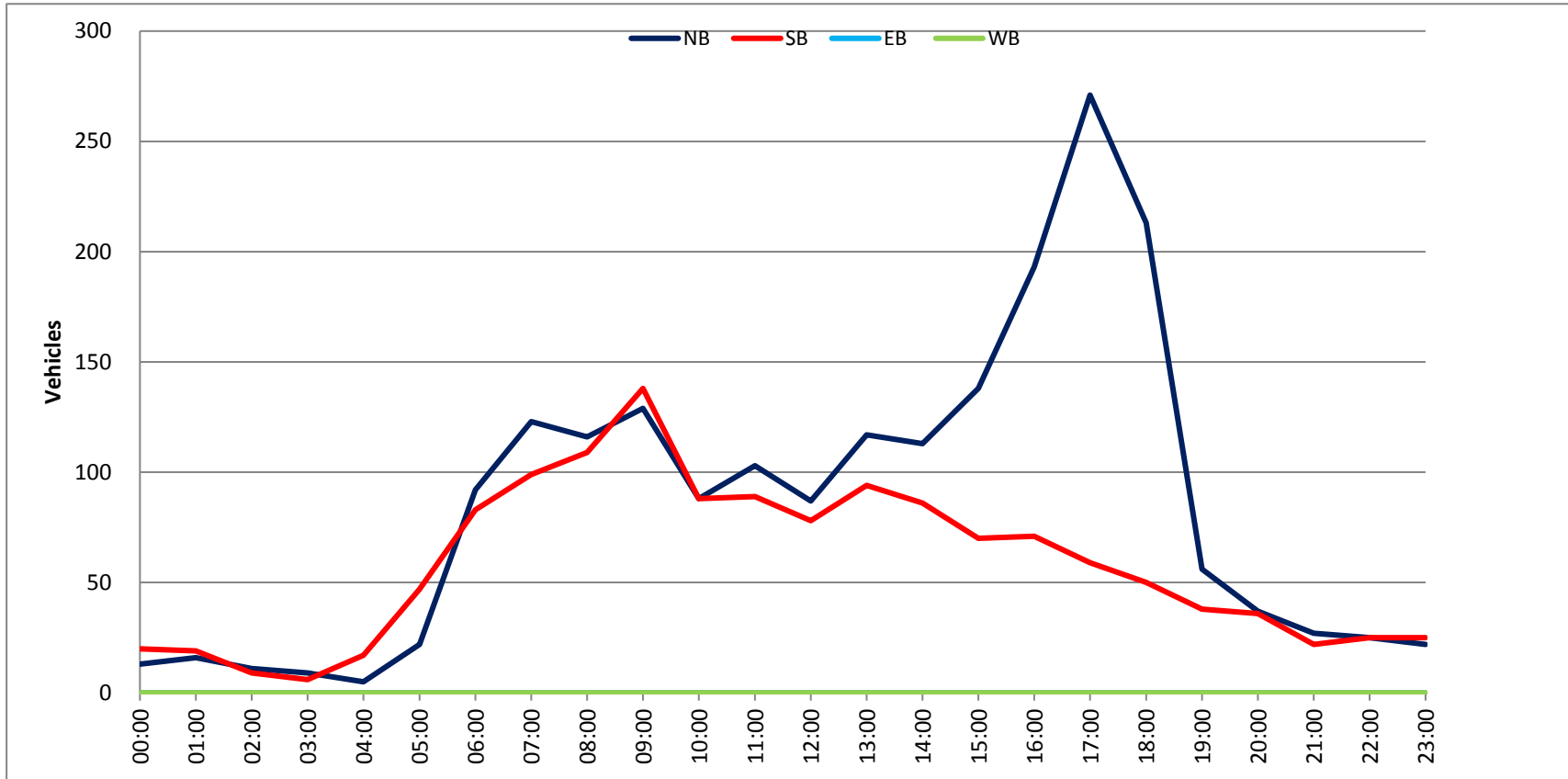
Location: Commercial St W/O Garey St

Date: 9/9/2015

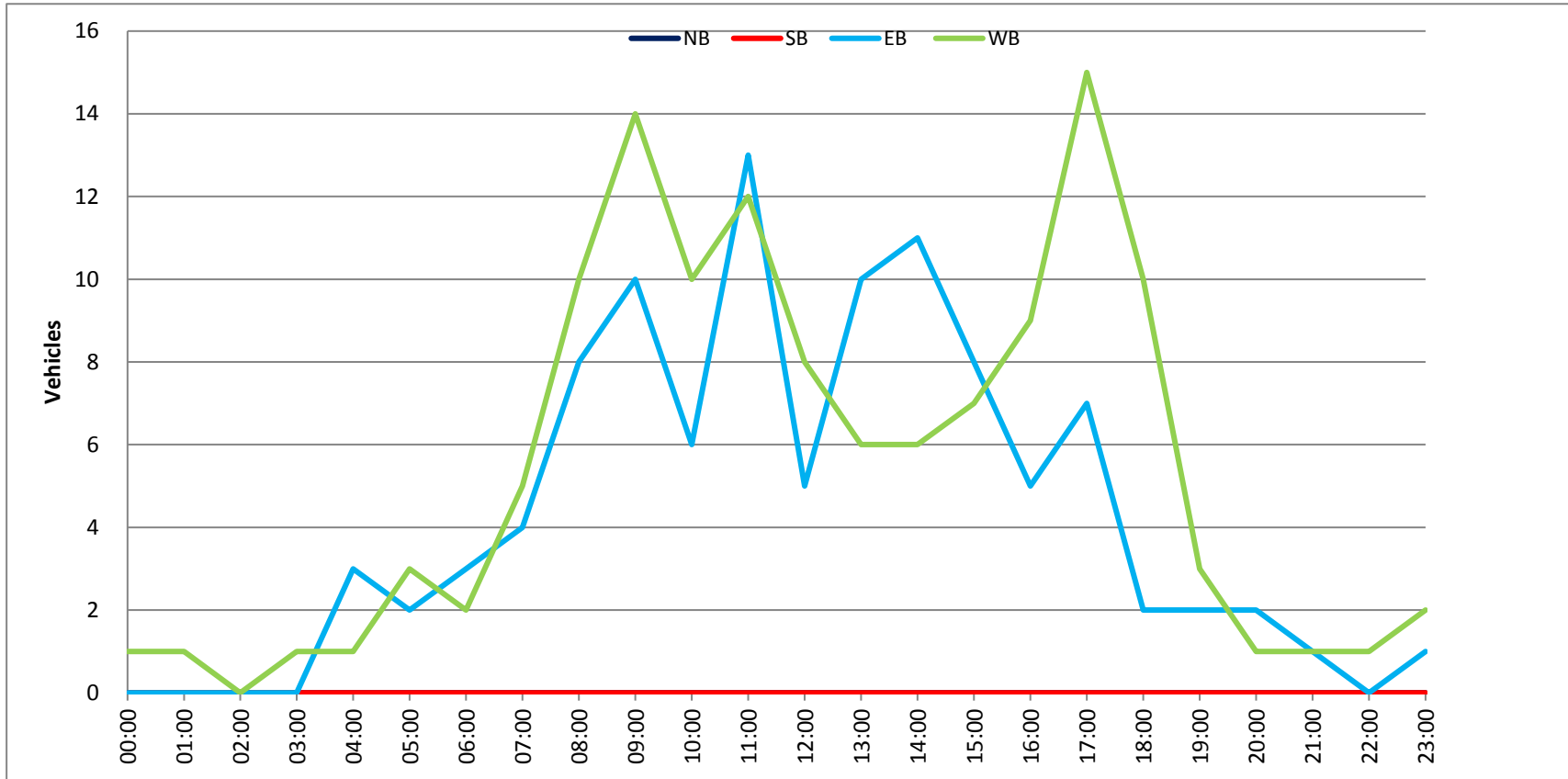




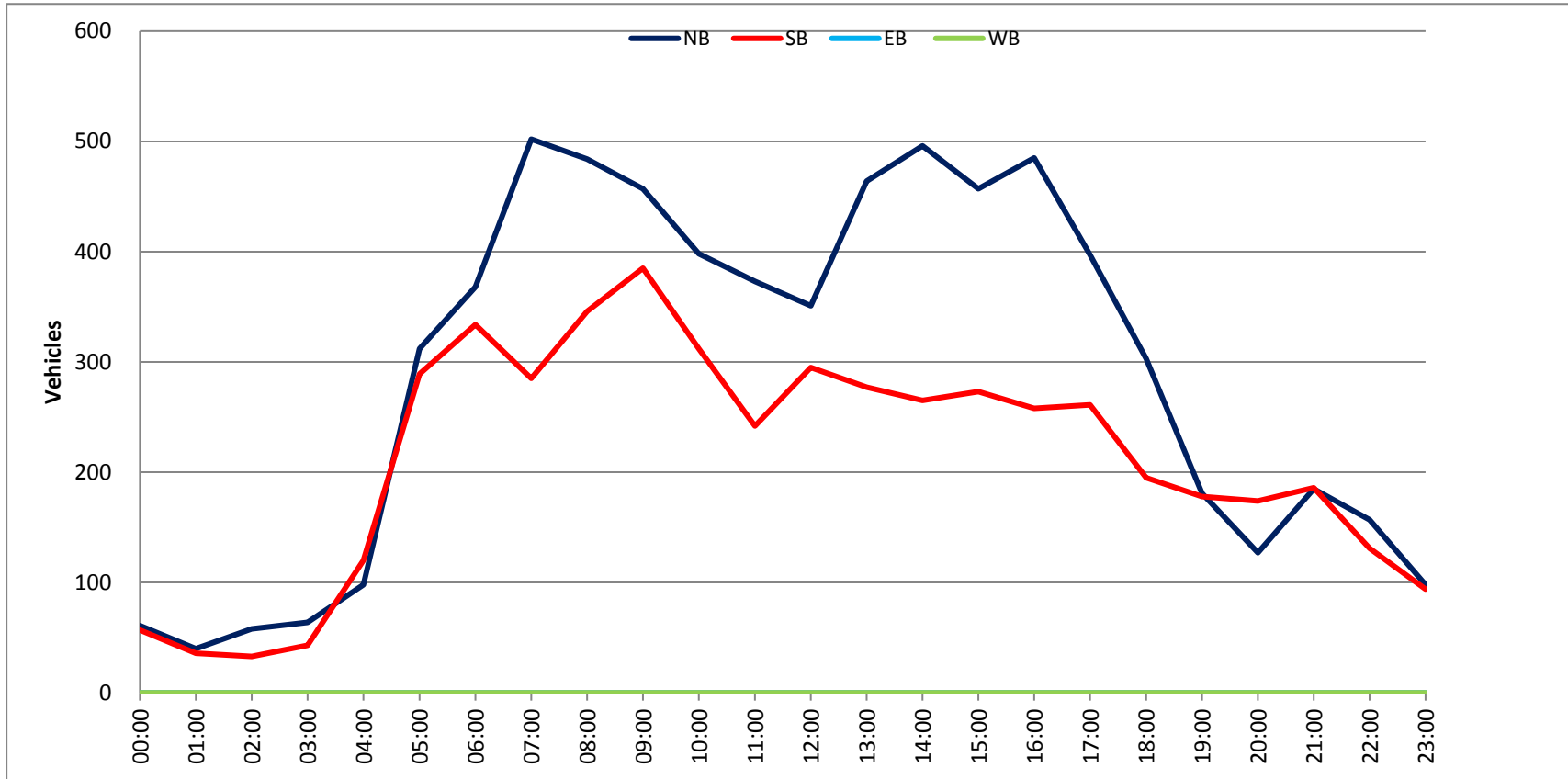


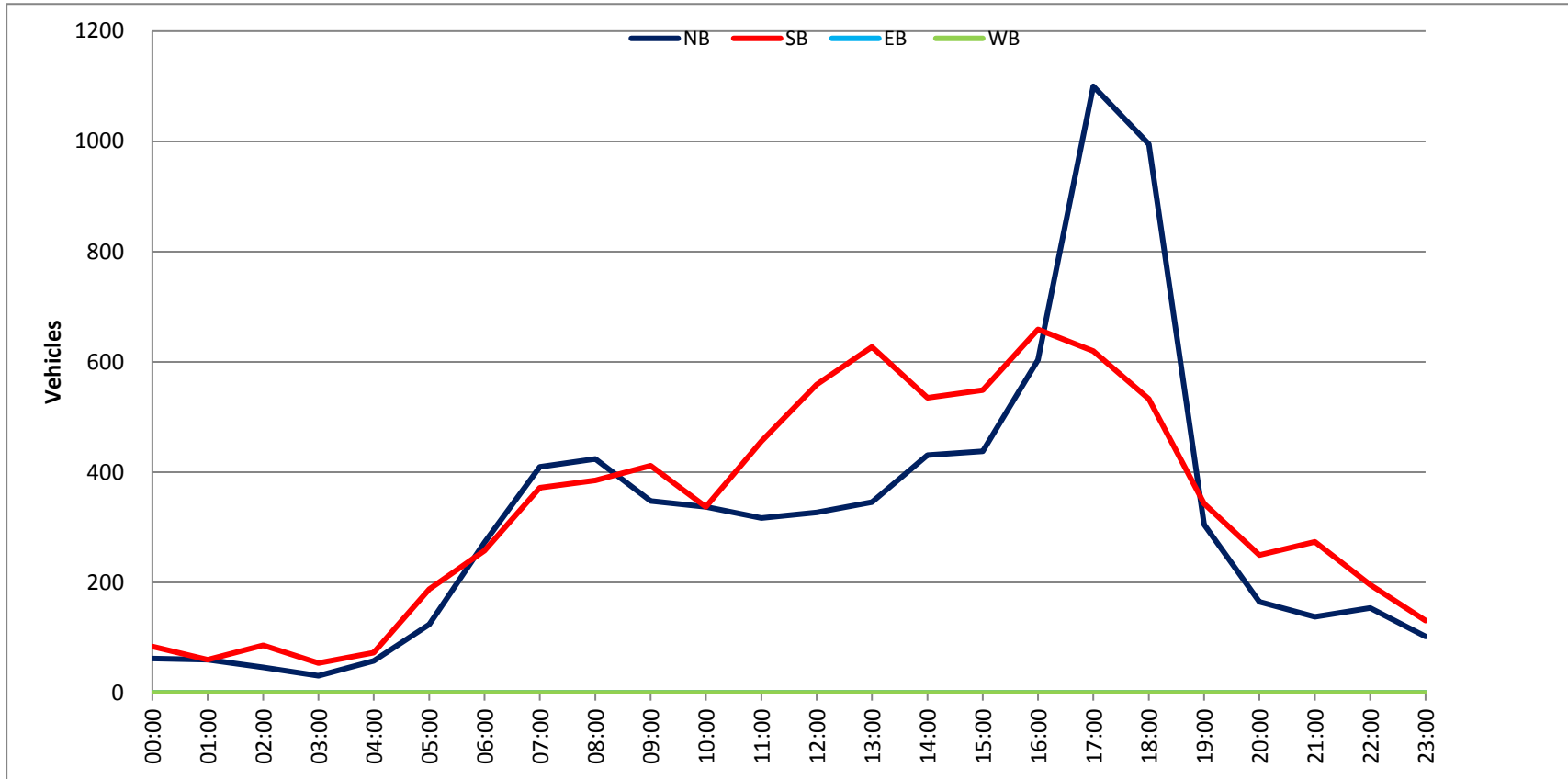


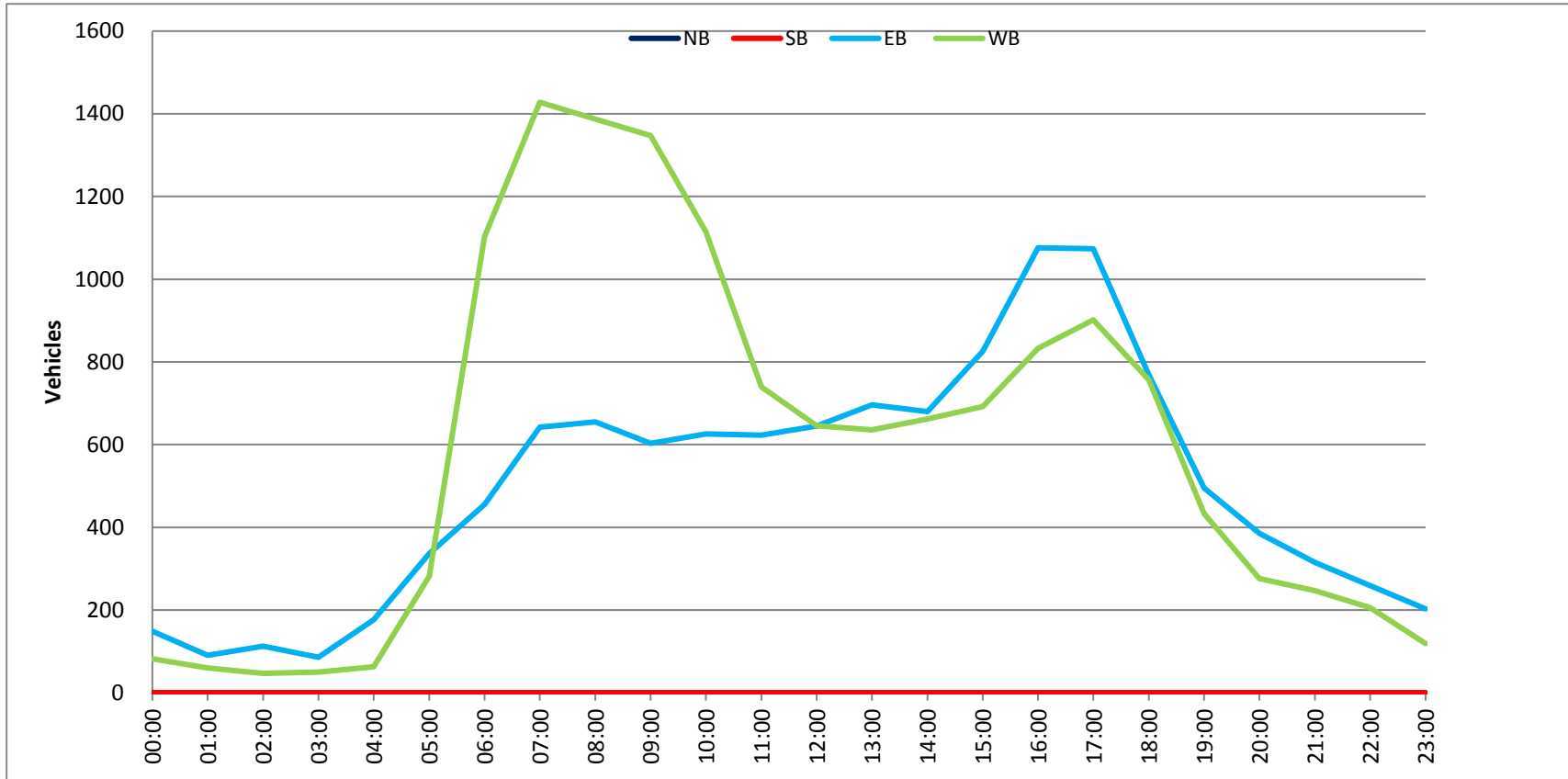












Appendix C: Truck/Vehicle Percentage and Turn Movements

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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-001

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
6:00 AM	0	3	0	0	0	0	3	0	0	0	0	0	6
6:15 AM	0	7	0	0	2	0	3	0	0	0	0	0	12
6:30 AM	0	3	0	0	2	0	6	1	0	0	0	0	12
6:45 AM	0	1	1	0	3	0	5	0	0	0	0	0	10
7:00 AM	0	2	0	0	3	0	3	0	0	1	0	0	9
7:15 AM	0	2	1	0	2	0	6	1	0	0	0	0	12
7:30 AM	0	1	2	0	2	0	9	1	1	0	0	0	16
7:45 AM	0	4	0	0	1	0	9	0	0	2	0	0	16
8:00 AM	0	0	3	0	4	0	5	1	0	0	0	0	13
8:15 AM	0	6	2	0	0	0	7	0	0	0	0	0	15
8:30 AM	0	2	1	0	2	0	8	0	0	0	0	0	13
8:45 AM	0	1	0	0	2	0	6	1	0	0	0	0	10
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	32	10	0	23	0	70	5	1	3	0	0	144
	0.00%	76.19%	23.81%	0.00%	100.00%	0.00%	92.11%	6.58%	1.32%	100.00%	0.00%	0.00%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	9	6	0	8	0	26	2	0	0	0	0	51
PEAK HR FACTOR :	0.469			0.500			0.875			0.000			0.850

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-001

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	1	1	3	0	2	1	1	1	0	1	
3:00 PM	0	2	0	0	4	0	3	0	2	0	0	0	11
3:15 PM	0	1	0	0	1	0	9	1	0	0	0	0	12
3:30 PM	0	1	0	0	2	0	8	1	1	1	0	0	14
3:45 PM	0	1	0	0	0	0	9	0	0	0	0	0	10
4:00 PM	0	0	0	0	1	0	10	1	0	0	0	0	12
4:15 PM	0	2	0	0	3	0	13	1	1	1	0	0	21
4:30 PM	0	2	0	0	3	0	16	0	0	0	0	0	21
4:45 PM	0	0	0	0	7	0	13	0	0	0	0	0	20
5:00 PM	0	1	0	0	2	0	15	4	0	0	0	0	22
5:15 PM	0	3	0	0	6	0	12	0	0	0	0	0	21
5:30 PM	0	0	0	0	3	0	21	0	0	0	0	0	24
5:45 PM	0	1	0	0	1	0	18	2	0	0	0	0	22
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	14	0	0	33	0	147	10	4	2	0	0	210
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	91.30%	6.21%	2.48%	100.00%	0.00%	0.00%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0	4	0	0	14	0	52	2	1	1	0	0	74
PEAK HR FACTOR :	0.500			0.500			0.859			0.250			0.881

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-001

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	1	1	3	0	2	1	1	1	0	1	
6:00 AM	0	14	1	0	10	0	0	0	1	4	0	0	30
6:15 AM	0	12	1	1	10	0	0	0	0	1	0	0	25
6:30 AM	0	9	2	5	5	0	0	0	0	1	0	2	24
6:45 AM	0	10	1	0	7	0	0	1	0	0	0	1	20
7:00 AM	0	21	0	2	6	0	0	0	0	1	0	1	31
7:15 AM	0	17	2	2	12	0	0	0	2	1	0	2	38
7:30 AM	0	16	0	5	9	0	1	0	0	1	0	7	39
7:45 AM	0	16	1	2	7	0	0	0	1	0	0	4	31
8:00 AM	0	9	3	0	6	0	0	0	1	4	0	4	27
8:15 AM	0	22	2	1	11	0	0	0	0	1	0	4	41
8:30 AM	0	15	1	1	6	0	0	0	1	1	0	10	35
8:45 AM	0	17	3	3	15	0	0	0	0	3	0	6	47
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	178	17	22	104	0	1	1	6	18	0	41	388
	0.00%	91.28%	8.72%	17.46%	82.54%	0.00%	12.50%	12.50%	75.00%	30.51%	0.00%	69.49%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	63	9	5	38	0	0	0	2	9	0	24	150
PEAK HR FACTOR :	0.750			0.597			0.500			0.750			0.798

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-001

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	1	1	3	0	2	1	1	1	0	1	
3:00 PM	0	5	3	1	8	0	0	0	1	2	0	0	20
3:15 PM	0	7	2	6	5	0	0	2	0	3	0	1	26
3:30 PM	0	7	2	2	10	0	0	5	1	4	0	0	31
3:45 PM	0	5	0	0	4	0	1	0	1	1	0	0	12
4:00 PM	0	4	0	2	7	0	0	0	0	1	0	2	16
4:15 PM	0	8	1	0	6	0	1	0	1	1	0	1	19
4:30 PM	0	6	0	0	7	0	1	0	0	2	0	1	17
4:45 PM	0	8	1	0	2	0	2	0	1	0	0	0	14
5:00 PM	0	5	1	2	4	0	0	0	0	0	0	1	13
5:15 PM	0	1	0	1	2	0	0	0	0	2	0	0	6
5:30 PM	0	3	0	1	3	0	3	0	0	1	0	2	13
5:45 PM	0	4	0	0	4	0	5	0	0	0	0	0	13
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	63	10	15	62	0	13	7	5	17	0	8	200
	0.00%	86.30%	13.70%	19.48%	80.52%	0.00%	52.00%	28.00%	20.00%	68.00%	0.00%	32.00%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0	26	2	2	22	0	4	0	2	4	0	4	66
PEAK HR FACTOR :	0.778			0.667			0.500			0.667			0.868

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
6:00 AM	0	0	0	2	1	0	0	0	0	0	0	0	3
6:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	3
6:30 AM	0	0	0	4	0	0	0	1	0	0	0	0	5
6:45 AM	0	0	0	3	1	0	0	1	0	0	0	0	5
7:00 AM	0	0	0	4	1	0	0	0	0	0	0	2	7
7:15 AM	0	0	0	2	1	0	0	2	0	0	0	2	7
7:30 AM	0	0	0	3	0	0	2	1	0	0	0	0	6
7:45 AM	0	0	0	3	0	0	0	0	0	0	1	1	5
8:00 AM	0	0	0	2	1	0	1	3	0	0	0	1	8
8:15 AM	0	0	0	4	0	0	0	2	0	0	2	2	10
8:30 AM	0	0	0	4	0	0	0	1	0	0	0	0	5
8:45 AM	0	0	0	3	0	0	0	1	0	0	0	1	5
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	34	6	0	3	12	0	0	3	11	69
				85.00%	15.00%	0.00%	20.00%	80.00%	0.00%	0.00%	21.43%	78.57%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	12	1	0	3	6	0	0	3	4	29
PEAK HR FACTOR :	0.000			0.813			0.563			0.438			0.725

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
3:00 PM	0	0	0	2	0	0	0	0	0	0	0	0	2
3:15 PM	0	0	0	4	1	0	0	1	0	0	0	0	6
3:30 PM	0	0	0	1	1	0	0	1	0	0	1	0	4
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	2	2
4:00 PM	0	0	0	2	0	0	0	1	0	1	0	0	4
4:15 PM	0	0	0	3	0	1	0	0	1	0	0	1	6
4:30 PM	0	0	0	3	2	0	0	0	0	0	0	2	7
4:45 PM	0	0	0	2	0	0	0	0	0	0	0	1	3
5:00 PM	0	0	0	2	0	0	0	4	0	1	0	0	7
5:15 PM	0	0	0	2	0	0	0	0	0	0	0	1	3
5:30 PM	0	0	0	1	0	0	0	0	0	0	0	1	2
5:45 PM	0	0	0	4	0	0	0	2	0	0	1	1	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	26	4	1	0	9	1	2	2	9	54
				83.87%	12.90%	3.23%	0.00%	90.00%	10.00%	15.38%	15.38%	69.23%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	0	0	9	2	0	0	4	0	1	0	4	20
PEAK HR FACTOR :	0.000			0.550			0.250			0.625			0.714

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
6:00 AM	0	0	0	2	0	5	1	0	0	0	0	1	9
6:15 AM	0	0	0	2	0	2	2	0	0	0	1	3	10
6:30 AM	0	0	0	4	0	2	5	1	0	0	1	1	14
6:45 AM	1	0	0	4	0	0	1	0	0	0	0	1	7
7:00 AM	1	1	1	3	0	0	0	2	0	0	2	0	10
7:15 AM	0	0	0	5	0	0	0	2	0	0	0	2	9
7:30 AM	1	1	1	3	1	1	4	1	0	0	1	3	17
7:45 AM	0	3	0	3	0	1	2	1	0	0	1	4	15
8:00 AM	1	0	0	7	0	5	3	0	0	0	2	3	21
8:15 AM	0	0	0	3	0	2	1	3	0	0	2	2	13
8:30 AM	1	0	0	6	0	9	2	0	0	0	2	1	21
8:45 AM	0	3	0	5	0	7	6	1	0	0	5	2	29
TOTAL VOLUMES :	5	8	2	47	1	34	27	11	0	0	17	23	175
APPROACH %'s :	33.33%	53.33%	13.33%	57.32%	1.22%	41.46%	71.05%	28.95%	0.00%	0.00%	42.50%	57.50%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	2	4	1	16	1	9	10	5	0	0	6	12	66
PEAK HR FACTOR :	0.583			0.542			0.750			0.900			0.786

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	0	1	1	2	1	0	1	2	0	
3:00 PM	0	2	0	3	1	4	2	1	0	0	1	1	15
3:15 PM	0	1	0	1	1	2	3	1	0	0	2	1	12
3:30 PM	0	0	0	2	0	4	5	2	0	0	2	2	17
3:45 PM	0	0	0	3	0	1	0	0	0	0	1	0	5
4:00 PM	0	0	0	4	0	3	1	0	0	0	0	3	11
4:15 PM	0	0	0	3	0	1	1	0	0	0	0	4	9
4:30 PM	0	1	1	4	0	2	0	0	0	0	0	1	9
4:45 PM	0	0	0	1	0	2	1	0	0	0	0	2	6
5:00 PM	0	1	0	2	0	1	3	1	0	0	0	2	10
5:15 PM	0	0	0	4	0	1	2	0	0	0	0	2	9
5:30 PM	0	0	0	6	0	2	1	0	0	0	0	1	10
5:45 PM	0	1	0	3	0	0	0	0	0	0	0	2	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	6	1	36	2	23	19	5	0	0	6	21	119
	0.00%	85.71%	14.29%	59.02%	3.28%	37.70%	79.17%	20.83%	0.00%	0.00%	22.22%	77.78%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	2	1	11	0	6	6	1	0	0	0	7	34
PEAK HR FACTOR :	0.375			0.708			0.438			0.875			0.850

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL																	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																		
	1	0	1	0	0	0	0	1	0	1	1	0																		
6:00 AM	0	0	4	0	0	0	0	3	0	2	0	0	9																	
6:15 AM	0	0	3	0	0	0	0	0	0	4	2	0	9																	
6:30 AM	0	0	2	0	0	0	0	5	0	2	0	0	9																	
6:45 AM	0	0	4	0	0	0	0	4	0	4	0	0	12																	
7:00 AM	0	0	5	0	0	0	0	3	0	2	3	0	13																	
7:15 AM	0	0	5	0	0	0	0	5	0	5	1	0	16																	
7:30 AM	0	0	2	0	0	0	0	2	1	3	0	0	8																	
7:45 AM	0	0	7	0	0	0	0	4	0	2	2	0	15																	
8:00 AM	0	0	4	0	0	0	0	4	0	3	2	0	13																	
8:15 AM	0	0	2	0	0	0	0	6	0	3	3	0	14																	
8:30 AM	0	0	5	0	0	0	0	4	1	4	0	0	14																	
8:45 AM	0	0	4	0	0	0	0	4	0	3	1	0	12																	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																	
APPROACH %'s :	0	0	47	0	0	0	0	44	2	37	14	0	144																	
	0.00%	0.00%	100.00%				0.00%	95.65%	4.35%	72.55%	27.45%	0.00%																		
PEAK HR START TIME :	730 AM												TOTAL																	
PEAK HR VOL :	0			0			15			0			16			1			11			7			0			50		
PEAK HR FACTOR :	0.536			0.000			0.708			0.750			0.833																	

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
3:00 PM	0	0	4	0	0	0	0	2	0	2	0	0	8
3:15 PM	0	0	2	0	0	0	0	5	0	3	0	0	10
3:30 PM	0	0	3	0	0	0	0	2	0	3	1	0	9
3:45 PM	0	0	6	0	0	0	0	0	0	4	3	0	13
4:00 PM	0	0	1	0	0	0	0	3	0	2	0	0	6
4:15 PM	0	0	4	0	0	0	0	3	0	5	1	0	13
4:30 PM	0	0	2	0	0	0	0	2	0	1	2	0	7
4:45 PM	0	0	4	0	0	0	0	3	0	2	2	0	11
5:00 PM	0	0	3	0	0	0	0	5	0	4	0	0	12
5:15 PM	0	0	1	0	0	0	0	3	0	2	1	0	7
5:30 PM	0	0	2	0	0	0	0	1	0	2	1	0	6
5:45 PM	0	0	1	0	0	0	0	6	0	1	2	0	10
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	33	0	0	0	0	35	0	31	13	0	112
	0.00%	0.00%	100.00%				0.00%	100.00%	0.00%	70.45%	29.55%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	7	0	0	0	0	15	0	9	4	0	35
PEAK HR FACTOR :	0.583			0.000			0.625			0.813			0.729

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
6:00 AM	0	0	0	0	0	0	0	4	0	0	2	0	6
6:15 AM	1	0	1	0	0	0	0	2	0	0	3	0	7
6:30 AM	1	0	0	0	0	0	0	4	0	0	1	0	6
6:45 AM	0	0	1	0	0	0	0	4	0	0	1	0	6
7:00 AM	0	0	0	0	0	0	0	4	2	0	2	0	8
7:15 AM	0	0	0	0	0	0	0	7	0	6	2	0	15
7:30 AM	1	0	0	0	0	0	0	4	1	2	3	0	11
7:45 AM	0	0	2	0	0	0	0	4	0	0	5	0	11
8:00 AM	0	0	1	0	0	0	0	7	0	2	6	0	16
8:15 AM	1	0	0	0	0	0	0	5	0	0	1	0	7
8:30 AM	0	0	1	0	0	0	0	6	0	2	3	0	12
8:45 AM	2	0	2	0	0	0	0	6	0	0	5	0	15
TOTAL VOLUMES :	6	0	8	0	0	0	0	57	3	12	34	0	120
APPROACH %'s :	42.86%	0.00%	57.14%				0.00%	95.00%	5.00%	26.09%	73.91%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	2	0	3	0	0	0	0	20	1	4	15	0	45
PEAK HR FACTOR :	0.625			0.000			0.750			0.594			0.703

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
3:00 PM	0	0	0	0	0	0	0	4	0	0	4	0	8
3:15 PM	0	0	0	0	0	0	0	2	0	1	2	0	5
3:30 PM	0	0	3	0	0	0	0	4	0	0	3	0	10
3:45 PM	0	0	1	0	0	0	0	2	1	1	1	0	6
4:00 PM	0	0	1	0	0	0	0	4	0	0	2	0	7
4:15 PM	0	0	2	0	0	0	0	3	0	1	4	0	10
4:30 PM	0	0	1	0	0	0	0	5	0	2	0	0	8
4:45 PM	0	0	4	0	0	0	0	1	0	1	2	0	8
5:00 PM	0	0	2	0	0	0	0	3	0	0	2	0	7
5:15 PM	0	0	0	0	0	0	0	4	0	0	2	0	6
5:30 PM	0	0	4	0	0	0	0	6	0	0	1	0	11
5:45 PM	1	0	4	0	0	0	0	3	0	0	3	0	11
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	0	22	0	0	0	0	41	1	6	26	0	97
	4.35%	0.00%	95.65%				0.00%	97.62%	2.38%	18.75%	81.25%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	0	10	0	0	0	0	16	0	0	8	0	35
PEAK HR FACTOR :	0.550			0.000			0.667			0.667			0.795

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	1	1	0	1	0	0	1	0	
6:00 AM	0	6	0	0	2	3	7	0	0	0	0	0	18
6:15 AM	0	4	0	0	3	5	3	0	0	0	0	0	15
6:30 AM	0	4	0	0	3	3	7	0	0	0	0	0	17
6:45 AM	0	5	0	0	2	3	7	0	1	0	0	0	18
7:00 AM	0	4	0	0	6	6	7	0	1	0	0	0	24
7:15 AM	0	7	0	0	5	6	10	0	0	0	0	0	28
7:30 AM	0	12	0	0	7	2	4	0	0	0	0	0	25
7:45 AM	0	4	0	0	2	4	10	0	1	0	0	0	21
8:00 AM	0	5	0	0	4	5	6	0	2	0	0	0	22
8:15 AM	0	8	0	0	5	7	6	0	1	0	0	0	27
8:30 AM	0	4	0	0	3	3	10	0	0	0	0	0	20
8:45 AM	0	6	0	0	5	4	8	0	0	0	0	0	23
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	69	0	0	47	51	85	0	6	0	0	0	258
	0.00%	100.00%	0.00%	0.00%	47.96%	52.04%	93.41%	0.00%	6.59%				
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	29	0	0	18	18	26	0	4	0	0	0	95
PEAK HR FACTOR :	0.604			0.750			0.682			0.000			0.880

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 1	SR 1	EL 0	ET 1	ER 0	WL 0	WT 1	WR 0	
3:00 PM	0	4	0	0	4	2	4	0	1	0	0	0	15
3:15 PM	0	6	0	0	5	3	7	0	1	0	0	0	22
3:30 PM	0	6	0	0	4	5	5	0	0	0	0	0	20
3:45 PM	0	2	0	0	5	6	6	0	0	0	0	0	19
4:00 PM	0	5	0	0	2	2	2	0	1	0	0	0	12
4:15 PM	0	9	0	0	9	6	7	0	1	0	0	0	32
4:30 PM	0	7	0	0	6	3	3	0	0	0	0	0	19
4:45 PM	0	8	0	0	2	4	7	0	1	0	0	0	22
5:00 PM	0	4	0	0	0	4	8	0	0	0	0	0	16
5:15 PM	0	1	0	0	4	3	4	0	0	0	0	0	12
5:30 PM	0	4	0	0	3	4	2	0	0	0	0	0	13
5:45 PM	0	3	0	0	0	2	8	0	0	0	0	0	13
TOTAL VOLUMES :	NL 0	NT 59	NR 0	SL 0	ST 44	SR 44	EL 63	ET 0	ER 5	WL 0	WT 0	WR 0	TOTAL 215
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	92.65%	0.00%	7.35%				
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	20	0	0	12	14	22	0	1	0	0	0	69
PEAK HR FACTOR :	0.625			0.722			0.719			0.000			0.784

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	1	1	0	1	0	0	1	0	
6:00 AM	1	1	0	0	1	0	3	1	0	0	1	0	8
6:15 AM	0	2	0	0	4	3	2	0	1	0	1	0	13
6:30 AM	0	4	0	0	2	1	1	0	2	0	0	0	10
6:45 AM	0	3	0	1	5	1	3	0	1	2	0	0	16
7:00 AM	2	6	0	0	0	2	4	0	0	1	0	0	15
7:15 AM	2	4	0	0	4	0	8	1	1	0	4	0	24
7:30 AM	3	10	1	0	3	3	3	1	0	0	1	0	25
7:45 AM	2	5	1	0	3	2	6	0	1	1	1	0	22
8:00 AM	3	4	0	0	6	3	7	0	1	0	0	0	24
8:15 AM	2	5	1	0	5	0	6	1	0	0	1	0	21
8:30 AM	1	6	1	1	6	3	5	0	0	0	0	0	23
8:45 AM	1	7	0	1	10	4	8	0	1	0	0	0	32
TOTAL VOLUMES :	17	57	4	3	49	22	56	4	8	4	9	0	233
APPROACH %'s :	21.79%	73.08%	5.13%	4.05%	66.22%	29.73%	82.35%	5.88%	11.76%	30.77%	69.23%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	10	24	3	0	17	8	22	2	2	1	3	0	92
PEAK HR FACTOR :	0.661			0.694			0.813			0.500			0.920

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	1	1	0	1	0	0	1	0	
3:00 PM	0	2	0	0	1	0	2	0	2	0	1	0	8
3:15 PM	0	5	0	0	4	2	0	0	1	0	1	0	13
3:30 PM	1	9	2	0	2	4	6	2	0	1	0	0	27
3:45 PM	0	12	0	0	3	1	1	1	1	2	1	0	22
4:00 PM	0	8	0	0	6	2	7	0	0	1	0	1	25
4:15 PM	1	3	0	0	7	3	4	0	0	0	0	0	18
4:30 PM	1	5	3	0	3	2	6	1	1	0	0	0	22
4:45 PM	1	7	0	0	2	3	4	0	0	0	0	0	17
5:00 PM	0	8	0	0	2	2	3	1	0	0	0	0	16
5:15 PM	0	13	0	0	2	2	6	0	0	0	0	0	23
5:30 PM	0	11	0	0	3	1	7	0	0	1	0	0	23
5:45 PM	0	9	0	0	4	2	10	0	0	0	0	0	25
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	4	92	5	0	39	24	56	5	5	5	3	1	239
	3.96%	91.09%	4.95%	0.00%	61.90%	38.10%	84.85%	7.58%	7.58%	55.56%	33.33%	11.11%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	2	33	3	0	9	9	19	2	1	0	0	0	78
PEAK HR FACTOR :	0.731			0.900			0.688			0.000			0.848

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	1	1	2	0	1	2	0	
6:00 AM	0	2	0	0	0	0	0	5	0	0	5	0	12
6:15 AM	0	6	0	0	0	2	1	5	0	0	4	0	18
6:30 AM	0	2	0	0	0	2	1	5	0	0	5	0	15
6:45 AM	0	1	0	0	1	2	1	7	0	0	5	0	17
7:00 AM	0	2	0	0	1	2	1	7	0	0	6	0	19
7:15 AM	0	1	0	0	3	0	1	10	0	0	5	0	20
7:30 AM	0	2	0	0	1	2	2	4	0	0	5	0	16
7:45 AM	1	1	0	0	2	1	2	10	0	0	4	0	21
8:00 AM	0	2	0	0	3	1	2	7	1	0	7	0	23
8:15 AM	0	2	0	0	0	0	4	6	0	0	3	1	16
8:30 AM	0	1	0	0	1	1	2	4	0	0	5	0	14
8:45 AM	0	1	0	0	1	0	1	6	1	0	6	0	16
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	23	0	0	13	13	18	76	2	0	60	1	207
	4.17%	95.83%	0.00%	0.00%	50.00%	50.00%	18.75%	79.17%	2.08%	0.00%	98.36%	1.64%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	6	0	0	6	3	10	27	1	0	19	1	74
PEAK HR FACTOR :	0.875			0.563			0.792			0.714			0.804

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
3:00 PM	0	0	0	0	2	4	1	5	0	0	5	0	17																										
3:15 PM	0	0	0	0	0	1	1	6	0	0	5	0	13																										
3:30 PM	0	1	0	0	0	3	0	3	0	0	4	0	11																										
3:45 PM	0	1	0	0	0	1	0	8	1	0	10	0	21																										
4:00 PM	0	0	0	0	1	0	0	5	0	0	5	0	11																										
4:15 PM	0	1	0	0	1	3	2	4	1	0	7	0	19																										
4:30 PM	1	1	0	0	1	3	0	2	0	0	6	0	14																										
4:45 PM	1	0	0	0	2	4	0	6	0	0	6	0	19																										
5:00 PM	0	1	0	0	1	3	1	7	1	0	6	0	20																										
5:15 PM	0	0	0	0	1	5	1	4	0	0	8	0	19																										
5:30 PM	0	1	0	0	0	2	0	2	0	0	3	0	8																										
5:45 PM	0	0	0	0	0	2	1	3	0	0	3	0	9																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	2	6	0	0	9	31	7	55	3	0	68	0	181																										
	25.00%	75.00%	0.00%	0.00%	22.50%	77.50%	10.77%	84.62%	4.62%	0.00%	100.00%	0.00%																											
PEAK HR START TIME :	400 PM												TOTAL																										
PEAK HR VOL :	2			2			0			0			5			10			2			17			1			0			24			0			63		
PEAK HR FACTOR :	0.500			0.625			0.714			0.857			0.829																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	1	1	2	0	1	2	0	
6:00 AM	1	14	0	0	15	1	0	0	1	0	1	0	33
6:15 AM	0	10	0	0	7	1	0	0	1	0	0	0	19
6:30 AM	0	13	0	0	4	0	0	0	1	0	1	0	19
6:45 AM	1	10	0	0	6	2	1	0	2	1	2	0	25
7:00 AM	2	21	0	0	2	2	1	0	0	0	1	0	29
7:15 AM	0	14	0	0	12	1	0	0	1	1	2	2	33
7:30 AM	2	19	0	1	11	1	0	2	0	0	2	0	38
7:45 AM	1	12	0	0	7	1	2	1	0	0	3	0	27
8:00 AM	3	17	0	0	11	3	0	0	0	0	4	0	38
8:15 AM	1	22	0	0	12	4	2	3	0	1	1	0	46
8:30 AM	4	10	0	0	7	2	1	1	1	0	2	1	29
8:45 AM	2	19	0	1	9	4	3	4	0	0	1	0	43
TOTAL VOLUMES :	17	181	0	2	103	22	10	11	7	3	20	3	379
APPROACH %'s :	8.59%	91.41%	0.00%	1.57%	81.10%	17.32%	35.71%	39.29%	25.00%	11.54%	76.92%	11.54%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	9	61	0	0	37	10	5	5	1	1	10	1	140
PEAK HR FACTOR :	0.761			0.734			0.550			0.750			0.761

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	1	1	2	0	1	2	0	
3:00 PM	1	6	0	0	7	4	0	0	4	0	1	0	23
3:15 PM	0	7	0	0	6	1	0	1	0	0	1	0	16
3:30 PM	0	6	0	0	16	0	1	2	5	1	0	0	31
3:45 PM	0	8	0	0	5	1	0	2	1	1	1	0	19
4:00 PM	0	7	0	1	8	0	0	0	2	0	0	0	18
4:15 PM	2	8	0	1	5	1	0	2	4	1	0	1	25
4:30 PM	0	5	0	0	8	2	0	4	0	0	0	0	19
4:45 PM	1	10	0	0	0	1	1	2	0	0	2	0	17
5:00 PM	0	3	0	0	3	0	0	3	1	0	0	0	10
5:15 PM	0	2	0	0	3	2	0	1	6	0	0	0	14
5:30 PM	0	3	0	0	5	0	1	2	4	0	0	0	15
5:45 PM	1	4	0	0	4	2	0	0	4	0	0	0	15
TOTAL VOLUMES :	5	69	0	2	70	14	3	19	31	3	5	1	222
APPROACH %'s :	6.76%	93.24%	0.00%	2.33%	81.40%	16.28%	5.66%	35.85%	58.49%	33.33%	55.56%	11.11%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	3	30	0	2	21	4	1	8	6	1	2	1	79
PEAK HR FACTOR :	0.750			0.675			0.625			0.500			0.790

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL																							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																										
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																								
	0	1	0	0	1	0	0	1	1	0	1	0																								
6:00 AM	0	0	0	0	0	2	5	0	0	0	0	0	7																							
6:15 AM	0	0	0	0	0	4	4	0	1	0	0	0	9																							
6:30 AM	1	0	0	0	0	2	3	0	0	0	0	0	6																							
6:45 AM	0	0	0	0	0	3	7	1	1	0	0	0	12																							
7:00 AM	1	0	0	0	0	3	6	0	1	0	0	0	11																							
7:15 AM	0	0	0	0	0	4	7	1	0	0	0	0	12																							
7:30 AM	1	0	0	0	0	3	4	1	0	0	0	0	9																							
7:45 AM	0	0	0	0	0	3	8	0	1	0	0	0	12																							
8:00 AM	1	0	0	0	0	3	5	0	1	0	0	0	10																							
8:15 AM	0	0	0	0	0	3	6	0	1	0	0	0	10																							
8:30 AM	0	0	0	0	0	3	4	0	0	0	0	0	7																							
8:45 AM	1	0	0	0	0	3	4	0	0	0	0	0	8																							
TOTAL VOLUMES :	5	0	0	0	0	36	63	3	6	0	0	0	113																							
APPROACH %'s :	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	87.50%	4.17%	8.33%																											
PEAK HR START TIME :	645 AM												TOTAL																							
PEAK HR VOL :	2			0			0			0			13			24			3			2			0			0			0			44		
PEAK HR FACTOR :	0.500						0.813						0.806						0.000						0.917											

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
3:00 PM	1	0	0	0	0	3	6	0	0	0	0	0	10
3:15 PM	0	0	0	0	0	3	5	0	1	0	1	0	10
3:30 PM	1	0	0	0	0	2	2	0	0	0	0	0	5
3:45 PM	0	0	0	0	0	5	9	0	0	0	0	0	14
4:00 PM	1	1	0	0	0	1	3	0	2	0	0	0	8
4:15 PM	1	0	0	0	0	5	5	0	0	0	1	0	12
4:30 PM	0	1	0	0	0	1	2	0	0	0	0	0	4
4:45 PM	1	0	0	0	0	1	6	0	0	0	1	0	9
5:00 PM	0	0	0	0	0	4	6	0	2	0	0	0	12
5:15 PM	1	0	0	0	0	3	4	0	0	0	0	0	8
5:30 PM	0	0	0	0	0	2	2	0	0	0	0	0	4
5:45 PM	1	0	0	0	0	1	2	0	1	0	0	0	5
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	7	2	0	0	0	31	52	0	6	0	3	0	101
	77.78%	22.22%	0.00%	0.00%	0.00%	100.00%	89.66%	0.00%	10.34%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	2			0			0			0			29
PEAK HR FACTOR :	0.500			0.625			0.531			0.000			0.604

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
6:30 AM	0	1	0	0	1	0	0	0	0	0	2	0	4
6:45 AM	0	2	0	0	0	0	2	0	0	0	1	0	5
7:00 AM	1	0	0	0	2	0	1	0	0	0	0	0	4
7:15 AM	1	1	0	0	5	1	2	0	2	0	1	0	13
7:30 AM	1	1	0	0	1	2	0	0	2	0	0	0	7
7:45 AM	0	0	1	1	1	1	1	0	1	0	1	0	7
8:00 AM	2	1	0	0	0	1	0	0	1	0	0	0	5
8:15 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
8:30 AM	6	0	0	0	1	0	1	0	3	0	2	0	13
8:45 AM	0	2	0	0	0	0	3	0	1	0	0	0	6
TOTAL VOLUMES :	12	9	1	1	12	5	10	0	10	0	7	0	67
APPROACH %'s :	54.55%	40.91%	4.55%	5.56%	66.67%	27.78%	50.00%	0.00%	50.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	3	4	0	0	8	3	5	0	4	0	2	0	29
PEAK HR FACTOR :	0.875			0.458			0.563			0.500			0.558

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
3:00 PM	2	1	0	0	0	0	0	0	2	0	1	0	6
3:15 PM	5	0	0	0	0	1	0	1	0	0	0	0	7
3:30 PM	0	2	0	0	0	0	2	1	0	0	0	0	5
3:45 PM	0	1	0	0	1	0	3	0	0	0	1	0	6
4:00 PM	0	0	0	0	0	0	0	1	1	0	0	0	2
4:15 PM	0	1	0	0	0	0	0	0	1	0	0	0	2
4:30 PM	0	0	0	1	3	0	2	2	0	0	0	1	9
4:45 PM	0	5	0	0	0	2	0	1	0	0	1	0	9
5:00 PM	0	0	0	0	0	1	1	0	1	0	0	0	3
5:15 PM	2	0	0	0	0	0	0	0	1	0	0	0	3
5:30 PM	1	2	0	0	0	0	1	0	1	0	0	0	5
5:45 PM	0	5	0	0	0	0	0	0	0	0	0	0	5
TOTAL VOLUMES :	10	17	0	1	4	4	9	6	7	0	3	1	62
APPROACH %'s :	37.04%	62.96%	0.00%	11.11%	44.44%	44.44%	40.91%	27.27%	31.82%	0.00%	75.00%	25.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	3	7	0	0	0	1	2	0	3	0	0	0	16
PEAK HR FACTOR :	0.500			0.250			0.625			0.000			0.800

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND						
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL			
	1	2	1	1	2	1	1	2	0	0	2	1				
6:00 AM	0	2	0	0	1	0	0	1	0	0	0	0	4			
6:15 AM	0	6	0	0	0	0	0	3	0	0	0	0	9			
6:30 AM	0	2	0	0	0	0	0	2	0	0	0	0	4			
6:45 AM	0	1	0	0	0	1	0	2	1	0	1	0	6			
7:00 AM	0	2	0	0	1	0	0	0	0	0	1	0	4			
7:15 AM	0	1	0	0	3	0	0	0	0	0	0	0	4			
7:30 AM	0	2	0	0	1	0	0	0	0	0	0	0	3			
7:45 AM	0	3	0	0	2	0	0	0	0	0	0	0	5			
8:00 AM	0	1	0	0	4	0	0	0	0	0	0	0	5			
8:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2			
8:30 AM	0	2	0	0	1	0	0	0	0	0	1	0	4			
8:45 AM	0	0	0	0	1	1	0	0	0	0	1	0	3			
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL			
APPROACH %'s :	0	24	0	0	14	2	0	8	1	0	4	0	53			
	0.00%	100.00%	0.00%	0.00%	87.50%	12.50%	0.00%	88.89%	11.11%	0.00%	100.00%	0.00%				
PEAK HR START TIME :	730 AM												TOTAL			
PEAK HR VOL :	0			8			0			0			0			15
PEAK HR FACTOR :	0.667			0.438			0.000			0.000			0.750			

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	0	0	0	0	1	3	0	3	0	0	0	0	7
3:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
3:30 PM	0	2	0	0	0	0	0	2	0	0	0	0	4
3:45 PM	0	1	0	0	1	0	0	3	0	0	0	0	5
4:00 PM	1	0	1	0	0	1	0	2	1	0	0	0	6
4:15 PM	0	1	0	0	2	0	0	3	0	0	0	0	6
4:30 PM	0	1	1	0	0	1	1	1	1	0	0	0	6
4:45 PM	0	0	0	0	1	1	1	2	1	0	0	0	6
5:00 PM	0	0	0	0	1	1	1	3	0	0	0	0	6
5:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:30 PM	0	0	0	0	0	1	1	1	0	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES :	1	5	2	0	6	8	4	25	3	0	0	0	54
APPROACH %'s :	12.50%	62.50%	25.00%	0.00%	42.86%	57.14%	12.50%	78.13%	9.38%				
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	1	2	2	0	3	3	2	8	3	0	0	0	24
PEAK HR FACTOR :	0.625			0.750			0.813			0.000			1.000

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	1	1	2	0	0	2	1	
6:00 AM	0	14	0	0	15	3	1	1	0	0	0	0	34
6:15 AM	0	10	2	0	5	1	3	0	0	0	2	0	23
6:30 AM	1	12	3	0	6	2	0	2	1	0	1	0	28
6:45 AM	0	7	0	0	5	1	3	0	0	0	4	1	21
7:00 AM	0	23	1	0	4	0	0	0	0	0	2	0	30
7:15 AM	0	16	0	1	11	1	0	2	1	0	5	0	37
7:30 AM	0	19	6	0	12	0	1	0	0	1	5	0	44
7:45 AM	0	15	1	0	6	2	0	1	2	0	3	0	30
8:00 AM	0	18	2	0	11	0	0	0	0	0	1	0	32
8:15 AM	0	24	0	0	10	3	2	0	0	0	2	0	41
8:30 AM	0	13	0	0	9	0	0	0	1	0	2	0	25
8:45 AM	0	17	2	0	7	1	0	1	0	0	1	0	29
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	188	17	1	101	14	10	7	5	1	28	1	374
	0.49%	91.26%	8.25%	0.86%	87.07%	12.07%	45.45%	31.82%	22.73%	3.33%	93.33%	3.33%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	76	9	0	39	5	3	1	2	1	11	0	147
PEAK HR FACTOR :	0.850			0.846			0.500			0.500			0.835

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	1	1	2	0	0	2	1	
3:00 PM	0	3	1	0	10	2	2	0	2	0	1	1	22
3:15 PM	2	5	2	0	5	0	1	3	1	0	0	0	19
3:30 PM	0	7	0	2	12	5	1	1	0	0	1	0	29
3:45 PM	0	4	1	0	4	0	1	0	0	0	3	0	13
4:00 PM	1	8	0	0	4	5	2	1	0	0	1	0	22
4:15 PM	2	5	0	0	9	2	0	1	0	0	2	0	21
4:30 PM	1	7	0	0	7	1	1	0	0	0	0	0	17
4:45 PM	0	5	3	0	1	1	4	0	0	0	0	0	14
5:00 PM	1	2	2	0	4	1	0	0	0	0	1	0	11
5:15 PM	1	4	0	0	8	0	0	3	0	0	0	0	16
5:30 PM	0	1	0	0	9	0	0	1	1	0	0	0	12
5:45 PM	0	8	1	0	10	0	1	1	0	0	1	0	22
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	8	59	10	2	83	17	13	11	4	0	10	1	218
	10.39%	76.62%	12.99%	1.96%	81.37%	16.67%	46.43%	39.29%	14.29%	0.00%	90.91%	9.09%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	4	25	3	0	21	9	7	2	0	0	3	0	74
PEAK HR FACTOR :	0.889			0.682			0.563			0.375			0.841

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	2
6:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	2
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	1	2
8:15 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	2	1	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	5	0	0	0	1	0	0	5	5	16
	100.00%			0.00%			0.00%			50.00%			
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	0			1			0			0			4
PEAK HR FACTOR :	0.000			0.250			0.000			0.750			1.000

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5		
3:00 PM	0	0	0	0	0	0	0	1	0	0	0	1	2	
3:15 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0		
4:00 PM	0	0	0	1	0	0	1	0	0	0	0	1	3	
4:15 PM	0	0	0	0	0	0	0	0	1	0	0	1	2	
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	1	2	
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	2	3	
5:00 PM	0	0	0	2	0	0	0	1	0	0	0	0	3	
5:15 PM	0	0	0	0	0	0	0	1	0	0	0	1	2	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0		
5:45 PM	0	0	0	1	0	0	0	0	0	0	0	1	2	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
APPROACH %'s :	0	0	0	5	0	0	2	4	1	0	0	9	21	
	100.00%			0.00%			28.57%			57.14%			14.29%	
PEAK HR START TIME :	500 PM												TOTAL	
PEAK HR VOL :	0			3			0			0			2	7
PEAK HR FACTOR :	0.000			0.375			0.500			0.500			0.583	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
6:00 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
6:15 AM	0	0	0	0	1	0	0	2	0	0	2	1	6
6:30 AM	0	0	0	0	0	1	0	3	0	0	2	1	7
6:45 AM	0	0	0	0	0	0	1	2	0	0	4	3	10
7:00 AM	0	0	0	0	3	0	0	1	1	2	1	2	10
7:15 AM	1	1	1	2	0	1	0	1	1	1	6	0	15
7:30 AM	0	0	0	2	2	1	0	5	1	0	3	1	15
7:45 AM	0	0	0	1	0	0	0	2	0	0	3	2	8
8:00 AM	0	0	2	1	0	1	0	2	0	3	0	4	13
8:15 AM	1	1	1	0	0	0	1	1	0	2	1	0	8
8:30 AM	0	0	0	0	1	0	0	0	2	2	4	4	13
8:45 AM	0	1	1	0	1	0	1	1	0	1	0	1	7
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	3	5	6	8	4	3	21	5	11	28	19	115
	20.00%	30.00%	50.00%	33.33%	44.44%	22.22%	10.34%	72.41%	17.24%	18.97%	48.28%	32.76%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	1	1	1	4	5	2	1	9	3	3	14	6	50
PEAK HR FACTOR :	0.250			0.550			0.542			0.821			0.833

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
3:00 PM	0	1	0	0	1	0	1	1	0	0	2	1	7
3:15 PM	1	0	1	0	0	0	3	3	1	0	0	2	11
3:30 PM	0	0	0	0	0	0	1	0	2	0	0	1	4
3:45 PM	0	0	0	0	0	0	1	1	0	0	3	0	5
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	1	4
4:15 PM	0	1	0	0	0	0	0	1	0	0	2	0	4
4:30 PM	0	0	0	0	1	0	0	1	0	1	0	0	3
4:45 PM	0	3	1	0	0	0	2	0	1	0	0	0	7
5:00 PM	0	0	1	0	0	0	0	0	1	0	1	0	3
5:15 PM	0	2	1	0	0	0	2	1	0	1	0	0	7
5:30 PM	0	1	0	0	1	0	1	0	0	0	0	1	4
5:45 PM	0	3	0	0	0	0	1	1	0	0	1	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	11	4	0	3	0	12	10	5	2	11	6	65
	6.25%	68.75%	25.00%	0.00%	100.00%	0.00%	44.44%	37.04%	18.52%	10.53%	57.89%	31.58%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	6	2	0	1	0	4	2	1	1	2	1	20
PEAK HR FACTOR :	0.667			0.250			0.583			1.000			0.714

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			Arcadia St/EI Monte Busway			Arcadia St/EI Monte Busway			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	1.5	2	0.5	
6:00 AM	0	6	0	0	0	0	0	0	0	0	11	0	17
6:15 AM	0	10	0	0	2	1	0	0	0	0	18	0	31
6:30 AM	0	8	0	0	0	0	0	0	0	2	14	2	26
6:45 AM	0	7	0	0	1	0	0	0	0	2	18	0	28
7:00 AM	0	5	0	0	1	0	0	0	0	3	20	2	31
7:15 AM	0	6	0	0	0	0	0	0	0	1	22	1	30
7:30 AM	0	12	0	0	1	0	0	0	0	1	15	1	30
7:45 AM	1	10	0	0	2	0	0	0	0	0	18	0	31
8:00 AM	0	7	0	0	2	0	0	0	0	1	22	0	32
8:15 AM	0	11	0	0	0	0	0	0	0	0	15	3	29
8:30 AM	0	12	0	0	1	0	0	0	0	1	14	1	29
8:45 AM	0	6	0	0	1	0	0	0	0	1	13	1	22
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	100	0	0	11	1	0	0	0	12	200	11	336
	0.99%	99.01%	0.00%	0.00%	91.67%	8.33%				5.38%	89.69%	4.93%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	40	0	0	5	0	0	0	0	2	69	4	121
PEAK HR FACTOR :	0.854			0.625			0.000			0.815			0.945

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			Arcadia St/EI Monte Busway			Arcadia St/EI Monte Busway			TOTAL											
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND														
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
	1	3	0	0	3	0	0	0	0	1.5	2	0.5												
3:00 PM	0	4	0	0	2	0	0	0	0	3	5	3	17											
3:15 PM	0	10	0	0	1	0	0	0	0	0	9	1	21											
3:30 PM	0	9	0	0	2	0	0	0	0	1	15	2	29											
3:45 PM	0	8	0	0	1	1	0	0	0	0	14	0	24											
4:00 PM	0	9	0	0	1	0	0	0	0	1	11	1	23											
4:15 PM	0	16	0	0	1	0	0	0	0	1	14	2	34											
4:30 PM	0	19	0	0	0	1	0	0	0	3	12	1	36											
4:45 PM	0	14	0	0	2	0	0	0	0	3	15	0	34											
5:00 PM	0	17	0	0	1	0	0	0	0	3	11	2	34											
5:15 PM	0	17	0	0	2	0	0	0	0	4	15	0	38											
5:30 PM	0	18	0	0	0	1	0	0	0	2	12	0	33											
5:45 PM	0	18	0	0	1	1	0	0	0	0	10	2	32											
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
APPROACH %'s :	0	159	0	0	14	4	0	0	0	21	143	14	355											
	0.00%	100.00%	0.00%	0.00%	77.78%	22.22%				11.80%	80.34%	7.87%												
PEAK HR START TIME :	415 PM												TOTAL											
PEAK HR VOL :	0			66			0			0			10			52			5			138		
PEAK HR FACTOR :	0.868			0.625			0.000			0.931			0.958											

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			Arcadia St/EI Monte Busway			Arcadia St/EI Monte Busway			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	1.5	2	0.5	
6:00 AM	0	14	0	0	8	0	0	0	0	4	6	3	35
6:15 AM	0	11	0	0	7	0	0	0	0	1	2	1	22
6:30 AM	0	12	0	0	7	0	0	0	0	0	6	4	29
6:45 AM	0	10	0	0	4	0	0	0	0	1	9	1	25
7:00 AM	1	23	0	0	6	0	0	0	0	0	6	4	40
7:15 AM	1	18	0	0	8	0	0	0	0	4	8	6	45
7:30 AM	1	23	0	0	14	1	0	0	0	0	5	3	47
7:45 AM	2	21	0	0	11	1	0	0	0	0	6	4	45
8:00 AM	2	15	0	0	8	0	0	0	0	1	4	1	31
8:15 AM	4	17	0	0	13	1	0	0	0	2	2	3	42
8:30 AM	1	22	0	0	12	1	0	0	0	0	3	3	42
8:45 AM	2	21	0	0	9	2	0	0	0	5	5	0	44
TOTAL VOLUMES :	14	207	0	0	107	6	0	0	0	18	62	33	447
APPROACH %'s :	6.33%	93.67%	0.00%	0.00%	94.69%	5.31%				15.93%	54.87%	29.20%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	9	75	0	0	44	3	0	0	0	3	15	11	160
PEAK HR FACTOR :	0.913			0.839			0.000			0.725			0.889

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			Arcadia St/EI Monte Busway			Arcadia St/EI Monte Busway			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	0	3	0	0	0	0	1.5	2	0.5	
3:00 PM	0	3	0	0	8	1	0	0	0	0	0	0	12
3:15 PM	1	7	0	0	9	0	0	0	0	2	2	1	22
3:30 PM	0	7	0	0	6	0	0	0	0	4	2	4	23
3:45 PM	0	6	0	0	4	0	0	0	0	2	0	3	15
4:00 PM	0	7	0	0	6	0	0	0	0	0	0	2	15
4:15 PM	0	10	0	0	5	0	0	0	0	1	1	5	22
4:30 PM	0	8	0	0	4	1	0	0	0	1	1	0	15
4:45 PM	0	11	0	0	2	0	0	0	0	3	2	0	18
5:00 PM	0	7	0	0	5	0	0	0	0	1	3	0	16
5:15 PM	0	3	0	0	3	0	0	0	0	0	5	2	13
5:30 PM	0	5	0	0	5	0	0	0	0	0	3	1	14
5:45 PM	0	9	0	0	4	1	0	0	0	1	2	1	18
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	83	0	0	61	3	0	0	0	15	21	19	203
	1.19%	98.81%	0.00%	0.00%	95.31%	4.69%				27.27%	38.18%	34.55%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	0	36	0	0	16	1	0	0	0	6	7	5	71
PEAK HR FACTOR :	0.818			0.850			0.000			0.643			0.807

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-010

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (South)			N Los Angeles St (South)			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
6:00 AM	0	4	0	0	0	0	2	0	0	0	0	0	6
6:15 AM	0	8	0	0	3	0	3	0	0	0	0	0	14
6:30 AM	0	2	0	0	1	0	2	0	0	0	0	0	5
6:45 AM	0	3	0	0	2	0	3	0	0	0	0	0	8
7:00 AM	0	2	0	0	2	0	3	0	0	0	0	0	7
7:15 AM	0	1	0	0	1	0	3	0	0	0	0	0	5
7:30 AM	0	2	0	0	1	0	3	0	0	0	0	0	6
7:45 AM	0	1	1	0	2	0	2	0	0	0	0	0	6
8:00 AM	0	0	0	0	3	0	4	0	0	0	0	0	7
8:15 AM	0	0	0	0	0	0	1	0	0	0	0	0	1
8:30 AM	0	3	0	0	2	0	3	0	0	0	0	0	8
8:45 AM	0	1	0	0	1	0	3	0	0	0	0	0	5
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	27	1	0	18	0	32	0	0	0	0	0	78
	0.00%	96.43%	3.57%	0.00%	100.00%	0.00%	100.00%	0.00%	0.00%				
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	4	0	0	6	0	11	0	0	0	0	0	21
PEAK HR FACTOR :	0.333			0.500			0.688			0.000			0.656

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-010

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (South)			N Los Angeles St (South)			TOTAL														
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																	
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	6														
3:00 PM	0	2	0	0	2	0	2	0	0	0	0	0	6														
3:15 PM	0	0	0	0	1	0	1	1	0	0	0	0	3														
3:30 PM	0	1	0	0	3	0	3	0	0	0	0	0	7														
3:45 PM	0	0	0	0	2	0	3	0	0	0	0	0	5														
4:00 PM	0	0	0	0	1	0	3	1	0	0	0	0	5														
4:15 PM	0	0	0	0	1	0	3	0	0	0	0	0	4														
4:30 PM	0	3	0	0	1	0	1	0	0	0	0	0	5														
4:45 PM	0	0	0	0	3	0	2	0	0	0	0	0	5														
5:00 PM	0	0	0	0	1	0	4	0	0	0	0	0	5														
5:15 PM	0	2	0	0	2	0	2	0	0	0	0	0	6														
5:30 PM	0	0	0	0	1	0	1	0	0	0	0	0	2														
5:45 PM	0	0	0	0	2	0	1	0	0	0	0	0	3														
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
APPROACH %'s :	0	8	0	0	20	0	26	2	0	0	0	0	56														
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	92.86%	7.14%	0.00%																		
PEAK HR START TIME :	500 PM												TOTAL														
PEAK HR VOL :	0			2			0			0			0			0			0			0			16		
PEAK HR FACTOR :	0.250			0.750			0.500			0.000			0.667														

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-010

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (South)			N Los Angeles St (South)			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
6:00 AM	0	9	0	0	42	0	0	0	0	0	0	0	51
6:15 AM	0	6	0	0	35	0	0	0	0	0	0	0	41
6:30 AM	0	8	0	0	17	0	0	0	0	0	0	0	25
6:45 AM	0	7	0	0	11	0	1	0	0	0	0	0	19
7:00 AM	0	9	0	0	9	0	0	0	0	0	0	0	18
7:15 AM	0	10	1	0	10	0	1	0	0	0	0	0	22
7:30 AM	0	17	0	0	18	0	1	0	0	0	0	0	36
7:45 AM	0	17	0	0	11	0	1	0	0	0	0	0	29
8:00 AM	0	11	0	0	13	0	0	0	0	0	0	0	24
8:15 AM	0	12	1	0	19	0	0	0	0	0	0	0	32
8:30 AM	0	20	0	1	11	0	0	1	0	0	0	0	33
8:45 AM	0	18	0	1	16	0	2	0	0	0	0	0	37
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	144	2	2	212	0	6	1	0	0	0	0	367
	0.00%	98.63%	1.37%	0.93%	99.07%	0.00%	85.71%	14.29%	0.00%				
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	61	1	2	59	0	2	1	0	0	0	0	126
PEAK HR FACTOR :	0.775			0.803			0.375			0.000			0.851

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-010

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (South)			N Los Angeles St (South)			TOTAL		
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND					
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
	0	3	0	1	3	0	1.5	1	0.5	0	0	0			
3:00 PM	0	1	0	0	15	0	2	0	0	0	0	0	18		
3:15 PM	0	3	0	0	14	0	0	0	0	0	0	0	17		
3:30 PM	0	4	0	0	6	0	1	0	0	0	0	0	11		
3:45 PM	0	4	0	0	4	0	2	0	0	0	0	0	10		
4:00 PM	0	6	0	0	9	0	1	0	0	0	0	0	16		
4:15 PM	0	12	0	0	5	0	0	0	0	0	0	0	17		
4:30 PM	0	4	0	0	7	0	0	0	1	0	0	0	12		
4:45 PM	0	7	0	0	3	0	2	0	0	0	0	0	12		
5:00 PM	0	5	0	0	6	0	4	0	0	0	0	0	15		
5:15 PM	0	4	0	0	4	0	2	0	0	0	0	0	10		
5:30 PM	0	3	0	0	7	0	3	0	0	0	0	0	13		
5:45 PM	0	5	0	0	9	0	1	0	0	0	0	0	15		
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
APPROACH %'s :	0	58	0	0	89	0	18	0	1	0	0	0	166		
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	94.74%	0.00%	5.26%						
PEAK HR START TIME :	500 PM												TOTAL		
PEAK HR VOL :	0			17			0			0			53		
PEAK HR FACTOR :	0.850			0.722			0.625			0.000			0.883		

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-011

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	1	2	0	1	2	1	1	3	0	
6:00 AM	4	3	1	1	0	0	0	8	0	1	14	0	32
6:15 AM	1	6	1	0	5	1	0	6	0	2	12	0	34
6:30 AM	3	3	0	0	4	1	0	8	0	0	20	1	40
6:45 AM	0	4	3	1	4	1	0	10	0	1	17	0	41
7:00 AM	1	2	2	0	3	1	0	15	1	1	17	1	44
7:15 AM	1	2	0	1	4	1	0	15	0	1	11	1	37
7:30 AM	1	2	3	0	2	0	0	8	1	0	16	2	35
7:45 AM	0	1	1	1	3	1	0	8	1	1	11	0	28
8:00 AM	1	2	1	0	3	2	0	15	1	2	12	1	40
8:15 AM	0	1	1	1	3	1	0	12	0	0	14	0	33
8:30 AM	0	2	4	0	0	0	0	13	2	1	13	1	36
8:45 AM	1	1	1	1	4	0	0	13	0	2	15	0	38
TOTAL VOLUMES :	13	29	18	6	35	9	0	131	6	12	172	7	438
APPROACH %'s :	21.67%	48.33%	30.00%	12.00%	70.00%	18.00%	0.00%	95.62%	4.38%	6.28%	90.05%	3.66%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	2	6	6	2	11	4	0	43	3	3	53	3	136
PEAK HR FACTOR :	0.583			0.850			0.719			0.819			0.850

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-011

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	1	2	0	1	2	1	1	3	0	
3:00 PM	0	3	1	0	1	1	0	10	0	1	12	1	30
3:15 PM	0	2	1	2	3	1	0	7	0	0	10	1	27
3:30 PM	1	3	1	0	3	0	0	10	0	1	9	2	30
3:45 PM	0	1	1	1	3	1	0	10	1	3	9	1	31
4:00 PM	2	3	1	1	3	3	2	15	0	0	10	1	41
4:15 PM	0	1	0	2	4	0	1	12	2	1	12	0	35
4:30 PM	0	1	0	0	2	2	0	12	0	2	9	1	29
4:45 PM	3	2	1	0	2	1	1	15	0	1	8	0	34
5:00 PM	0	2	0	1	3	1	0	16	1	4	15	1	44
5:15 PM	0	2	1	1	3	0	0	13	0	2	9	2	33
5:30 PM	0	1	1	0	3	2	0	11	0	0	11	2	31
5:45 PM	0	1	0	0	3	0	0	13	0	3	5	0	25
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	6	22	8	8	33	12	4	144	4	18	119	12	390
	16.67%	61.11%	22.22%	15.09%	62.26%	22.64%	2.63%	94.74%	2.63%	12.08%	79.87%	8.05%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	6	2	2	12	3	0	53	1	9	40	5	133
PEAK HR FACTOR :	0.667			0.850			0.794			0.675			0.756

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-011

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	1	2	0	1	2	1	1	3	0	
6:00 AM	3	6	1	2	41	1	0	2	0	0	2	3	61
6:15 AM	1	4	1	0	36	4	0	2	0	1	3	0	52
6:30 AM	2	3	1	2	15	1	1	4	0	0	3	0	32
6:45 AM	1	7	1	0	12	2	3	3	1	0	1	4	35
7:00 AM	0	9	1	0	5	1	0	2	0	0	6	0	24
7:15 AM	1	7	1	1	10	0	0	5	2	0	6	1	34
7:30 AM	1	14	2	1	13	1	1	4	1	2	2	0	42
7:45 AM	2	12	3	0	9	0	0	4	1	2	4	1	38
8:00 AM	2	8	1	0	12	1	1	6	2	0	3	0	36
8:15 AM	1	10	2	0	16	0	2	3	1	1	7	1	44
8:30 AM	2	15	0	0	16	0	1	5	1	0	4	0	44
8:45 AM	4	18	0	1	12	0	2	2	2	0	1	4	46
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	20	113	14	7	197	11	11	42	11	6	42	14	488
	13.61%	76.87%	9.52%	3.26%	91.63%	5.12%	17.19%	65.63%	17.19%	9.68%	67.74%	22.58%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	6	44	8	1	50	2	4	17	5	5	16	2	160
PEAK HR FACTOR :	0.853			0.828			0.722			0.639			0.909

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-011

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	1	2	0	1	2	1	1	3	0	
3:00 PM	1	10	0	0	17	1	1	8	1	0	2	0	41
3:15 PM	1	7	2	0	13	0	1	4	0	0	1	0	29
3:30 PM	0	6	0	2	8	0	1	5	1	1	1	0	25
3:45 PM	0	4	1	1	6	0	2	6	0	0	0	1	21
4:00 PM	1	7	4	1	6	1	1	4	0	1	2	0	28
4:15 PM	0	6	0	0	5	2	0	7	1	0	1	1	23
4:30 PM	0	5	0	0	7	1	0	7	0	0	0	2	22
4:45 PM	0	3	1	1	1	0	2	3	0	1	0	0	12
5:00 PM	0	3	0	0	3	0	1	6	2	1	0	0	16
5:15 PM	0	2	0	1	5	3	2	4	0	0	1	1	19
5:30 PM	1	3	1	0	2	0	0	4	1	1	0	0	13
5:45 PM	0	6	0	0	2	0	0	8	0	0	1	0	17
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	4	62	9	6	75	8	11	66	6	5	9	5	266
	5.33%	82.67%	12.00%	6.74%	84.27%	8.99%	13.25%	79.52%	7.23%	26.32%	47.37%	26.32%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	14	1	1	12	3	3	22	3	2	2	1	65
PEAK HR FACTOR :	0.667			0.444			0.778			0.625			0.855

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL		
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND					
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR			
	1	2	1	1	3	0	1	2	0	1	2	1			
6:00 AM	0	2	0	0	2	2	1	0	0	0	0	0	7		
6:15 AM	0	4	0	3	2	2	2	0	0	0	0	1	14		
6:30 AM	0	2	0	2	1	3	2	0	0	0	0	1	11		
6:45 AM	0	3	0	1	4	2	1	0	0	0	0	4	15		
7:00 AM	0	2	0	1	2	4	2	1	0	0	1	0	13		
7:15 AM	0	1	0	0	2	2	2	0	0	0	0	2	9		
7:30 AM	0	3	0	0	0	3	2	0	0	0	0	0	8		
7:45 AM	0	0	0	0	2	2	2	0	0	0	2	0	8		
8:00 AM	0	1	0	0	2	1	1	0	0	0	0	3	8		
8:15 AM	0	2	0	0	3	4	2	0	0	0	1	1	13		
8:30 AM	0	2	0	0	0	2	1	0	0	0	0	0	5		
8:45 AM	0	1	0	0	0	2	2	0	0	0	0	0	5		
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
APPROACH %'s :	0	23	0	7	20	29	20	1	0	0	4	12	116		
	0.00%	100.00%	0.00%	12.50%	35.71%	51.79%	95.24%	4.76%	0.00%	0.00%	25.00%	75.00%			
PEAK HR START TIME :	730 AM												TOTAL		
PEAK HR VOL :	0			6			0			0			37		
PEAK HR FACTOR :	0.500			0.607			0.875			0.583			0.712		

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

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BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	6	0	0	4	1	2	0	0	0	0	1	14
3:15 PM	0	1	0	0	2	2	1	0	0	0	0	2	8
3:30 PM	0	8	0	1	2	1	2	0	0	0	0	0	14
3:45 PM	0	1	0	0	2	3	1	0	0	0	0	2	9
4:00 PM	0	3	0	1	3	2	2	0	0	0	1	0	12
4:15 PM	0	3	0	0	2	1	1	0	0	0	0	2	9
4:30 PM	0	4	0	1	1	3	2	0	0	0	1	0	12
4:45 PM	0	2	0	0	1	1	0	0	0	0	0	0	4
5:00 PM	0	3	0	0	2	2	3	0	0	0	0	0	10
5:15 PM	0	1	0	0	1	3	1	0	0	0	0	2	8
5:30 PM	0	4	0	1	2	2	1	0	0	0	0	0	10
5:45 PM	1	6	0	0	1	1	0	0	0	0	0	1	10
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	42	0	4	23	22	16	0	0	0	2	10	120
	2.33%	97.67%	0.00%	8.16%	46.94%	44.90%	100.00%	0.00%	0.00%	0.00%	16.67%	83.33%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	14	0	1	6	8	5	0	0	0	0	3	38
PEAK HR FACTOR :	0.536			0.750			0.417			0.375			0.950

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
	1	2	1	1	3	0	1	2	0	1	2	1																											
6:00 AM	1	6	0	0	38	2	0	0	0	0	0	0	47																										
6:15 AM	0	1	1	0	33	0	0	0	0	1	0	1	37																										
6:30 AM	0	1	0	0	14	1	1	2	1	0	2	0	22																										
6:45 AM	1	6	0	1	7	0	0	0	0	2	4	2	23																										
7:00 AM	1	4	0	0	2	0	0	1	0	0	4	1	13																										
7:15 AM	0	7	0	0	7	1	0	1	1	1	2	0	20																										
7:30 AM	1	5	0	0	6	0	1	1	0	0	5	4	23																										
7:45 AM	0	7	0	1	3	0	0	1	0	0	3	1	16																										
8:00 AM	1	3	1	0	6	0	1	1	0	0	5	0	18																										
8:15 AM	1	6	1	1	4	0	1	1	0	2	3	1	21																										
8:30 AM	0	13	0	1	9	1	2	2	0	0	5	0	33																										
8:45 AM	1	17	0	0	6	1	0	2	0	1	6	0	34																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	7	76	3	4	135	6	6	12	2	7	39	10	307																										
	8.14%	88.37%	3.49%	2.76%	93.10%	4.14%	30.00%	60.00%	10.00%	12.50%	69.64%	17.86%																											
PEAK HR START TIME :	730 AM												TOTAL																										
PEAK HR VOL :	3			21			2			2			19			0			3			4			0			2			16			6			78		
PEAK HR FACTOR :	0.813			0.875			0.875			0.667			0.848																										

CONTROL : Signalized

Intersection Turning Movement

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Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	3	0	1	2	0	1	2	1	
3:00 PM	1	2	0	0	7	0	1	1	0	0	0	0	12
3:15 PM	1	4	0	1	6	0	0	1	1	2	3	2	21
3:30 PM	0	2	0	0	1	0	0	2	0	1	0	1	7
3:45 PM	0	8	0	0	0	0	2	0	0	0	4	1	15
4:00 PM	0	4	0	2	6	0	1	3	0	0	5	2	23
4:15 PM	0	10	1	2	4	0	1	2	0	0	1	1	22
4:30 PM	0	10	0	0	2	0	1	1	0	0	1	3	18
4:45 PM	0	6	0	0	2	0	2	0	0	0	1	3	14
5:00 PM	0	7	0	0	3	0	2	1	0	0	1	0	14
5:15 PM	0	5	0	0	2	0	0	3	0	2	1	0	13
5:30 PM	0	9	0	1	1	0	0	2	1	0	0	2	16
5:45 PM	0	5	2	0	0	0	0	0	1	1	0	1	10
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	72	3	6	34	0	10	16	3	6	17	16	185
	2.60%	93.51%	3.90%	15.00%	85.00%	0.00%	34.48%	55.17%	10.34%	15.38%	43.59%	41.03%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	26	2	1	6	0	2	6	2	3	2	3	53
PEAK HR FACTOR :	0.778			0.583			0.833			0.667			0.828

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-013

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	0	1	2	1	1	2	1	
6:00 AM	7	5	1	0	1	0	0	7	3	4	9	0	37
6:15 AM	7	1	0	0	4	0	1	3	3	4	7	0	30
6:30 AM	10	0	2	0	1	2	1	5	1	6	9	0	37
6:45 AM	6	2	0	1	5	0	3	6	6	3	11	0	43
7:00 AM	9	0	0	6	5	3	1	5	10	5	9	0	53
7:15 AM	5	1	0	3	5	1	4	7	6	2	9	0	43
7:30 AM	6	1	3	1	2	2	1	5	5	0	6	1	33
7:45 AM	6	1	2	4	2	0	0	5	4	2	8	0	34
8:00 AM	6	1	1	2	1	3	3	6	8	2	9	1	43
8:15 AM	5	1	2	1	3	0	2	4	8	2	7	1	36
8:30 AM	3	3	1	1	1	2	1	9	6	0	9	0	36
8:45 AM	6	1	4	0	0	0	1	7	8	1	9	1	38
TOTAL VOLUMES :	NL 76	NT 17	NR 16	SL 19	ST 30	SR 13	EL 18	ET 69	ER 68	WL 31	WT 102	WR 4	TOTAL 463
APPROACH %'s :	69.72%	15.60%	14.68%	30.65%	48.39%	20.97%	11.61%	44.52%	43.87%	22.63%	74.45%	2.92%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	26	3	5	14	14	6	6	22	25	9	32	1	163
PEAK HR FACTOR :	0.850			0.607			0.779			0.750			0.769

CONTROL : Signalized

Intersection Turning Movement

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City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	0	1	2	1	1	2	1	
3:00 PM	5	2	0	1	0	2	1	8	3	2	4	0	28
3:15 PM	7	1	1	1	2	1	2	5	6	3	7	0	36
3:30 PM	5	1	2	0	0	1	0	5	6	3	4	0	27
3:45 PM	4	2	0	1	1	0	1	9	2	1	8	1	30
4:00 PM	6	0	0	0	0	2	2	9	6	2	7	0	34
4:15 PM	7	2	0	2	1	2	0	6	8	0	2	0	30
4:30 PM	5	0	1	0	2	2	1	6	8	0	6	0	31
4:45 PM	9	1	2	0	0	1	0	8	5	0	6	0	32
5:00 PM	6	0	0	0	2	1	3	5	4	2	1	1	25
5:15 PM	4	3	2	0	1	1	1	6	11	1	6	0	36
5:30 PM	4	0	0	0	0	1	2	4	6	0	7	0	24
5:45 PM	6	2	0	0	2	1	1	8	3	0	4	1	28
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	68	14	8	5	11	15	14	79	68	14	62	3	361
	75.56%	15.56%	8.89%	16.13%	35.48%	48.39%	8.70%	49.07%	42.24%	17.72%	78.48%	3.80%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	24	4	5	0	5	5	5	25	28	3	19	1	124
PEAK HR FACTOR :	0.688			0.625			0.806			0.821			0.861

CONTROL : Signalized

Intersection Turning Movement

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National Data & Surveying Services

Project ID: 15-5663-013

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	0	1	2	1	1	2	1	
6:00 AM	2	1	0	4	3	0	0	3	2	0	3	0	18
6:15 AM	0	0	2	3	6	1	0	2	1	1	4	3	23
6:30 AM	1	3	0	1	2	0	2	2	2	1	3	1	18
6:45 AM	0	5	1	3	6	0	0	0	1	2	7	4	29
7:00 AM	4	5	2	4	4	0	0	0	2	0	3	0	24
7:15 AM	1	2	2	1	5	0	1	5	2	2	6	0	27
7:30 AM	2	10	3	1	2	3	0	2	2	0	1	2	28
7:45 AM	1	5	1	0	4	3	1	3	1	3	4	2	28
8:00 AM	1	6	2	0	4	0	0	5	3	3	2	5	31
8:15 AM	2	6	3	3	4	0	0	2	4	2	6	2	34
8:30 AM	1	14	0	2	8	0	0	2	2	2	1	4	36
8:45 AM	1	5	2	3	12	1	0	2	2	2	2	1	33
TOTAL VOLUMES :	16	62	18	25	60	8	4	28	24	18	42	24	329
APPROACH %'s :	16.67%	64.58%	18.75%	26.88%	64.52%	8.60%	7.14%	50.00%	42.86%	21.43%	50.00%	28.57%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	8	22	8	6	15	6	2	10	7	5	14	4	107
PEAK HR FACTOR :	0.633			0.844			0.594			0.639			0.955

CONTROL : Signalized

Intersection Turning Movement

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HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			East Cesar E Chavez Ave			East Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	0	1	2	1	1	2	1	
3:00 PM	1	4	1	2	1	0	0	4	3	0	1	1	18
3:15 PM	0	13	1	0	4	0	0	4	3	1	1	2	29
3:30 PM	1	11	2	1	3	0	0	5	2	0	0	2	27
3:45 PM	0	7	0	0	5	0	0	3	1	1	2	0	19
4:00 PM	0	18	1	2	5	0	2	8	4	0	3	1	44
4:15 PM	2	5	0	1	6	0	0	5	3	1	1	1	25
4:30 PM	1	9	1	0	3	0	0	1	1	1	0	2	19
4:45 PM	0	15	0	0	3	0	0	1	2	0	0	2	23
5:00 PM	0	11	0	0	2	0	0	2	3	1	0	1	20
5:15 PM	2	14	1	0	2	0	0	0	0	2	1	1	23
5:30 PM	0	17	1	1	2	0	0	3	3	0	1	3	31
5:45 PM	1	17	0	0	2	0	0	1	3	3	0	2	29
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	8	141	8	7	38	0	2	37	28	10	10	18	307
	5.10%	89.81%	5.10%	15.56%	84.44%	0.00%	2.99%	55.22%	41.79%	26.32%	26.32%	47.37%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	3	49	2	0	10	0	0	4	6	4	1	6	85
PEAK HR FACTOR :	0.794			0.833			0.500			0.688			0.924

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-014

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	3	2	1	2	2	0	1.5	1	0.5	1	1	1	
6:00 AM	1	0	0	0	2	6	9	4	2	0	11	3	38
6:15 AM	3	0	0	0	2	8	7	8	3	0	5	1	37
6:30 AM	2	1	0	0	0	8	11	6	5	0	11	1	45
6:45 AM	1	0	0	1	4	10	7	5	8	0	11	0	47
7:00 AM	4	0	0	2	4	13	7	9	9	0	10	2	60
7:15 AM	2	0	0	1	5	8	6	11	6	1	16	0	56
7:30 AM	2	0	0	0	3	4	8	8	7	0	13	3	48
7:45 AM	4	0	0	1	2	5	7	5	9	0	11	1	45
8:00 AM	3	0	0	1	3	6	9	9	5	0	13	0	49
8:15 AM	1	0	0	2	3	9	7	9	8	0	14	0	53
8:30 AM	3	1	0	1	2	3	5	5	7	0	11	2	40
8:45 AM	2	0	0	0	1	9	9	10	7	1	13	1	53
TOTAL VOLUMES :	28	2	0	9	31	89	92	89	76	2	139	14	571
APPROACH %'s :	93.33%	6.67%	0.00%	6.98%	24.03%	68.99%	35.80%	34.63%	29.57%	1.29%	89.68%	9.03%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	10	0	0	4	11	24	31	31	29	0	51	4	195
PEAK HR FACTOR :	0.625			0.696			0.948			0.859			0.920

CONTROL : Signalized

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BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	3	2	1	2	2	0	1.5	1	0.5	1	1	1	
3:00 PM	3	0	0	0	1	5	6	6	5	1	7	1	35
3:15 PM	0	0	0	1	3	6	8	7	2	0	11	1	39
3:30 PM	2	2	0	2	0	7	7	7	3	0	12	0	42
3:45 PM	1	0	1	0	1	4	5	10	2	0	6	0	30
4:00 PM	2	0	0	0	0	8	6	5	4	0	9	0	34
4:15 PM	1	0	0	1	2	6	8	13	3	0	13	1	48
4:30 PM	4	0	1	2	1	7	7	6	7	0	10	2	47
4:45 PM	4	1	0	0	0	5	8	6	5	0	14	0	43
5:00 PM	0	0	0	0	0	8	8	5	8	0	13	0	42
5:15 PM	1	1	1	0	1	11	5	5	9	0	3	1	38
5:30 PM	1	0	0	0	0	7	4	8	6	0	7	0	33
5:45 PM	2	0	1	0	0	4	8	0	4	0	10	0	29
TOTAL VOLUMES :	21	4	4	6	9	78	80	78	58	1	115	6	460
APPROACH %'s :	72.41%	13.79%	13.79%	6.45%	9.68%	83.87%	37.04%	36.11%	26.85%	0.82%	94.26%	4.92%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	9	2	2	2	2	31	28	22	29	0	40	3	170
PEAK HR FACTOR :	0.650			0.729			0.940			0.768			0.904

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-014

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			Ramirez St			Ramirez St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																											
	3	2	1	2	2	0	1.5	1	0.5	1	1	1																											
6:00 AM	0	0	0	1	2	2	0	0	3	0	1	6	15																										
6:15 AM	0	0	1	6	0	2	1	0	2	3	2	2	19																										
6:30 AM	0	1	0	3	0	0	0	0	3	7	1	2	17																										
6:45 AM	0	1	0	2	4	4	1	0	2	1	2	5	22																										
7:00 AM	0	1	4	2	3	1	2	0	3	0	2	8	26																										
7:15 AM	0	1	0	5	1	4	0	0	5	0	4	6	26																										
7:30 AM	0	0	0	3	0	0	2	0	2	1	1	11	20																										
7:45 AM	0	0	1	4	2	4	1	0	4	1	2	6	25																										
8:00 AM	0	0	1	7	0	2	1	0	4	0	4	7	26																										
8:15 AM	0	2	0	4	1	5	3	0	4	1	2	6	28																										
8:30 AM	0	1	1	8	4	1	1	0	3	0	3	10	32																										
8:45 AM	0	1	1	9	4	3	2	1	3	3	2	7	36																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	0	8	9	54	21	28	14	1	38	17	26	76	292																										
	0.00%	47.06%	52.94%	52.43%	20.39%	27.18%	26.42%	1.89%	71.70%	14.29%	21.85%	63.87%																											
PEAK HR START TIME :	730 AM												TOTAL																										
PEAK HR VOL :	0			2			2			18			3			11			7			0			14			3			9			30			99		
PEAK HR FACTOR :	0.500			0.800			0.750			0.808			0.884																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-014

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	3	2	1	2	2	0	1.5	1	0.5	1	1	1	
3:00 PM	0	2	0	1	0	2	1	0	1	3	2	1	13
3:15 PM	0	10	2	3	1	4	0	1	4	0	0	4	29
3:30 PM	1	4	1	3	0	2	0	1	2	0	1	13	28
3:45 PM	0	2	1	5	1	1	0	0	2	1	1	7	21
4:00 PM	2	2	0	5	0	4	1	0	3	0	2	13	32
4:15 PM	2	2	1	9	0	1	0	2	4	0	1	5	27
4:30 PM	0	2	0	3	0	3	0	0	1	0	2	9	20
4:45 PM	1	1	0	3	0	2	1	1	2	0	0	10	21
5:00 PM	1	4	0	4	0	1	0	1	3	0	3	9	26
5:15 PM	4	2	0	1	1	3	1	2	5	1	3	14	37
5:30 PM	2	2	0	4	0	1	1	1	1	0	1	17	30
5:45 PM	0	0	0	3	0	5	1	1	1	3	0	14	28
TOTAL VOLUMES :	13	33	5	44	3	29	6	10	29	8	16	116	312
APPROACH %'s :	25.49%	64.71%	9.80%	57.89%	3.95%	38.16%	13.33%	22.22%	64.44%	5.71%	11.43%	82.86%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	6	9	0	11	1	9	2	4	11	1	8	42	104
PEAK HR FACTOR :	0.625			0.875			0.531			0.708			0.703

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
6:15 AM	0	0	0	0	0	0	0	2	0	0	1	1	4
6:30 AM	0	1	0	0	0	1	0	2	0	0	0	0	4
6:45 AM	0	1	0	0	0	1	0	2	0	0	3	0	7
7:00 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
7:15 AM	0	1	0	0	0	0	0	0	0	0	2	0	3
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	1	2
7:45 AM	0	1	0	1	0	0	0	0	0	0	2	0	4
8:00 AM	0	1	0	0	0	0	0	0	0	0	3	0	4
8:15 AM	0	1	1	0	0	0	0	0	0	0	2	0	4
8:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	1	1	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	0	10	2	1	0	2	0	8	0	0	14	2	39
APPROACH %'s :	0.00%	83.33%	16.67%	33.33%	0.00%	66.67%	0.00%	100.00%	0.00%	0.00%	87.50%	12.50%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	4	1	1	0	0	0	0	0	0	7	1	14
PEAK HR FACTOR :	0.625			0.250			0.000			0.667			0.875

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
3:15 PM	0	1	0	0	0	0	0	0	0	0	2	0	3
3:30 PM	0	1	0	0	0	0	0	1	0	0	0	0	2
3:45 PM	0	2	0	0	0	0	0	0	0	0	2	1	5
4:00 PM	0	1	0	0	0	0	0	1	0	0	1	0	3
4:15 PM	0	1	0	0	0	0	0	0	0	0	2	0	3
4:30 PM	0	1	0	0	0	0	0	1	0	0	1	0	3
4:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
5:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	2	1	3
5:30 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
5:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	14	0	0	0	0	0	4	0	0	12	2	32
	0.00%	100.00%	0.00%				0.00%	100.00%	0.00%	0.00%	85.71%	14.29%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	5	0	0	0	0	0	1	0	0	3	1	10
PEAK HR FACTOR :	0.625			0.000			0.250			0.333			0.833

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
6:00 AM	0	2	1	5	4	0	0	0	0	0	0	1	13
6:15 AM	0	3	1	9	5	1	0	0	1	0	1	1	22
6:30 AM	0	3	0	1	4	2	2	0	0	0	1	1	14
6:45 AM	0	8	0	7	3	3	0	1	0	0	6	3	31
7:00 AM	0	4	1	3	4	1	1	2	0	0	3	2	21
7:15 AM	0	2	0	4	4	1	0	1	0	0	1	1	14
7:30 AM	0	7	1	1	4	2	0	0	0	0	6	3	24
7:45 AM	0	6	0	3	3	2	0	2	0	0	2	3	21
8:00 AM	0	4	0	1	8	4	2	0	0	0	2	6	27
8:15 AM	0	4	0	2	6	3	0	0	0	0	2	8	25
8:30 AM	0	14	0	5	10	4	2	2	0	0	3	15	55
8:45 AM	0	9	1	12	5	6	0	0	0	0	0	6	39
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	66	5	53	60	29	7	8	1	0	27	50	306
	0.00%	92.96%	7.04%	37.32%	42.25%	20.42%	43.75%	50.00%	6.25%	0.00%	35.06%	64.94%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	21	1	7	21	11	2	2	0	0	12	20	97
PEAK HR FACTOR :	0.688			0.750			0.500			0.800			0.898

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																											
	0	2	0	1	2	0	1	2	0	1	2	0																											
3:00 PM	0	4	0	2	4	0	0	3	0	0	0	4	17																										
3:15 PM	0	4	0	2	7	2	3	2	0	0	4	10	34																										
3:30 PM	0	5	0	4	1	1	0	1	0	0	1	11	24																										
3:45 PM	0	5	1	7	4	3	0	0	0	0	3	7	30																										
4:00 PM	0	8	0	5	6	1	0	2	0	0	6	10	38																										
4:15 PM	0	8	0	8	4	0	3	0	0	0	1	5	29																										
4:30 PM	0	6	0	3	1	0	2	0	0	0	3	8	23																										
4:45 PM	0	6	0	1	0	0	0	0	0	0	4	12	23																										
5:00 PM	0	12	0	3	3	0	0	0	0	0	2	7	27																										
5:15 PM	0	9	0	1	0	3	2	0	0	0	0	17	32																										
5:30 PM	0	6	0	3	1	0	0	1	0	0	2	17	30																										
5:45 PM	0	10	0	4	1	1	2	2	0	0	1	17	38																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	0	83	1	43	32	11	12	11	0	0	27	125	345																										
	0.00%	98.81%	1.19%	50.00%	37.21%	12.79%	52.17%	47.83%	0.00%	0.00%	17.76%	82.24%																											
PEAK HR START TIME :	500 PM												TOTAL																										
PEAK HR VOL :	0			37			0			11			5			4			4			3			0			0			5			58			127		
PEAK HR FACTOR :	0.771			0.833			0.438			0.829			0.836																										

CONTROL : [Signalized](#)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	3	0	1	1	1	1	1	0	
6:00 AM	1	1	0	0	4	0	0	0	0	0	0	0	6
6:15 AM	2	5	0	0	6	1	2	0	1	1	0	1	19
6:30 AM	3	2	0	1	6	0	2	0	0	1	0	0	15
6:45 AM	2	5	0	1	3	0	2	0	1	1	0	0	15
7:00 AM	3	1	0	0	5	0	2	0	0	1	0	0	12
7:15 AM	3	2	0	0	2	0	2	0	0	2	0	0	11
7:30 AM	2	3	0	0	3	0	1	0	0	1	0	1	11
7:45 AM	3	0	0	0	1	0	1	0	1	1	0	0	7
8:00 AM	2	3	0	0	0	0	0	0	1	2	0	0	8
8:15 AM	2	4	0	0	4	0	3	0	0	3	0	0	16
8:30 AM	1	2	0	0	2	0	1	0	0	0	0	0	6
8:45 AM	2	0	0	0	2	0	2	0	1	1	0	0	8
TOTAL VOLUMES :	26	28	0	2	38	1	18	0	5	14	0	2	134
APPROACH %'s :	48.15%	51.85%	0.00%	4.88%	92.68%	2.44%	78.26%	0.00%	21.74%	87.50%	0.00%	12.50%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	7	9	0	0	8	0	6	0	2	6	0	0	38
PEAK HR FACTOR :	0.667			0.500			0.667			0.500			0.594

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	3	0	1	1	1	1	1	0	
3:00 PM	3	8	0	0	3	0	2	0	0	2	0	0	18
3:15 PM	1	3	0	0	1	0	1	0	1	2	0	0	9
3:30 PM	2	7	0	0	3	0	0	0	0	1	0	0	13
3:45 PM	1	3	0	0	3	0	2	0	0	2	0	0	11
4:00 PM	3	3	0	0	5	0	3	0	0	1	0	0	15
4:15 PM	3	3	0	0	2	0	0	0	0	2	0	0	10
4:30 PM	3	1	0	0	2	0	1	0	1	1	0	0	9
4:45 PM	1	2	0	0	2	0	1	0	0	1	1	0	8
5:00 PM	3	4	0	0	2	0	1	0	0	2	0	0	12
5:15 PM	2	2	0	0	3	0	2	0	0	1	0	0	10
5:30 PM	2	2	0	0	2	0	0	0	1	2	0	0	9
5:45 PM	2	6	0	0	0	0	0	0	1	0	1	0	10
TOTAL VOLUMES :	NL 26	NT 44	NR 0	SL 0	ST 28	SR 0	EL 13	ET 0	ER 4	WL 17	WT 2	WR 0	TOTAL 134
APPROACH %'s :	37.14%	62.86%	0.00%	0.00%	100.00%	0.00%	76.47%	0.00%	23.53%	89.47%	10.53%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	9	14	0	0	7	0	3	0	2	5	1	0	41
PEAK HR FACTOR :	0.719			0.583			0.625			0.750			0.854

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	3	0	1	1	1	1	1	0	
6:00 AM	4	3	0	0	28	0	0	0	0	12	4	12	63
6:15 AM	0	2	0	0	19	0	0	1	0	12	3	4	41
6:30 AM	0	3	0	0	12	1	0	0	0	5	0	4	25
6:45 AM	2	5	0	0	6	0	1	0	1	1	1	2	19
7:00 AM	0	5	0	0	5	0	0	0	0	1	1	0	12
7:15 AM	0	6	0	0	6	0	0	0	3	0	0	0	15
7:30 AM	2	7	0	0	2	1	1	0	2	0	1	1	17
7:45 AM	1	8	0	0	2	2	0	0	1	0	1	0	15
8:00 AM	0	5	0	0	7	0	1	0	0	0	0	1	14
8:15 AM	1	6	2	2	3	0	2	0	0	0	0	0	16
8:30 AM	1	9	1	0	8	2	0	0	0	1	1	0	23
8:45 AM	1	11	4	3	6	3	0	1	0	0	0	0	29
TOTAL VOLUMES :	12	70	7	5	104	9	5	2	7	32	12	24	289
APPROACH %'s :	13.48%	78.65%	7.87%	4.24%	88.14%	7.63%	35.71%	14.29%	50.00%	47.06%	17.65%	35.29%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	3	31	7	5	24	5	3	1	0	1	1	1	82
PEAK HR FACTOR :	0.641			0.708			0.500			0.375			0.707

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	4	0	0	6	0	0	0	0	0	0	0	10
3:15 PM	1	3	0	0	5	0	0	2	1	0	0	0	12
3:30 PM	0	3	1	1	1	1	0	0	1	0	0	0	8
3:45 PM	0	10	1	2	0	0	0	1	0	0	1	0	15
4:00 PM	0	9	0	0	4	0	1	0	3	0	0	3	20
4:15 PM	1	5	2	1	2	0	0	2	1	0	0	0	14
4:30 PM	1	9	3	2	2	0	0	2	0	0	0	0	19
4:45 PM	3	7	1	7	1	1	0	1	0	0	0	1	22
5:00 PM	0	6	3	2	2	0	1	0	0	0	0	1	15
5:15 PM	1	3	1	1	0	0	0	0	1	0	1	1	9
5:30 PM	3	5	2	0	3	0	0	1	1	0	1	0	16
5:45 PM	1	3	3	1	2	0	0	0	0	0	1	0	11
TOTAL VOLUMES :	11	67	17	17	28	2	2	9	8	0	4	6	171
APPROACH %'s :	11.58%	70.53%	17.89%	36.17%	59.57%	4.26%	10.53%	47.37%	42.11%	0.00%	40.00%	60.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	5	17	9	4	7	0	1	1	2	0	3	2	51
PEAK HR FACTOR :	0.775			0.688			0.500			0.625			0.797

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-017

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_W College St			N Main St_W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	0	3	0	0	0	1	0	0	0	
6:00 AM	2	2	1	0	0	0	0	0	0	0	0	0	5
6:15 AM	1	4	0	0	1	0	0	0	2	0	0	0	8
6:30 AM	2	2	1	0	1	0	0	0	3	0	0	0	9
6:45 AM	2	2	1	0	3	0	0	0	2	0	0	0	10
7:00 AM	2	3	1	0	2	0	0	0	2	0	0	0	10
7:15 AM	2	1	0	0	2	0	0	0	2	0	0	0	7
7:30 AM	2	2	1	0	3	0	0	0	1	0	0	0	9
7:45 AM	1	0	1	0	2	0	0	0	2	0	0	0	6
8:00 AM	2	1	1	0	2	0	0	0	2	0	0	0	8
8:15 AM	2	2	2	0	3	0	0	0	0	0	0	0	9
8:30 AM	2	2	1	0	0	0	0	0	0	0	0	0	5
8:45 AM	1	1	2	0	1	0	0	0	3	0	0	0	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	21	22	12	0	20	0	0	0	19	0	0	0	94
	38.18%	40.00%	21.82%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%				
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	7	5	5	0	10	0	0	0	5	0	0	0	32
PEAK HR FACTOR :	0.708			0.833			0.625			0.000			0.889

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-017

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_W College St			N Main St_W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	0	3	0	0	0	1	0	0	0	
3:00 PM	3	4	1	0	4	0	0	0	2	0	0	0	14
3:15 PM	0	2	1	0	1	0	0	0	2	0	0	0	6
3:30 PM	2	7	1	0	3	0	0	0	1	0	0	0	14
3:45 PM	2	1	2	0	1	0	0	0	1	0	0	0	7
4:00 PM	2	3	1	0	3	0	0	0	2	0	0	0	11
4:15 PM	2	5	1	0	2	0	0	0	2	0	0	0	12
4:30 PM	0	3	2	0	1	0	0	0	2	0	0	0	8
4:45 PM	1	2	1	0	2	1	0	0	1	0	0	0	8
5:00 PM	3	3	1	0	2	0	0	0	1	0	0	0	10
5:15 PM	3	1	0	0	0	0	0	0	1	0	0	0	5
5:30 PM	0	5	2	0	2	0	0	0	3	0	0	0	12
5:45 PM	0	6	1	0	2	0	0	0	2	0	0	0	11
TOTAL VOLUMES :	18	42	14	0	23	1	0	0	20	0	0	0	118
APPROACH %'s :	24.32%	56.76%	18.92%	0.00%	95.83%	4.17%	0.00%	0.00%	100.00%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	6	15	4	0	6	0	0	0	7	0	0	0	38
PEAK HR FACTOR :	0.893			0.750			0.583			0.000			0.792

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-017

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_W College St			N Main St_W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	0	3	0	0	0	1	0	0	0	
3:00 PM	0	2	3	0	11	2	0	0	0	0	0	0	18
3:15 PM	0	3	4	0	17	0	0	0	2	0	0	0	26
3:30 PM	0	3	6	0	4	0	0	0	2	0	0	0	15
3:45 PM	0	7	9	0	5	0	0	0	0	0	0	0	21
4:00 PM	0	5	8	0	10	0	0	0	0	0	0	0	23
4:15 PM	1	10	8	0	7	1	0	0	0	0	0	0	27
4:30 PM	0	11	6	0	3	0	0	0	0	0	0	0	20
4:45 PM	0	8	7	0	1	1	0	0	1	0	0	0	18
5:00 PM	0	7	14	0	5	0	0	0	1	0	0	0	27
5:15 PM	0	7	10	0	4	1	0	0	0	0	0	0	22
5:30 PM	0	8	9	0	4	0	0	0	0	0	0	0	21
5:45 PM	0	7	14	0	3	1	0	0	0	0	0	0	25
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	78	98	0	74	6	0	0	6	0	0	0	263
	0.56%	44.07%	55.37%	0.00%	92.50%	7.50%	0.00%	0.00%	100.00%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	29	47	0	16	2	0	0	1	0	0	0	95
PEAK HR FACTOR :	0.905			0.900			0.250			0.000			0.880

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-018

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_Bauchet St			N Main St_Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	1	3	0	2	0.5	0.5	1	0	1	
6:00 AM	0	4	0	0	1	0	1	0	1	0	0	0	7
6:15 AM	0	5	0	0	3	0	0	0	2	0	0	0	10
6:30 AM	0	5	0	0	4	0	1	0	1	0	0	0	11
6:45 AM	0	4	0	0	5	0	3	0	1	0	0	0	13
7:00 AM	0	3	0	0	3	0	3	0	1	0	0	0	10
7:15 AM	0	3	0	0	5	0	0	0	1	0	0	0	9
7:30 AM	0	4	0	0	4	0	1	0	0	0	0	0	9
7:45 AM	0	1	0	0	2	0	1	1	1	0	0	0	6
8:00 AM	0	2	0	0	5	0	1	0	1	0	0	0	9
8:15 AM	0	2	0	0	3	0	3	0	1	0	0	0	9
8:30 AM	0	2	0	0	0	0	1	0	0	0	0	0	3
8:45 AM	0	2	0	0	4	0	3	0	1	0	0	0	10
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	37	0	0	39	0	18	1	11	0	0	0	106
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	60.00%	3.33%	36.67%				
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0			8			0			0			31
PEAK HR FACTOR :	1.000			0.600			0.688			0.000			0.775

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-018

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_Bauchet St			N Main St_Bauchet St			TOTAL					
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND								
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR						
	0	3	0	1	3	0	2	0.5	0.5	1	0	1						
3:00 PM	0	6	0	0	2	0	1	0	1	0	0	0	10					
3:15 PM	0	1	0	0	3	0	2	0	2	0	0	0	8					
3:30 PM	0	7	0	0	4	0	3	0	0	0	0	0	14					
3:45 PM	0	2	0	0	3	0	3	0	1	0	0	0	9					
4:00 PM	0	5	0	0	7	0	3	0	1	0	0	0	16					
4:15 PM	0	3	0	0	4	0	4	0	1	0	0	0	12					
4:30 PM	0	1	0	0	3	0	4	0	1	0	0	0	9					
4:45 PM	0	2	0	0	3	0	2	0	1	0	0	0	8					
5:00 PM	0	5	0	0	3	0	2	0	1	0	0	0	11					
5:15 PM	0	3	0	0	4	0	1	0	0	0	0	0	8					
5:30 PM	0	4	0	0	5	0	4	0	0	0	0	0	13					
5:45 PM	0	1	0	0	3	0	5	0	1	0	0	0	10					
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL					
APPROACH %'s :	0	40	0	0	44	0	34	0	10	0	0	0	128					
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	77.27%	0.00%	22.73%									
PEAK HR START TIME :	500 PM												TOTAL					
PEAK HR VOL :	0			13			0			0			0			42		
PEAK HR FACTOR :	0.650			0.750			0.583			0.000			0.808					

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-018

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_Bauchet St			N Main St_Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	1	3	0	2	0.5	0.5	1	0	1	
6:00 AM	0	9	0	0	42	0	2	0	0	0	0	0	53
6:15 AM	0	7	0	0	39	0	2	0	0	0	0	0	48
6:30 AM	0	5	0	0	18	0	0	0	1	0	0	0	24
6:45 AM	0	11	1	0	14	0	4	0	0	0	0	0	30
7:00 AM	0	9	0	0	6	0	1	1	0	0	0	1	18
7:15 AM	0	7	0	1	14	0	2	1	0	0	0	0	25
7:30 AM	0	16	0	0	11	0	2	0	0	0	0	0	29
7:45 AM	0	11	0	0	8	0	1	1	0	0	0	0	21
8:00 AM	0	10	0	0	11	0	2	1	0	1	0	2	27
8:15 AM	0	13	0	0	17	0	1	0	0	0	0	1	32
8:30 AM	0	17	0	0	16	0	10	0	0	0	0	1	44
8:45 AM	0	20	0	0	11	0	12	1	0	0	0	0	44
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	135	1	1	207	0	39	5	1	1	0	5	395
	0.00%	99.26%	0.74%	0.48%	99.52%	0.00%	86.67%	11.11%	2.22%	16.67%	0.00%	83.33%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	60	0	0	55	0	25	2	0	1	0	4	147
PEAK HR FACTOR :	0.750			0.809			0.519			0.417			0.835

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-018

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Main St_Bauchet St			N Main St_Bauchet St			TOTAL		
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND					
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR			
	0	3	0	1	3	0	2	0.5	0.5	1	0	1			
3:00 PM	0	4	0	0	11	0	5	0	0	1	0	0	21		
3:15 PM	0	3	0	0	16	0	4	0	0	0	0	0	23		
3:30 PM	0	3	1	0	5	0	6	2	0	0	0	0	17		
3:45 PM	0	7	2	0	7	0	10	1	0	0	0	0	27		
4:00 PM	0	5	0	1	11	0	5	0	0	2	0	0	24		
4:15 PM	0	7	0	0	6	0	10	0	0	0	0	1	24		
4:30 PM	0	9	0	0	4	0	8	0	0	0	0	0	21		
4:45 PM	0	8	0	0	2	0	8	0	0	0	0	0	18		
5:00 PM	0	9	0	0	6	0	14	1	0	0	0	0	30		
5:15 PM	0	7	0	0	5	0	11	3	0	0	0	0	26		
5:30 PM	0	5	0	0	3	0	11	0	0	0	0	0	19		
5:45 PM	0	6	0	0	3	0	11	1	0	0	0	0	21		
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
APPROACH %'s :	0	73	3	1	79	0	103	8	0	3	0	1	271		
	0.00%	96.05%	3.95%	1.25%	98.75%	0.00%	92.79%	7.21%	0.00%	75.00%	0.00%	25.00%			
PEAK HR START TIME :	500 PM												TOTAL		
PEAK HR VOL :	0			27			0			0			96		
PEAK HR FACTOR :	0.750			0.708			0.867			0.000			0.800		

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-019

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Main St			N Main St			West Cesar E Chavez Ave			West Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	2.5	0	0	0	0	1	3	0	0	3	0	
6:00 AM	0	0	0	0	0	0	1	5	0	0	21	0	27
6:15 AM	0	1	2	0	0	0	0	5	0	0	13	1	22
6:30 AM	1	1	1	0	0	0	1	6	0	0	20	1	31
6:45 AM	0	0	4	0	0	0	1	8	0	0	21	0	34
7:00 AM	0	0	3	0	0	0	3	11	0	0	18	0	35
7:15 AM	0	1	2	0	0	0	1	13	0	0	13	1	31
7:30 AM	0	2	2	0	0	0	1	7	0	0	15	0	27
7:45 AM	0	1	3	0	0	0	1	8	0	0	12	2	27
8:00 AM	0	0	1	0	0	0	1	13	0	0	14	1	30
8:15 AM	0	1	1	0	0	0	1	12	0	0	14	0	29
8:30 AM	0	1	4	0	0	0	3	10	0	0	13	1	32
8:45 AM	0	1	4	0	0	0	1	10	0	0	14	0	30
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	9	27	0	0	0	15	108	0	0	188	7	355
	2.70%	24.32%	72.97%				12.20%	87.80%	0.00%	0.00%	96.41%	3.59%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	3	10	0	0	0	6	45	0	0	55	2	121
PEAK HR FACTOR :	0.650			0.000			0.911			0.950			0.945

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-019

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Main St			N Main St			West Cesar E Chavez Ave			West Cesar E Chavez Ave			TOTAL																							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																										
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
	1.5	2.5	0	0	0	0	1	3	0	0	3	0																								
3:00 PM	0	0	4	0	0	0	1	7	0	0	14	0	26																							
3:15 PM	0	0	2	0	0	0	0	6	0	0	12	0	20																							
3:30 PM	0	2	3	0	0	0	4	6	0	0	9	1	25																							
3:45 PM	0	0	5	0	0	0	1	6	0	0	11	0	23																							
4:00 PM	0	0	3	0	0	0	1	15	0	0	13	2	34																							
4:15 PM	0	1	5	0	0	0	3	10	0	0	12	0	31																							
4:30 PM	1	1	3	0	0	0	2	10	0	0	12	0	29																							
4:45 PM	2	6	4	0	0	0	0	12	0	0	9	1	34																							
5:00 PM	0	1	6	0	0	0	2	13	0	0	14	0	36																							
5:15 PM	0	2	3	0	0	0	2	15	0	0	11	1	34																							
5:30 PM	0	0	3	0	0	0	2	8	0	0	13	0	26																							
5:45 PM	0	2	3	0	0	0	1	10	0	0	5	0	21																							
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
APPROACH %'s :	3	15	44	0	0	0	19	118	0	0	135	5	339																							
	4.84%	24.19%	70.97%				13.87%	86.13%	0.00%	0.00%	96.43%	3.57%																								
PEAK HR START TIME :	445 PM												TOTAL																							
PEAK HR VOL :	2			9			16			0			0			6			48			0			0			47			2			130		
PEAK HR FACTOR :	0.563			0.000			0.794			0.875			0.903																							

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-019

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Main St			N Main St			West Cesar E Chavez Ave			West Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	2.5	0	0	0	0	1	3	0	0	3	0	
6:00 AM	0	2	2	0	0	0	0	1	0	0	6	2	13
6:15 AM	0	1	2	0	0	0	0	1	0	0	6	1	11
6:30 AM	0	3	2	0	0	0	1	2	0	0	4	0	12
6:45 AM	0	1	2	0	0	0	1	2	0	0	5	0	11
7:00 AM	0	1	2	0	0	0	0	3	0	0	3	0	9
7:15 AM	3	0	5	0	0	0	1	1	0	0	8	0	18
7:30 AM	0	2	3	0	0	0	1	4	0	0	3	0	13
7:45 AM	2	1	1	0	0	0	0	6	0	0	2	0	12
8:00 AM	0	3	4	0	0	0	0	4	0	0	2	0	13
8:15 AM	2	5	3	0	0	0	0	1	0	0	2	2	15
8:30 AM	0	4	2	0	0	0	0	4	0	0	2	0	12
8:45 AM	1	5	3	0	0	0	0	5	0	0	8	0	22
TOTAL VOLUMES :	8	28	31	0	0	0	4	34	0	0	51	5	161
APPROACH %'s :	11.94%	41.79%	46.27%				10.53%	89.47%	0.00%	0.00%	91.07%	8.93%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	3	17	12	0	0	0	0	14	0	0	14	2	62
PEAK HR FACTOR :	0.800			0.000			0.700			0.500			0.705

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-019

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	N Main St			N Main St			West Cesar E Chavez Ave			West Cesar E Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1.5	2.5	0	0	0	0	1	3	0	0	3	0	
3:00 PM	3	9	2	0	0	0	0	8	0	0	6	0	28
3:15 PM	0	4	0	0	0	0	1	6	0	0	1	0	12
3:30 PM	2	8	3	0	0	0	0	6	0	0	1	0	20
3:45 PM	2	7	3	0	0	0	3	5	0	0	2	0	22
4:00 PM	1	7	4	0	0	0	1	4	0	0	4	0	21
4:15 PM	0	6	2	0	0	0	2	3	0	0	3	0	16
4:30 PM	0	6	3	0	0	0	1	3	0	0	2	0	15
4:45 PM	1	8	4	0	0	0	0	3	0	0	0	0	16
5:00 PM	1	6	3	0	0	0	2	5	0	0	0	0	17
5:15 PM	0	10	1	0	0	0	2	1	0	0	3	0	17
5:30 PM	0	10	2	0	0	0	2	3	0	0	1	0	18
5:45 PM	0	11	4	0	0	0	0	5	0	0	1	0	21
TOTAL VOLUMES :	10	92	31	0	0	0	14	52	0	0	24	0	223
APPROACH %'s :	7.52%	69.17%	23.31%				21.21%	78.79%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	2	34	10	0	0	0	6	12	0	0	4	0	68
PEAK HR FACTOR :	0.885			0.000			0.643			0.333			0.944

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			SR-101 NB On-Ramp			SR-101 NB On-Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	0	3	0	0	0	0	0	0	0	
6:00 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
6:15 AM	0	8	0	0	2	0	0	0	0	0	0	0	10
6:30 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
6:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	4
7:00 AM	0	3	0	0	2	0	0	0	0	0	0	0	5
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:30 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
8:15 AM	0	0	0	0	-1	0	0	0	0	0	0	0	-1
8:30 AM	0	3	0	0	3	0	0	0	0	0	0	0	6
8:45 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	28	0	0	18	0	0	0	0	0	0	0	46
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%							
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	4	0	0	5	0	0	0	0	0	0	0	9
PEAK HR FACTOR :	0.500			0.417			0.000			0.000			0.563

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			SR-101 NB On-Ramp			SR-101 NB On-Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	0	0	0	
3:00 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
3:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
3:30 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
3:45 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
4:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:30 PM	0	4	0	0	1	0	0	0	0	0	0	0	5
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	10	0	0	18	0	0	0	0	0	0	0	28
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%							
PEAK HR START TIME :	315 PM												TOTAL
PEAK HR VOL :	0	2	0	0	6	0	0	0	0	0	0	0	8
PEAK HR FACTOR :	0.500			0.750			0.000			0.000			0.667

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			SR-101 NB On-Ramp			SR-101 NB On-Ramp			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	0	0	0	
6:00 AM	8	8	0	0	8	36	0	0	0	0	0	0	60
6:15 AM	0	9	0	0	10	21	0	0	0	0	0	0	40
6:30 AM	9	6	0	0	7	13	0	0	0	0	0	0	35
6:45 AM	0	8	0	0	5	5	0	0	0	0	0	0	18
7:00 AM	18	7	0	0	6	5	0	0	0	0	0	0	36
7:15 AM	0	15	0	0	7	0	0	0	0	0	0	0	22
7:30 AM	16	13	0	0	16	3	0	0	0	0	0	0	48
7:45 AM	0	19	0	0	11	1	0	0	0	0	0	0	31
8:00 AM	9	8	0	0	8	4	0	0	0	0	0	0	29
8:15 AM	7	15	0	0	17	4	0	0	0	0	0	0	43
8:30 AM	8	19	0	0	5	3	0	0	0	0	0	0	35
8:45 AM	3	21	0	0	12	7	0	0	0	0	0	0	43
TOTAL VOLUMES :	78	148	0	0	112	102	0	0	0	0	0	0	440
APPROACH %'s :	34.51%	65.49%	0.00%	0.00%	52.34%	47.66%							
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	32	55	0	0	52	12	0	0	0	0	0	0	151
PEAK HR FACTOR :	0.750			0.762			0.000			0.000			0.786

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-020

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			SR-101 NB On-Ramp			SR-101 NB On-Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	0	0	0	
3:00 PM	3	1	0	0	9	7	0	0	0	0	0	0	20
3:15 PM	0	5	0	0	13	0	0	0	0	0	0	0	18
3:30 PM	5	2	0	0	3	4	0	0	0	0	0	0	14
3:45 PM	1	5	0	0	4	0	0	0	0	0	0	0	10
4:00 PM	2	5	0	0	6	2	0	0	0	0	0	0	15
4:15 PM	1	12	0	0	5	1	0	0	0	0	0	0	19
4:30 PM	0	5	0	0	7	0	0	0	0	0	0	0	12
4:45 PM	0	6	0	0	0	3	0	0	0	0	0	0	9
5:00 PM	0	7	0	0	6	1	0	0	0	0	0	0	14
5:15 PM	0	3	0	0	2	0	0	0	0	0	0	0	5
5:30 PM	1	3	0	0	6	2	0	0	0	0	0	0	12
5:45 PM	0	5	0	0	3	5	0	0	0	0	0	0	13
TOTAL VOLUMES :	NL 13	NT 59	NR 0	SL 0	ST 64	SR 25	EL 0	ET 0	ER 0	WL 0	WT 0	WR 0	TOTAL 161
APPROACH %'s :	18.06%	81.94%	0.00%	0.00%	71.91%	28.09%							
PEAK HR START TIME :	315 PM												TOTAL
PEAK HR VOL :	8	17	0	0	26	6	0	0	0	0	0	0	57
PEAK HR FACTOR :	0.893			0.615			0.000			0.000			0.792

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	3	0	
6:00 AM	0	2	0	0	3	0	0	0	0	2	10	0	17
6:15 AM	0	3	0	0	3	0	0	0	0	2	17	0	25
6:30 AM	0	4	0	0	3	0	0	0	0	1	12	0	20
6:45 AM	0	1	0	0	3	0	0	0	0	1	18	0	23
7:00 AM	0	4	0	0	3	0	0	0	0	1	19	0	27
7:15 AM	0	3	0	0	2	0	0	0	0	3	19	0	27
7:30 AM	0	3	0	0	4	0	0	0	0	0	15	0	22
7:45 AM	0	2	0	0	2	0	0	0	0	3	16	0	23
8:00 AM	0	5	0	0	3	0	0	0	0	0	22	0	30
8:15 AM	0	2	0	0	2	0	0	0	0	2	12	0	18
8:30 AM	1	3	0	0	2	0	0	0	0	1	14	0	21
8:45 AM	0	3	0	0	3	0	0	0	0	0	12	0	18
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	35	0	0	33	0	0	0	0	16	186	0	271
	2.78%	97.22%	0.00%	0.00%	100.00%	0.00%				7.92%	92.08%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	12	0	0	9	0	0	0	0	6	64	0	92
PEAK HR FACTOR :	0.650			0.750			0.000			0.795			0.767

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL											
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND														
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
	1	2	0	0	2	0	0	0	0	0	3	0												
3:00 PM	0	2	0	0	4	2	0	0	0	0	6	0	14											
3:15 PM	0	2	0	0	2	0	0	0	0	0	8	0	12											
3:30 PM	0	3	0	0	2	0	0	0	0	1	13	0	19											
3:45 PM	0	3	0	0	3	0	0	0	0	0	14	0	20											
4:00 PM	0	4	0	0	4	0	0	0	0	0	11	0	19											
4:15 PM	0	3	0	0	2	0	0	0	0	1	13	1	20											
4:30 PM	0	1	0	0	3	0	0	0	0	1	13	0	18											
4:45 PM	0	3	0	0	3	0	0	0	0	0	13	0	19											
5:00 PM	0	3	0	0	3	0	0	0	0	1	16	1	24											
5:15 PM	0	2	0	0	2	0	0	0	0	3	9	0	16											
5:30 PM	0	2	0	0	3	0	0	0	0	1	11	0	17											
5:45 PM	0	1	0	0	4	0	0	0	0	0	14	0	19											
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
APPROACH %'s :	0	29	0	0	35	2	0	0	0	8	141	2	217											
	0.00%	100.00%	0.00%	0.00%	94.59%	5.41%				5.30%	93.38%	1.32%												
PEAK HR START TIME :	500 PM												TOTAL											
PEAK HR VOL :	0			8			0			0			5			50			1			76		
PEAK HR FACTOR :	0.667			0.750			0.000			0.778			0.792											

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	3	0	
6:00 AM	0	0	0	0	0	0	0	0	0	2	4	0	6
6:15 AM	0	0	0	0	1	0	0	0	0	0	2	0	3
6:30 AM	0	0	0	0	2	0	0	0	0	0	6	0	8
6:45 AM	0	3	0	0	2	0	0	0	0	0	8	0	13
7:00 AM	0	1	0	0	3	0	0	0	0	1	6	0	11
7:15 AM	1	2	0	0	2	0	0	0	0	0	9	1	15
7:30 AM	0	2	0	0	1	1	0	0	0	0	6	0	10
7:45 AM	0	3	0	0	2	1	0	0	0	1	7	0	14
8:00 AM	0	2	0	0	1	1	0	0	0	0	3	0	7
8:15 AM	0	0	0	0	0	2	0	0	0	1	5	0	8
8:30 AM	1	1	0	0	1	1	0	0	0	0	9	3	16
8:45 AM	0	3	0	0	1	1	0	0	0	1	7	0	13
TOTAL VOLUMES :	2	17	0	0	16	7	0	0	0	6	72	4	124
APPROACH %'s :	10.53%	89.47%	0.00%	0.00%	69.57%	30.43%				7.32%	87.80%	4.88%	
PEAK HR START TIME :	7:45 AM												TOTAL
PEAK HR VOL :	1	6	0	0	4	5	0	0	0	2	24	3	45
PEAK HR FACTOR :	0.583			0.750			0.000			0.604			0.703

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	3	0	
3:00 PM	0	3	0	0	1	1	0	0	0	0	1	0	6
3:15 PM	0	1	0	0	2	0	0	0	0	0	4	0	7
3:30 PM	0	2	0	0	0	1	0	0	0	0	2	0	5
3:45 PM	0	5	0	0	1	0	0	0	0	0	0	0	6
4:00 PM	0	1	0	0	0	2	0	0	0	0	0	0	3
4:15 PM	0	0	0	0	3	0	0	0	0	0	1	0	4
4:30 PM	0	1	0	0	0	1	0	0	0	0	2	0	4
4:45 PM	1	2	0	0	0	0	0	0	0	0	2	0	5
5:00 PM	0	5	0	0	0	1	0	0	0	0	2	1	9
5:15 PM	0	2	0	0	0	0	0	0	0	0	3	1	6
5:30 PM	0	3	0	0	2	0	0	0	0	1	2	0	8
5:45 PM	0	4	0	0	1	0	0	0	0	0	3	0	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	29	0	0	10	6	0	0	0	1	22	2	71
	3.33%	96.67%	0.00%	0.00%	62.50%	37.50%				4.00%	88.00%	8.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	14	0	0	3	1	0	0	0	1	10	2	31
PEAK HR FACTOR :	0.700			0.500			0.000			0.813			0.861

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	0
3:00 PM	0	2	0	0	4	0	0	6	0	0	0	0	12
3:15 PM	0	1	0	0	2	0	0	4	0	0	0	0	7
3:30 PM	0	3	0	0	3	0	0	11	0	0	0	0	17
3:45 PM	0	3	0	0	3	0	0	9	0	0	0	0	15
4:00 PM	0	3	0	0	4	0	1	11	0	0	0	0	19
4:15 PM	0	3	1	0	2	0	0	14	0	0	0	0	20
4:30 PM	0	1	0	0	5	0	0	15	0	0	0	0	21
4:45 PM	0	3	0	0	3	0	0	16	0	0	0	0	22
5:00 PM	0	3	2	0	4	0	0	16	0	0	0	0	25
5:15 PM	0	2	0	0	4	0	0	10	0	0	0	0	16
5:30 PM	0	2	0	0	3	0	0	22	0	0	0	0	27
5:45 PM	0	1	1	0	4	0	0	18	0	0	0	0	24
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	27	4	0	41	0	1	152	0	0	0	0	225
	0.00%	87.10%	12.90%	0.00%	100.00%	0.00%	0.65%	99.35%	0.00%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	8	3	0	15	0	0	66	0	0	0	0	92
PEAK HR FACTOR :	0.550			0.938			0.750			0.000			0.852

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	0
6:00 AM	0	0	0	0	2	0	0	1	0	0	0	0	3
6:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
6:45 AM	0	3	0	0	2	0	0	0	0	0	0	0	5
7:00 AM	0	1	1	0	3	0	0	0	1	0	0	0	6
7:15 AM	0	3	0	0	2	0	0	1	0	0	0	0	6
7:30 AM	0	1	0	0	1	0	0	1	0	0	0	0	3
7:45 AM	0	3	0	0	2	0	0	1	0	0	0	0	6
8:00 AM	0	2	1	0	1	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	1	0	0	2	0	0	0	0	3
8:30 AM	0	2	0	0	1	0	0	0	2	0	0	0	5
8:45 AM	0	3	0	0	3	0	0	0	0	0	0	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	18	2	0	21	0	0	6	3	0	0	0	50
	0.00%	90.00%	10.00%	0.00%	100.00%	0.00%	0.00%	66.67%	33.33%				
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	7	1	0	5	0	0	3	2	0	0	0	18
PEAK HR FACTOR :	0.667			0.625			0.625			0.000			0.750

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	
3:00 PM	0	3	0	0	0	0	0	1	0	0	0	0	4
3:15 PM	0	1	0	0	0	0	0	2	0	0	0	0	3
3:30 PM	0	2	2	0	0	0	0	5	1	0	0	0	10
3:45 PM	0	4	2	0	1	0	2	0	0	0	0	0	9
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	1	0	3	0	0	1	0	0	0	0	5
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:45 PM	0	3	1	0	0	0	0	1	0	0	0	0	5
5:00 PM	0	5	0	0	0	0	0	0	0	0	0	0	5
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	3	0	0	4	0	0	3	0	0	0	0	10
5:45 PM	0	4	0	0	2	0	0	4	0	0	0	0	10
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	27	6	0	10	0	2	19	1	0	0	0	65
	0.00%	81.82%	18.18%	0.00%	100.00%	0.00%	9.09%	86.36%	4.55%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	14	0	0	6	0	0	7	0	0	0	0	27
PEAK HR FACTOR :	0.700			0.375			0.438			0.000			0.675

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	1	2	1	1	2	0	1	2	1	
6:00 AM	0	0	0	1	2	3	2	3	0	0	5	0	16
6:15 AM	0	0	0	0	4	0	3	4	0	0	5	0	16
6:30 AM	0	1	0	0	2	3	3	2	0	1	1	0	13
6:45 AM	0	0	0	0	2	1	1	6	0	0	5	0	15
7:00 AM	0	2	0	0	1	3	2	3	0	1	3	0	15
7:15 AM	0	0	1	0	3	1	3	7	0	0	3	0	18
7:30 AM	0	1	0	0	0	5	3	3	0	0	3	0	15
7:45 AM	0	1	1	1	3	1	1	7	0	0	4	0	19
8:00 AM	0	0	0	0	0	3	4	8	0	0	4	1	20
8:15 AM	0	1	0	0	2	2	1	5	0	0	2	0	13
8:30 AM	0	1	0	0	1	2	3	6	1	0	3	0	17
8:45 AM	0	3	0	0	0	3	4	5	0	0	3	0	18
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	10	2	2	20	27	30	59	1	2	41	1	195
	0.00%	83.33%	16.67%	4.08%	40.82%	55.10%	33.33%	65.56%	1.11%	4.55%	93.18%	2.27%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	3	1	1	6	8	9	26	1	0	13	1	69
PEAK HR FACTOR :	0.500			0.750			0.750			0.700			0.863

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	1	2	1	1	2	0	1	2	1	
3:00 PM	0	0	0	1	0	3	2	2	0	0	10	0	18
3:15 PM	0	0	0	0	0	2	2	3	0	0	5	0	12
3:30 PM	0	0	0	0	1	2	3	1	0	0	6	0	13
3:45 PM	0	0	0	1	2	2	3	5	0	0	5	0	18
4:00 PM	0	1	1	1	0	3	2	1	0	1	6	0	16
4:15 PM	0	0	0	0	0	2	3	4	0	0	5	0	14
4:30 PM	0	0	0	0	3	2	1	1	0	0	10	0	17
4:45 PM	0	0	0	0	0	3	5	3	0	1	5	0	17
5:00 PM	0	2	0	1	2	1	1	4	0	0	9	0	20
5:15 PM	0	0	0	0	2	2	2	1	0	0	5	0	12
5:30 PM	0	0	0	0	1	3	2	0	0	0	4	0	10
5:45 PM	0	1	0	0	0	4	1	1	0	0	0	0	7
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	4	1	4	11	29	27	26	0	2	70	0	174
	0.00%	80.00%	20.00%	9.09%	25.00%	65.91%	50.94%	49.06%	0.00%	2.78%	97.22%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	2	0	1	5	9	10	8	0	1	23	0	59
PEAK HR FACTOR :	0.250			0.938			0.563			0.667			0.738

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

		AM												
NS/EW Streets:		N Los Angeles St			N Los Angeles St			Temple St			Temple St			
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
		1	3	0	1	2	1	1	2	0	1	2	1	
6:00 AM		0	0	0	1	4	0	0	1	0	0	0	0	6
6:15 AM		0	0	0	0	3	0	0	1	0	2	2	0	8
6:30 AM		0	1	0	0	1	0	0	0	0	0	1	0	3
6:45 AM		0	3	0	2	2	1	0	0	0	1	3	0	12
7:00 AM		0	1	1	0	1	0	0	1	1	1	5	1	12
7:15 AM		0	2	1	1	0	2	0	0	0	1	1	2	10
7:30 AM		0	3	0	0	2	0	0	0	0	0	3	0	8
7:45 AM		1	3	1	0	1	1	0	2	0	0	3	1	13
8:00 AM		0	1	0	0	2	0	0	2	0	1	5	1	12
8:15 AM		0	0	1	0	1	1	0	3	1	0	4	0	11
8:30 AM		0	2	0	2	2	0	0	3	0	0	7	0	16
8:45 AM		0	4	1	0	1	3	0	1	0	0	5	0	15
TOTAL VOLUMES :		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :		1	20	5	6	20	8	0	14	2	6	39	5	126
		3.85%	76.92%	19.23%	17.65%	58.82%	23.53%	0.00%	87.50%	12.50%	12.00%	78.00%	10.00%	
PEAK HR START TIME :		745 AM												TOTAL
PEAK HR VOL :		1	6	2	2	6	2	0	10	1	1	19	2	52
PEAK HR FACTOR :		0.450			0.625			0.688			0.786			0.813

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	1	2	1	1	2	0	1	2	1	
3:00 PM	0	3	1	0	1	0	0	2	0	0	2	0	9
3:15 PM	0	1	0	0	0	1	0	1	1	0	1	0	5
3:30 PM	1	4	2	1	1	2	0	4	1	0	1	2	19
3:45 PM	0	2	1	0	0	1	2	3	1	0	2	0	12
4:00 PM	0	0	0	0	0	0	0	1	0	1	0	0	2
4:15 PM	0	1	0	0	1	2	0	5	0	1	2	1	13
4:30 PM	0	0	0	0	0	0	0	3	0	0	2	0	5
4:45 PM	0	4	0	0	1	0	0	1	0	0	2	1	9
5:00 PM	0	3	0	0	1	0	1	4	0	0	0	1	10
5:15 PM	0	2	0	2	1	0	0	5	1	0	0	0	11
5:30 PM	0	2	0	0	4	0	0	3	0	0	0	1	10
5:45 PM	0	4	0	1	1	0	0	3	0	0	2	1	12
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	26	4	4	11	6	3	35	4	2	14	7	117
	3.23%	83.87%	12.90%	19.05%	52.38%	28.57%	7.14%	83.33%	9.52%	8.70%	60.87%	30.43%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	11	0	2	7	0	1	13	1	0	2	3	40
PEAK HR FACTOR :	0.688			0.563			0.625			0.417			0.909

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND							
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL				
	1	2	0	1	3	0	1	3	0	1	2	1					
6:00 AM	0	0	0	0	1	1	0	2	0	0	3	0	7				
6:15 AM	0	0	0	0	2	2	0	8	0	0	4	0	16				
6:30 AM	0	0	0	1	0	2	1	5	0	0	7	0	16				
6:45 AM	0	0	0	1	0	1	0	7	0	0	4	0	13				
7:00 AM	0	1	0	0	0	1	1	7	0	0	7	0	17				
7:15 AM	0	0	0	0	1	2	0	6	0	0	5	0	14				
7:30 AM	0	1	0	0	0	0	0	7	0	0	5	0	13				
7:45 AM	0	1	0	0	2	1	1	4	0	0	7	0	16				
8:00 AM	0	0	0	0	0	0	0	6	0	0	4	0	10				
8:15 AM	0	2	0	0	0	2	0	6	0	0	5	0	15				
8:30 AM	0	2	0	0	0	2	1	6	0	0	5	0	16				
8:45 AM	0	1	0	0	0	0	0	5	0	0	5	0	11				
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL				
APPROACH %'s :	0	8	0	2	6	14	4	69	0	0	61	0	164				
	0.00%	100.00%	0.00%	9.09%	27.27%	63.64%	5.48%	94.52%	0.00%	0.00%	100.00%	0.00%					
PEAK HR START TIME :	800 AM												TOTAL				
PEAK HR VOL :	0			5			0			0			19			0	52
PEAK HR FACTOR :	0.625			0.500			0.857			0.950			0.813				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	3	0	1	3	0	1	2	1	
3:00 PM	0	0	0	0	0	0	0	8	0	0	6	0	14
3:15 PM	0	0	0	0	0	0	0	5	0	0	5	0	10
3:30 PM	0	0	0	0	1	0	0	4	0	0	6	0	11
3:45 PM	0	1	0	0	1	1	0	5	0	0	5	0	13
4:00 PM	0	0	0	0	1	0	1	7	0	0	7	0	16
4:15 PM	0	0	0	0	0	0	0	7	0	0	5	0	12
4:30 PM	0	0	0	0	1	2	0	3	0	0	8	0	14
4:45 PM	0	0	0	0	0	0	0	5	0	0	4	0	9
5:00 PM	0	1	0	0	2	0	1	7	0	0	5	0	16
5:15 PM	0	0	0	0	1	2	0	5	0	0	6	0	14
5:30 PM	0	0	0	0	0	0	0	6	0	0	7	0	13
5:45 PM	0	0	0	0	0	0	1	4	0	0	6	0	11
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	2	0	0	7	5	3	66	0	0	70	0	153
	0.00%	100.00%	0.00%	0.00%	58.33%	41.67%	4.35%	95.65%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	1	0	0	3	2	2	22	0	0	24	0	54
PEAK HR FACTOR :	0.250			0.417			0.750			0.857			0.844

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	3	0	1	3	0	1	2	1	
6:00 AM	0	0	0	0	4	1	0	0	0	0	2	0	7
6:15 AM	0	0	0	0	4	0	0	1	0	0	3	0	8
6:30 AM	0	0	0	0	0	2	0	3	0	0	3	0	8
6:45 AM	0	3	0	0	2	1	0	1	0	0	5	0	12
7:00 AM	0	1	0	0	2	1	0	2	0	0	2	0	8
7:15 AM	0	1	0	0	1	1	1	0	0	1	3	0	8
7:30 AM	1	2	0	0	0	2	0	2	0	0	8	1	16
7:45 AM	1	4	1	0	2	0	0	2	0	0	4	1	15
8:00 AM	0	1	0	0	2	1	0	1	0	0	2	0	7
8:15 AM	0	2	0	0	2	0	0	8	0	0	2	0	14
8:30 AM	0	1	0	0	1	1	0	2	0	0	8	0	13
8:45 AM	1	4	4	0	1	0	1	1	4	0	5	1	22
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	3	19	5	0	21	10	2	23	4	1	47	3	138
	11.11%	70.37%	18.52%	0.00%	67.74%	32.26%	6.90%	79.31%	13.79%	1.96%	92.16%	5.88%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	1	8	4	0	6	2	1	12	4	0	17	1	56
PEAK HR FACTOR :	0.361			0.667			0.531			0.563			0.636

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	3	0	1	3	0	1	2	1	
3:00 PM	0	3	0	1	0	0	0	4	1	0	2	0	11
3:15 PM	1	0	0	0	0	0	1	6	0	0	1	0	9
3:30 PM	0	3	2	0	1	0	2	2	0	0	2	1	13
3:45 PM	0	2	0	0	0	1	1	1	1	0	1	0	7
4:00 PM	0	0	0	0	1	0	0	1	0	0	2	0	4
4:15 PM	0	1	1	1	1	0	0	4	0	0	3	0	11
4:30 PM	1	0	1	0	0	0	0	4	0	0	2	0	8
4:45 PM	0	5	0	0	0	0	0	3	2	1	1	0	12
5:00 PM	1	3	0	0	1	0	0	1	1	0	2	0	9
5:15 PM	1	1	0	0	2	1	0	2	0	0	0	0	7
5:30 PM	0	2	0	0	4	0	0	2	0	0	0	0	8
5:45 PM	0	4	0	0	1	0	0	2	0	0	0	0	7
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	4	24	4	2	11	2	4	32	5	1	16	1	106
	12.50%	75.00%	12.50%	13.33%	73.33%	13.33%	9.76%	78.05%	12.20%	5.56%	88.89%	5.56%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	2	10	0	0	8	1	0	7	1	0	2	0	31
PEAK HR FACTOR :	0.750			0.563			1.000			0.250			0.861

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL																	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																		
	2	0	1	0	0	0	0	2	0	1	2	0																		
6:00 AM	2	0	1	0	0	0	0	3	1	2	3	0	12																	
6:15 AM	2	0	3	0	0	0	0	4	0	3	3	0	15																	
6:30 AM	0	0	3	0	0	0	0	2	0	5	2	0	12																	
6:45 AM	1	0	3	0	0	0	0	5	0	3	4	0	16																	
7:00 AM	1	0	4	0	0	0	0	4	0	4	3	0	16																	
7:15 AM	0	0	3	0	0	0	0	8	0	3	3	0	17																	
7:30 AM	0	0	3	0	0	0	0	3	0	3	4	0	13																	
7:45 AM	0	0	4	0	0	0	0	9	0	3	3	0	19																	
8:00 AM	0	0	4	0	0	0	0	5	0	3	5	0	17																	
8:15 AM	1	0	4	0	0	0	0	6	1	2	1	0	15																	
8:30 AM	0	0	1	0	0	0	0	5	1	2	3	0	12																	
8:45 AM	0	0	3	0	0	0	0	5	0	3	4	0	15																	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																	
APPROACH %'s :	7	0	36	0	0	0	0	59	3	36	38	0	179																	
	16.28%	0.00%	83.72%				0.00%	95.16%	4.84%	48.65%	51.35%	0.00%																		
PEAK HR START TIME :	745 AM												TOTAL																	
PEAK HR VOL :	1			0			13			0			0			2			10			12			0			63		
PEAK HR FACTOR :	0.700			0.000			0.750			0.688			0.829																	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	2	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	4	0	4	0	0	0	0	0	0	1	9	0	18
3:15 PM	0	0	2	0	0	0	0	6	0	4	1	0	13
3:30 PM	1	0	2	0	0	0	0	0	0	3	5	0	11
3:45 PM	0	0	3	0	0	0	0	7	0	3	6	0	19
4:00 PM	2	0	2	0	0	0	0	2	0	3	4	0	13
4:15 PM	2	0	2	0	0	0	0	5	0	4	5	0	18
4:30 PM	0	0	2	0	0	0	0	0	0	3	8	0	13
4:45 PM	0	0	3	0	0	0	0	4	0	4	6	0	17
5:00 PM	0	0	3	0	0	0	0	5	0	1	9	0	18
5:15 PM	0	0	5	0	0	0	0	0	0	4	8	0	17
5:30 PM	0	0	3	0	0	0	0	0	0	4	2	0	9
5:45 PM	0	0	3	0	0	0	0	0	0	3	0	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	9	0	34	0	0	0	0	29	0	37	63	0	172
	20.93%	0.00%	79.07%				0.00%	100.00%	0.00%	37.00%	63.00%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	0	14	0	0	0	0	9	0	13	25	0	61
PEAK HR FACTOR :	0.700			0.000			0.450			0.792			0.847

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL																							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																										
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
	2	0	1	0	0	0	0	2	0	1	2	0																								
6:00 AM	0	0	0	0	0	0	0	1	0	1	1	0	3																							
6:15 AM	1	0	0	0	0	0	0	1	1	0	2	0	5																							
6:30 AM	0	0	2	0	0	0	0	0	0	0	2	0	4																							
6:45 AM	0	0	1	0	0	0	0	3	0	0	4	0	8																							
7:00 AM	3	0	0	0	0	0	0	2	1	0	5	0	11																							
7:15 AM	1	0	1	0	0	0	0	4	0	2	3	0	11																							
7:30 AM	0	0	2	0	0	0	0	0	0	1	3	0	6																							
7:45 AM	1	0	2	0	0	0	0	1	3	2	3	0	12																							
8:00 AM	1	0	0	0	0	0	0	0	2	4	6	0	13																							
8:15 AM	0	0	3	0	0	0	0	0	2	2	3	0	10																							
8:30 AM	0	0	1	0	0	0	0	2	3	1	5	0	12																							
8:45 AM	0	0	3	0	0	0	0	0	0	2	6	0	11																							
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
APPROACH %'s :	7	0	15	0	0	0	0	14	12	15	43	0	106																							
	31.82%	0.00%	68.18%				0.00%	53.85%	46.15%	25.86%	74.14%	0.00%																								
PEAK HR START TIME :	745 AM												TOTAL																							
PEAK HR VOL :	2			0			6			0			0			0			3			10			9			17			0			47		
PEAK HR FACTOR :	0.667			0.000			0.650			0.650			0.904																							

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	2	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	0	0	1	0	0	0	0	0	0	0	1	0	2
3:15 PM	0	0	3	0	0	0	0	3	0	1	3	0	10
3:30 PM	1	0	0	0	0	0	0	5	0	1	1	0	8
3:45 PM	0	0	1	0	0	0	0	5	2	0	2	0	10
4:00 PM	0	0	1	0	0	0	0	3	0	0	1	0	5
4:15 PM	0	0	1	0	0	0	0	3	0	1	2	0	7
4:30 PM	1	0	1	0	0	0	0	2	1	0	1	0	6
4:45 PM	0	0	0	0	0	0	0	3	1	0	3	0	7
5:00 PM	0	0	0	0	0	0	0	4	0	1	3	0	8
5:15 PM	0	0	2	0	0	0	0	4	0	0	2	0	8
5:30 PM	1	0	0	0	0	0	0	6	0	0	1	0	8
5:45 PM	0	0	1	0	0	0	0	3	0	0	2	0	6
TOTAL VOLUMES :	3	0	11	0	0	0	0	41	4	4	22	0	85
APPROACH %'s :	21.43%	0.00%	78.57%				0.00%	91.11%	8.89%	15.38%	84.62%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	1	0	2	0	0	0	0	17	1	1	9	0	31
PEAK HR FACTOR :	0.375			0.000			0.750			0.625			0.969

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
6:00 AM	1	1	0	0	1	2	1	1	0	0	0	0	7
6:15 AM	3	1	0	0	0	2	3	2	2	0	0	0	13
6:30 AM	3	1	0	0	2	4	4	2	1	0	0	0	17
6:45 AM	2	1	1	0	1	2	2	3	2	1	0	0	15
7:00 AM	2	0	0	0	1	4	4	2	1	0	1	0	15
7:15 AM	3	0	0	0	0	2	4	2	0	0	0	0	11
7:30 AM	2	0	1	0	0	3	3	3	0	0	0	0	12
7:45 AM	4	0	0	0	1	3	3	2	1	0	0	0	14
8:00 AM	3	0	0	0	0	3	4	2	1	0	0	0	13
8:15 AM	2	1	0	0	1	2	4	2	0	0	0	0	12
8:30 AM	2	0	0	0	0	2	1	3	1	0	1	0	10
8:45 AM	2	0	0	0	0	3	3	1	0	0	1	0	10
TOTAL VOLUMES :	29	5	2	0	7	32	36	25	9	1	3	0	149
APPROACH %'s :	80.56%	13.89%	5.56%	0.00%	17.95%	82.05%	51.43%	35.71%	12.86%	25.00%	75.00%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	11	1	0	0	2	10	12	9	3	0	1	0	49
PEAK HR FACTOR :	0.750			0.750			0.857			0.250			0.875

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
3:00 PM	2	1	0	0	0	2	4	2	2	1	2	0	16
3:15 PM	2	1	0	0	0	3	3	2	0	0	0	0	11
3:30 PM	2	0	0	0	0	4	1	2	1	0	0	0	10
3:45 PM	3	1	0	0	0	3	2	3	0	0	0	0	12
4:00 PM	1	2	0	0	0	3	3	3	1	0	2	0	15
4:15 PM	2	0	0	0	0	3	3	3	0	0	0	0	11
4:30 PM	4	1	1	0	0	4	1	2	0	0	1	0	14
4:45 PM	1	1	0	0	0	1	2	3	1	0	1	0	10
5:00 PM	1	0	1	0	0	4	5	2	1	0	1	0	15
5:15 PM	2	0	0	0	0	2	2	3	0	0	1	0	10
5:30 PM	1	0	0	0	1	5	3	3	0	0	1	0	14
5:45 PM	3	2	1	0	0	3	4	0	1	0	0	0	14
TOTAL VOLUMES :	NL 24	NT 9	NR 3	SL 0	ST 1	SR 37	EL 33	ET 28	ER 7	WL 1	WT 9	WR 0	TOTAL 152
APPROACH %'s :	66.67%	25.00%	8.33%	0.00%	2.63%	97.37%	48.53%	41.18%	10.29%	10.00%	90.00%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	5	1	1	0	1	12	12	11	2	0	4	0	49
PEAK HR FACTOR :	0.875			0.542			0.781			1.000			0.817

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
6:00 AM	0	0	1	0	1	0	0	0	0	0	1	0	3
6:15 AM	0	1	0	0	0	1	0	2	0	0	2	0	6
6:30 AM	1	1	1	0	0	0	1	2	0	0	1	0	7
6:45 AM	1	1	4	0	0	0	0	1	0	0	4	0	11
7:00 AM	1	2	0	0	0	0	0	1	0	0	2	0	6
7:15 AM	3	1	0	0	2	0	0	0	1	1	3	0	11
7:30 AM	2	2	0	0	0	1	0	1	1	0	7	0	14
7:45 AM	0	2	1	0	3	1	1	1	1	0	4	0	14
8:00 AM	0	1	0	0	7	0	0	0	1	0	1	0	10
8:15 AM	0	2	0	0	4	0	2	4	3	1	4	0	20
8:30 AM	2	2	0	0	6	0	1	1	0	0	5	0	17
8:45 AM	2	2	1	0	2	0	0	1	3	1	4	1	17
TOTAL VOLUMES :	12	17	8	0	25	3	5	14	10	3	38	1	136
APPROACH %'s :	32.43%	45.95%	21.62%	0.00%	89.29%	10.71%	17.24%	48.28%	34.48%	7.14%	90.48%	2.38%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	2	7	1	0	20	1	4	6	5	1	14	0	61
PEAK HR FACTOR :	0.625			0.750			0.417			0.750			0.763

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
3:00 PM	3	0	2	0	3	0	0	3	2	1	2	0	16
3:15 PM	0	0	0	0	1	0	1	5	1	1	0	0	9
3:30 PM	0	0	1	0	2	0	1	0	3	3	2	2	14
3:45 PM	0	0	0	0	1	0	0	1	0	0	1	1	4
4:00 PM	0	0	1	0	0	0	0	1	0	2	1	0	5
4:15 PM	0	1	0	0	2	0	2	2	1	1	3	0	12
4:30 PM	0	0	0	0	1	0	0	3	2	0	1	0	7
4:45 PM	0	2	1	0	2	0	1	1	1	0	2	0	10
5:00 PM	0	1	0	0	0	0	0	1	2	0	2	0	6
5:15 PM	0	0	0	0	1	0	0	1	1	0	0	2	5
5:30 PM	0	1	0	0	0	0	1	2	0	0	0	1	5
5:45 PM	0	0	0	0	1	0	0	1	1	1	0	0	4
TOTAL VOLUMES :	3	5	5	0	14	0	6	21	14	9	14	6	97
APPROACH %'s :	23.08%	38.46%	38.46%	0.00%	100.00%	0.00%	14.63%	51.22%	34.15%	31.03%	48.28%	20.69%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	4	1	0	3	0	2	5	4	0	4	3	26
PEAK HR FACTOR :	0.417			0.375			0.917			0.875			0.650

CONTROL : [Signalized](#)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	1	1.5	1.5	0	1	2	0	
6:00 AM	0	0	0	0	4	10	4	3	0	0	3	0	24
6:15 AM	0	0	0	0	10	12	3	1	0	0	2	0	28
6:30 AM	0	0	0	0	4	11	4	3	0	0	3	0	25
6:45 AM	0	1	0	0	9	12	3	3	1	0	3	0	32
7:00 AM	0	1	0	0	8	11	4	7	1	0	3	0	35
7:15 AM	0	0	0	0	2	10	5	2	2	0	2	0	23
7:30 AM	0	1	0	0	1	7	4	6	0	0	3	0	22
7:45 AM	0	0	0	0	1	5	7	3	1	0	1	0	18
8:00 AM	1	0	0	0	0	7	5	1	0	0	3	0	17
8:15 AM	0	1	0	0	1	7	7	2	0	0	3	0	21
8:30 AM	0	5	0	0	0	6	8	1	1	0	2	0	23
8:45 AM	0	2	0	0	2	7	5	7	0	0	4	0	27
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	11	0	0	42	105	59	39	6	0	32	0	295
	8.33%	91.67%	0.00%	0.00%	28.57%	71.43%	56.73%	37.50%	5.77%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	2	0	0	3	26	23	12	1	0	10	0	78
PEAK HR FACTOR :	0.750			0.906			0.818			0.833			0.886

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	1	1.5	1.5	0	1	2	0	
3:00 PM	0	1	0	0	3	5	6	2	1	0	0	0	18
3:15 PM	0	0	0	1	1	7	3	2	2	0	3	0	19
3:30 PM	0	0	0	0	0	5	4	2	0	0	2	0	13
3:45 PM	0	0	0	0	1	6	8	2	1	0	4	0	22
4:00 PM	0	0	0	0	0	7	6	2	0	0	2	0	17
4:15 PM	0	1	0	0	3	2	5	2	2	0	0	0	15
4:30 PM	0	0	0	0	0	3	3	2	1	0	4	0	13
4:45 PM	0	0	0	0	1	3	7	4	0	0	2	0	17
5:00 PM	0	1	0	1	1	3	3	2	0	0	2	0	13
5:15 PM	0	2	0	0	0	2	5	2	1	0	4	0	16
5:30 PM	0	0	0	0	0	6	1	1	1	0	2	0	11
5:45 PM	0	2	0	0	0	3	7	2	0	0	1	0	15
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	7	0	2	10	52	58	25	9	0	26	0	189
	0.00%	100.00%	0.00%	3.13%	15.63%	81.25%	63.04%	27.17%	9.78%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	3	0	1	2	14	16	9	2	0	10	0	57
PEAK HR FACTOR :	0.375			0.708			0.614			0.625			0.838

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1.5	ET 1.5	ER 0	WL 1	WT 2	WR 0	
6:00 AM	0	3	1	0	4	1	1	1	3	0	2	0	16
6:15 AM	2	1	0	0	2	3	1	3	2	0	2	0	16
6:30 AM	3	4	0	0	12	1	2	3	0	0	2	0	27
6:45 AM	3	1	0	0	2	6	1	3	1	1	2	0	20
7:00 AM	3	2	0	0	7	1	2	3	2	0	2	0	22
7:15 AM	0	2	0	0	1	3	4	4	1	1	2	1	19
7:30 AM	1	5	0	0	6	0	4	1	0	0	2	0	19
7:45 AM	2	1	2	0	4	2	2	2	1	1	2	0	19
8:00 AM	6	7	1	0	5	7	3	0	2	0	2	0	33
8:15 AM	1	4	0	0	7	2	5	1	0	2	6	0	28
8:30 AM	1	5	0	0	12	1	2	0	4	0	5	0	30
8:45 AM	2	5	2	2	7	6	3	0	6	1	1	0	35
TOTAL VOLUMES :	24	40	6	2	69	33	30	21	22	6	30	1	284
APPROACH %'s :	34.29%	57.14%	8.57%	1.92%	66.35%	31.73%	41.10%	28.77%	30.14%	16.22%	81.08%	2.70%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	10	17	3	0	22	11	14	4	3	3	12	0	99
PEAK HR FACTOR :	0.536			0.688			0.875			0.469			0.750

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
	1	2	1	1	2	1	1.5	1.5	0	1	2	0																											
3:00 PM	0	4	0	0	8	2	3	1	3	0	2	1	24																										
3:15 PM	1	5	0	0	2	2	3	2	1	4	1	0	21																										
3:30 PM	0	0	1	0	9	1	4	3	3	0	1	1	23																										
3:45 PM	0	4	0	1	7	2	2	2	2	1	3	0	24																										
4:00 PM	0	0	0	0	6	1	1	3	1	0	2	0	14																										
4:15 PM	1	1	0	0	7	1	1	2	3	0	1	0	17																										
4:30 PM	0	4	0	0	2	1	0	1	1	0	2	3	14																										
4:45 PM	1	2	0	0	4	0	1	0	0	0	1	1	10																										
5:00 PM	1	3	0	1	7	1	1	1	0	1	0	0	16																										
5:15 PM	1	3	0	0	3	1	1	1	0	0	3	2	15																										
5:30 PM	0	1	0	0	1	2	0	2	0	1	2	0	9																										
5:45 PM	1	4	0	0	4	2	1	0	0	0	1	0	13																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	6	31	1	2	60	16	18	18	14	7	19	8	200																										
	15.79%	81.58%	2.63%	2.56%	76.92%	20.51%	36.00%	36.00%	28.00%	20.59%	55.88%	23.53%																											
PEAK HR START TIME :	445 PM												TOTAL																										
PEAK HR VOL :	3			9			0			1			15			4			3			4			0			2			6			3			50		
PEAK HR FACTOR :	0.750			0.556			0.875			0.550			0.781																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL		
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND					
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5			
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0			
6:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1		
6:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2		
6:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	2		
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1		
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1		
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1		
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1		
8:00 AM	0	1	0	0	0	0	1	1	0	0	1	0	4		
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	1	2		
8:30 AM	0	0	0	0	0	0	0	1	0	0	0	5	6		
8:45 AM	0	0	0	0	0	2	0	0	0	0	1	2	5		
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
APPROACH %'s :	0	1	0	0	0	2	1	6	0	0	8	8	26		
	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	14.29%	85.71%	0.00%	0.00%	50.00%	50.00%			
PEAK HR START TIME :	7:15 AM												TOTAL		
PEAK HR VOL :	0			1			0			0			7		
PEAK HR FACTOR :	0.250			0.000			0.500			0.500			0.438		

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5		
3:00 PM	0	0	0	0	0	0	1	0	0	0	1	0	2	
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0		
4:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	
4:15 PM	0	0	0	1	0	0	0	0	0	0	1	0	2	
4:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	
4:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	
5:00 PM	0	0	0	0	0	0	1	2	0	0	0	0	3	
5:15 PM	0	0	0	0	0	0	1	0	0	0	1	0	2	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0		
5:45 PM	0	0	0	0	0	0	0	1	0	0	1	1	3	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
APPROACH %'s :	0	0	0	1	0	0	3	6	0	0	9	1	20	
	100.00%			0.00%			33.33%			66.67%			0.00%	
PEAK HR START TIME :	500 PM												TOTAL	
PEAK HR VOL :	0	0	0	0	0	0	2	3	0	0	2	1	8	
PEAK HR FACTOR :	0.000			0.000			0.417			0.375			0.667	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5																											
6:00 AM	0	5	0	0	1	1	2	0	0	0	1	2	12																										
6:15 AM	0	3	1	0	3	1	0	1	1	0	1	1	12																										
6:30 AM	0	3	0	0	2	2	3	0	0	0	4	0	14																										
6:45 AM	0	2	0	0	3	0	1	1	0	0	5	2	14																										
7:00 AM	2	5	1	1	3	2	0	1	0	0	1	1	17																										
7:15 AM	0	2	0	1	1	4	2	2	0	0	4	0	16																										
7:30 AM	0	2	0	0	1	1	4	1	1	0	3	0	13																										
7:45 AM	0	4	0	0	2	2	1	1	0	0	2	1	13																										
8:00 AM	0	7	0	0	1	2	1	3	0	0	5	3	22																										
8:15 AM	0	3	0	0	1	1	3	1	0	2	1	2	14																										
8:30 AM	0	3	2	2	4	7	0	0	0	0	1	0	19																										
8:45 AM	0	4	0	0	2	1	2	0	0	0	2	4	15																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	2	43	4	4	24	24	19	11	2	2	30	16	181																										
	4.08%	87.76%	8.16%	7.69%	46.15%	46.15%	59.38%	34.38%	6.25%	4.17%	62.50%	33.33%																											
PEAK HR START TIME :	715 AM												TOTAL																										
PEAK HR VOL :	0			15			0			1			5			9			8			7			1			0			14			4			64		
PEAK HR FACTOR :	0.536			0.625			0.667			0.563			0.727																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5	
3:00 PM	0	0	0	1	3	0	1	1	0	0	4	3	13
3:15 PM	0	1	0	2	4	0	1	1	1	0	1	0	11
3:30 PM	0	1	1	0	8	0	0	0	0	1	1	1	13
3:45 PM	0	1	1	1	0	1	1	0	0	0	2	1	8
4:00 PM	0	0	0	1	0	1	0	1	0	0	1	0	4
4:15 PM	0	3	0	1	7	1	0	1	0	0	1	1	15
4:30 PM	1	6	1	1	2	0	1	0	0	1	0	1	14
4:45 PM	0	2	0	0	2	0	1	1	0	0	0	0	6
5:00 PM	0	1	0	1	2	0	1	0	0	0	1	1	7
5:15 PM	0	1	1	1	4	0	1	1	0	0	1	1	11
5:30 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
5:45 PM	0	0	0	0	3	1	0	1	0	1	0	2	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	17	4	9	37	4	7	7	1	3	12	11	113
	4.55%	77.27%	18.18%	18.00%	74.00%	8.00%	46.67%	46.67%	6.67%	11.54%	46.15%	42.31%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	3	1	2	11	1	2	2	0	1	2	4	29
PEAK HR FACTOR :	0.500			0.700			0.500			0.583			0.659

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
6:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
6:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	3	0	1	1	0	5
7:00 AM	0	0	0	0	0	0	0	0	2	0	1	0	3
7:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	3	0	1	0	4
7:45 AM	0	0	0	0	0	0	0	0	4	0	0	0	4
8:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	0	2	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	3	0	1	0	4
8:45 AM	0	0	0	0	0	0	0	0	1	1	2	0	4
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0.00%	29.63%	70.37%	25.00%	75.00%	0.00%	35
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	11	0	1	0	12
PEAK HR FACTOR :	0.000			0.000			0.688			0.250			0.750

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL														
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																	
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
	1	0	1	0	0	0	0	2	0	1	2	0															
3:00 PM	0	0	1	0	0	0	0	2	0	0	3	0	6														
3:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2														
3:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2														
3:45 PM	0	0	0	0	0	0	0	3	0	0	0	0	3														
4:00 PM	0	0	0	0	0	0	0	2	0	0	2	0	4														
4:15 PM	0	0	0	0	0	0	0	3	0	0	0	0	3														
4:30 PM	0	0	0	0	0	0	0	3	0	0	1	0	4														
4:45 PM	0	0	1	0	0	0	0	3	0	0	1	0	5														
5:00 PM	0	0	0	0	0	0	0	4	0	0	1	0	5														
5:15 PM	0	0	1	0	0	0	0	2	1	0	0	0	4														
5:30 PM	0	0	0	0	0	0	0	3	0	0	1	0	4														
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1														
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
APPROACH %'s :	0	0	3	0	0	0	0	30	1	0	9	0	43														
	0.00%	0.00%	100.00%				0.00%	96.77%	3.23%	0.00%	100.00%	0.00%															
PEAK HR START TIME :	500 PM												TOTAL														
PEAK HR VOL :	0			1			0			10			1			0			2			0			14		
PEAK HR FACTOR :	0.250			0.000			0.688			0.500			0.700														

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

AM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL		
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND					
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL		
	1	0	1	0	0	0	0	2	0	1	2	0			
6:00 AM	0	0	0	0	0	0	0	2	0	4	1	0	7		
6:15 AM	1	0	2	0	0	0	0	0	1	2	1	0	7		
6:30 AM	0	0	2	0	0	0	0	2	1	2	2	0	9		
6:45 AM	1	0	3	0	0	0	0	1	1	3	2	0	11		
7:00 AM	0	0	0	0	0	0	0	0	3	0	1	0	4		
7:15 AM	1	0	1	0	0	0	0	0	0	1	4	0	7		
7:30 AM	2	0	0	0	0	0	0	0	1	1	3	0	7		
7:45 AM	2	0	0	0	0	0	0	0	1	2	2	0	7		
8:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1		
8:15 AM	0	0	0	0	0	0	0	0	4	1	4	0	9		
8:30 AM	2	0	0	0	0	0	0	0	2	0	3	0	7		
8:45 AM	5	0	0	0	0	0	0	0	2	0	2	0	9		
TOTAL VOLUMES :	14	0	8	0	0	0	0	5	16	16	26	0	85		
APPROACH %'s :	63.64%	0.00%	36.36%				0.00%	23.81%	76.19%	38.10%	61.90%	0.00%			
PEAK HR START TIME :	745 AM												TOTAL		
PEAK HR VOL :	4			0			0			7			24		
PEAK HR FACTOR :	0.500			0.000			0.438			0.650			0.667		

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

HEAVY TRUCKS

Day: Thursday

City: Los Angeles

Date: 11/5/2015

PM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	0	0	1	0	0	0	0	3	4	0	2	0	10
3:15 PM	1	0	3	0	0	0	0	3	2	0	2	0	11
3:30 PM	2	0	2	0	0	0	0	0	0	3	2	0	9
3:45 PM	1	0	1	0	0	0	0	0	1	1	1	0	5
4:00 PM	0	0	1	0	0	0	0	1	0	5	5	0	12
4:15 PM	0	0	0	0	0	0	0	1	1	1	5	0	8
4:30 PM	1	0	0	0	0	0	0	1	2	1	2	0	7
4:45 PM	1	0	4	0	0	0	0	0	2	0	0	0	7
5:00 PM	0	0	0	0	0	0	0	0	1	1	2	0	4
5:15 PM	0	0	2	0	0	0	0	0	0	0	1	0	3
5:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
5:45 PM	0	0	1	0	0	0	0	2	0	0	1	0	4
TOTAL VOLUMES :	6	0	15	0	0	0	0	13	13	12	23	0	82
APPROACH %'s :	28.57%	0.00%	71.43%				0.00%	50.00%	50.00%	34.29%	65.71%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	3	0	0	0	0	4	1	1	4	0	13
PEAK HR FACTOR :	0.375			0.000			0.625			0.417			0.813

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-009

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			El Monte Busway			El Monte Busway			TOTAL																							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																										
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																								
	0	1.5	1.5	1	3	0	0	0	0	0	1	0																								
6:00 AM	0	3	2	0	0	0	0	0	0	0	0	0	5																							
6:15 AM	0	8	3	0	3	0	0	0	0	0	0	0	14																							
6:30 AM	0	3	7	1	0	0	0	0	0	0	0	0	11																							
6:45 AM	0	2	4	1	1	0	0	0	0	0	0	0	8																							
7:00 AM	0	3	5	0	1	0	0	0	0	0	0	0	9																							
7:15 AM	0	0	7	2	0	0	0	0	0	0	0	0	9																							
7:30 AM	0	2	11	0	1	0	0	0	0	0	0	0	14																							
7:45 AM	0	2	8	0	2	0	0	0	0	0	0	0	12																							
8:00 AM	0	0	6	0	2	0	0	0	0	0	0	0	8																							
8:15 AM	0	0	15	1	0	0	0	0	0	0	0	0	16																							
8:30 AM	0	4	9	0	2	0	0	0	0	0	0	0	15																							
8:45 AM	0	0	7	0	0	0	0	0	0	0	0	0	7																							
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
APPROACH %'s :	0	27	84	5	12	0	0	0	0	0	0	0	128																							
	0.00%	24.32%	75.68%	29.41%	70.59%	0.00%																														
PEAK HR START TIME :	730 AM												TOTAL																							
PEAK HR VOL :	0			4			40			1			5			0			0			0			0			0			0			50		
PEAK HR FACTOR :	0.733			0.750			0.000			0.000			0.000			0.781																				

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-009

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			El Monte Busway			El Monte Busway			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1.5	1.5	1	3	0	0	0	0	0	1	0	
3:00 PM	0	2	6	0	2	0	0	0	0	0	0	0	10
3:15 PM	0	0	10	0	1	0	0	0	0	0	0	0	11
3:30 PM	0	1	12	0	2	0	0	0	0	0	0	0	15
3:45 PM	0	1	9	0	2	0	0	0	0	0	0	0	12
4:00 PM	0	0	10	0	1	0	0	0	0	0	0	0	11
4:15 PM	0	1	14	0	1	0	0	0	0	0	0	0	16
4:30 PM	0	1	19	0	0	0	0	0	0	0	0	0	20
4:45 PM	0	0	14	0	2	0	0	0	0	0	0	0	16
5:00 PM	0	1	18	0	1	0	0	0	0	0	0	0	20
5:15 PM	0	2	15	0	2	0	0	0	0	0	0	0	19
5:30 PM	0	0	18	0	1	0	0	0	0	0	0	0	19
5:45 PM	0	0	21	0	1	0	0	0	0	0	0	0	22
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	9	166	0	16	0	0	0	0	0	0	0	191
	0.00%	5.14%	94.86%	0.00%	100.00%	0.00%							
PEAK HR START TIME :	345 PM												TOTAL
PEAK HR VOL :	0	3	52	0	4	0	0	0	0	0	0	0	59
PEAK HR FACTOR :	0.688			0.500			0.000			0.000			0.738

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-009

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			El Monte Busway			El Monte Busway			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1.5	1.5	1	3	0	0	0	0	0	1	0	
6:00 AM	0	14	2	0	9	0	0	0	0	0	0	0	25
6:15 AM	0	11	0	0	8	0	0	0	0	0	0	0	19
6:30 AM	0	13	3	0	8	0	0	0	0	0	0	0	24
6:45 AM	0	10	0	0	6	0	0	0	0	0	0	0	16
7:00 AM	0	23	2	0	5	0	0	0	0	0	0	0	30
7:15 AM	0	21	2	0	8	0	0	0	0	0	0	0	31
7:30 AM	0	23	2	0	16	0	0	0	0	0	0	0	41
7:45 AM	0	21	1	0	9	0	0	0	0	0	0	0	31
8:00 AM	0	15	1	0	10	0	0	0	0	0	0	0	26
8:15 AM	0	25	0	1	14	0	0	0	0	0	0	0	40
8:30 AM	0	23	1	0	7	0	0	0	0	0	0	0	31
8:45 AM	0	27	0	0	13	0	0	0	0	0	0	0	40
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	226	14	1	113	0	0	0	0	0	0	0	354
	0.00%	94.17%	5.83%	0.88%	99.12%	0.00%							
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	84	4	1	49	0	0	0	0	0	0	0	138
PEAK HR FACTOR :	0.880			0.781			0.000			0.000			0.841

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-009

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			El Monte Busway			El Monte Busway			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1.5	1.5	1	3	0	0	0	0	0	1	0	
3:00 PM	0	2	1	0	10	0	0	0	0	0	0	0	13
3:15 PM	0	8	1	0	11	0	0	0	0	0	0	0	20
3:30 PM	0	5	4	0	6	0	0	0	0	0	0	0	15
3:45 PM	0	5	3	0	3	0	0	0	0	0	0	0	11
4:00 PM	0	8	2	1	7	0	0	0	0	0	0	0	18
4:15 PM	0	12	3	0	5	0	0	0	0	0	0	0	20
4:30 PM	0	5	4	0	5	0	0	0	0	0	0	0	14
4:45 PM	0	7	3	0	1	0	0	0	0	0	0	0	11
5:00 PM	0	6	1	0	4	0	0	0	0	0	0	0	11
5:15 PM	0	4	1	0	3	0	0	0	0	0	0	0	8
5:30 PM	0	3	4	0	5	0	0	0	0	0	0	0	12
5:45 PM	0	5	5	0	4	0	0	0	0	0	0	0	14
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	70	32	1	64	0	0	0	0	0	0	0	167
	0.00%	68.63%	31.37%	1.54%	98.46%	0.00%							
PEAK HR START TIME :	345 PM												TOTAL
PEAK HR VOL :	0	30	12	1	20	0	0	0	0	0	0	0	63
PEAK HR FACTOR :	0.700			0.656			0.000			0.000			0.788

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-110

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (North)			N Los Angeles St (North)			TOTAL																							
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																										
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
	0	3	0	0	4	0	0	0	0	1	1	1																								
6:00 AM	0	7	0	0	0	2	0	0	0	0	0	0	9																							
6:15 AM	0	10	0	0	3	3	0	0	0	0	0	0	16																							
6:30 AM	0	4	0	0	1	3	0	0	0	0	0	0	8																							
6:45 AM	0	7	0	0	2	3	0	0	0	0	0	0	12																							
7:00 AM	0	5	0	0	2	3	0	0	0	0	0	0	10																							
7:15 AM	0	3	0	0	2	2	0	0	0	0	0	0	7																							
7:30 AM	0	6	0	0	0	4	0	0	0	0	0	0	10																							
7:45 AM	0	3	0	0	2	2	0	0	0	0	0	0	7																							
8:00 AM	0	4	0	0	3	4	0	0	0	0	0	0	11																							
8:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	2																							
8:30 AM	0	6	0	0	2	3	0	0	0	0	0	0	11																							
8:45 AM	0	3	0	0	2	3	0	0	0	0	0	0	8																							
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																							
APPROACH %'s :	0	59	0	0	19	33	0	0	0	0	0	0	111																							
	0.00%	100.00%	0.00%	0.00%	36.54%	63.46%																														
PEAK HR START TIME :	730 AM												TOTAL																							
PEAK HR VOL :	0			14			0			0			5			11			0			0			0			0			0			30		
PEAK HR FACTOR :	0.583			0.571			0.000			0.000			0.682																							

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-110

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (North)			N Los Angeles St (North)			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	4	0	0	0	0	1	1	1	
3:00 PM	0	4	0	0	2	4	0	0	0	0	0	0	10
3:15 PM	0	1	0	0	1	2	0	0	0	0	0	0	4
3:30 PM	0	4	0	0	3	2	0	0	0	0	0	0	9
3:45 PM	0	3	0	0	2	3	0	0	0	0	0	0	8
4:00 PM	0	3	0	0	1	3	0	0	0	0	0	0	7
4:15 PM	0	3	0	0	1	3	0	0	0	0	0	0	7
4:30 PM	0	4	0	0	1	3	0	0	0	0	0	0	8
4:45 PM	0	2	0	0	2	2	0	0	0	0	0	0	6
5:00 PM	0	4	0	0	1	3	0	0	0	0	0	0	8
5:15 PM	0	4	0	0	2	2	0	0	0	0	0	0	8
5:30 PM	0	1	0	0	1	4	0	0	0	0	0	0	6
5:45 PM	0	1	0	0	2	3	0	0	0	0	0	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	34	0	0	19	34	0	0	0	0	0	0	87
	0.00%	100.00%	0.00%	0.00%	35.85%	64.15%							
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	10	0	0	6	12	0	0	0	0	0	0	28
PEAK HR FACTOR :	0.625			0.900			0.000			0.000			0.875

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-110

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (North)			N Los Angeles St (North)			TOTAL											
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND														
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
	0	3	0	0	4	0	0	0	0	1	1	1												
6:00 AM	0	10	0	0	42	0	0	0	0	0	0	0	52											
6:15 AM	0	6	0	0	35	1	0	0	0	0	0	0	42											
6:30 AM	0	8	0	0	16	0	0	0	0	1	2	0	27											
6:45 AM	0	7	0	0	11	0	0	0	0	0	2	0	20											
7:00 AM	0	9	0	0	8	0	0	0	0	0	2	0	19											
7:15 AM	0	10	0	0	10	0	0	0	0	0	2	0	22											
7:30 AM	0	19	0	0	17	0	0	0	0	1	2	0	39											
7:45 AM	0	17	0	0	11	1	0	0	0	0	3	0	32											
8:00 AM	0	10	0	0	12	0	0	0	0	0	2	0	24											
8:15 AM	0	14	0	0	20	0	0	0	0	0	2	0	36											
8:30 AM	0	18	0	0	11	0	0	0	0	1	2	0	32											
8:45 AM	0	22	0	0	18	0	0	0	0	0	2	0	42											
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
APPROACH %'s :	0	150	0	0	211	2	0	0	0	3	21	0	387											
	0.00%	100.00%	0.00%	0.00%	99.06%	0.94%				12.50%	87.50%	0.00%												
PEAK HR START TIME :	730 AM												TOTAL											
PEAK HR VOL :	0			60			0			0			1			9			0			131		
PEAK HR FACTOR :	0.789			0.763			0.000			0.833			0.840											

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-110

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Los Angeles St (North)			N Los Angeles St (North)			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	4	0	0	0	0	1	1	1	
3:00 PM	0	5	0	0	14	0	0	0	0	1	1	0	21
3:15 PM	0	4	0	0	15	1	0	0	0	0	1	1	22
3:30 PM	0	5	0	0	5	2	0	0	0	1	0	0	13
3:45 PM	0	6	0	0	6	0	0	0	0	0	1	0	13
4:00 PM	0	7	0	0	8	1	0	0	0	1	2	0	19
4:15 PM	0	8	0	0	5	1	0	0	0	0	2	0	16
4:30 PM	0	6	0	0	7	0	0	0	0	0	1	0	14
4:45 PM	0	9	0	0	2	0	0	0	0	2	0	0	13
5:00 PM	0	7	0	0	5	0	0	0	0	0	0	0	12
5:15 PM	0	6	0	0	3	0	0	0	0	1	0	0	10
5:30 PM	0	5	0	0	5	2	0	0	0	1	0	0	13
5:45 PM	0	8	0	0	6	1	0	0	0	1	0	0	16
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	76	0	0	81	8	0	0	0	8	8	1	182
	0.00%	100.00%	0.00%	0.00%	91.01%	8.99%				47.06%	47.06%	5.88%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	26	0	0	19	3	0	0	0	3	0	0	51
PEAK HR FACTOR :	0.813			0.786			0.000			0.750			0.797

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-116

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0	0	0	1	1	1	0	2	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
6:15 AM	0	0	0	0	0	0	0	3	0	0	3	0	6
6:30 AM	0	0	0	0	0	0	0	2	0	0	3	0	5
6:45 AM	0	0	0	0	0	0	0	3	0	0	2	0	5
7:00 AM	0	0	0	0	0	0	0	2	0	0	3	0	5
7:15 AM	0	0	0	0	0	0	0	2	0	0	3	0	5
7:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
7:45 AM	0	0	0	0	0	0	0	2	0	0	3	0	5
8:00 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
8:15 AM	0	0	0	0	0	0	0	3	0	0	2	0	5
8:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
8:45 AM	0	0	0	0	0	0	0	3	0	0	2	0	5
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	23	0	0	27	0	50
							0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	8	0	0	7	0	15
PEAK HR FACTOR :	0.000			0.000			0.667			0.875			0.750

CONTROL : 1-Way Stop (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-116

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0	0	0	1	1	1	0	2	0	
3:00 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
3:15 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
3:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
3:45 PM	0	0	0	0	0	0	0	3	0	0	1	0	4
4:00 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
4:15 PM	0	0	0	0	0	0	0	1	0	0	3	0	4
4:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
4:45 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
5:15 PM	0	0	0	0	0	0	0	2	0	0	3	0	5
5:30 PM	0	0	1	0	0	0	0	0	0	0	2	0	3
5:45 PM	0	0	0	0	0	0	0	1	0	0	3	0	4
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	1	0	0	0	0	16	0	0	28	0	45
	0.00%	0.00%	100.00%				0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	0	1	0	0	0	0	3	0	0	10	0	14
PEAK HR FACTOR :	0.250			0.000			0.375			0.833			0.700

CONTROL : 1-Way Stop (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-116

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	0	1	0	0	0	1	1	1	0	2	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	8	0	8
6:15 AM	0	0	0	0	0	0	0	0	1	0	3	0	4
6:30 AM	1	0	0	0	0	0	0	1	0	0	1	0	3
6:45 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	3	0	0	0	0	3
7:30 AM	0	0	0	0	0	0	0	3	0	0	4	0	7
7:45 AM	0	0	0	0	0	0	0	1	0	0	4	0	5
8:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
8:15 AM	0	0	0	0	0	0	0	1	1	0	1	0	3
8:30 AM	0	0	0	0	0	0	0	1	0	2	2	0	5
8:45 AM	0	0	0	0	0	0	0	1	0	0	4	0	5
TOTAL VOLUMES :	1	0	0	0	0	0	0	14	2	2	31	0	50
APPROACH %'s :	100.00%	0.00%	0.00%				0.00%	87.50%	12.50%	6.06%	93.94%	0.00%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	5	1	2	7	0	15
PEAK HR FACTOR :	0.000			0.000			0.750			0.563			0.750

CONTROL : 1-Way Stop (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-116

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
	0	0	1	0	0	0	1	1	1	0	2	0		
3:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	
3:15 PM	0	0	0	0	0	0	0	4	3	0	1	0	8	
3:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	
3:45 PM	0	0	0	0	0	0	0	1	1	0	1	0	3	
4:00 PM	0	0	0	0	0	0	0	3	1	0	0	0	4	
4:15 PM	0	0	0	0	0	0	0	4	1	0	1	0	6	
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	
5:00 PM	0	0	0	0	0	0	0	1	0	0	4	0	5	
5:15 PM	0	0	0	0	0	0	0	1	1	0	2	0	4	
5:30 PM	0	0	0	0	0	0	0	2	0	0	4	0	6	
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL	
APPROACH %'s :	0	0	0	0	0	0	0	19	7	0	17	0	43	
	0.00%			73.08%			26.92%			0.00%			100.00%	0.00%
PEAK HR START TIME :	500 PM												TOTAL	
PEAK HR VOL :	0	0	0	0	0	0	0	4	1	0	12	0	17	
PEAK HR FACTOR :	0.000			0.000			0.625			0.750			0.708	

CONTROL : 1-Way Stop (NB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-122

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			SR-101 SB Ramps			SR-101 SB Ramps			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	3	0	0	0	0	3
8:45 AM	0	0	3	0	0	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	3	0	0	0	0	9	0	0	0	0	12
	0.00%	0.00%	100.00%				0.00%	100.00%	0.00%				
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	3	0	0	0	0	4	0	0	0	0	7
PEAK HR FACTOR :	0.250			0.000			0.333			0.000			0.583

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-122

Day: Thursday

City: Los Angeles

BUSES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			SR-101 SB Ramps			SR-101 SB Ramps			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES :	0	0	0	0	0	0	0	1	0	0	0	0	1
APPROACH %'s :							0.00%	100.00%	0.00%				
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	1	0	0	0	0	1
PEAK HR FACTOR :	0.000			0.000			0.250			0.000			0.250

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-122

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

NS/EW Streets:		AM												TOTAL
		NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:		NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
		0	3	0	0	2	0	0	4	0	0	0	0	0
6:00 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM		0	0	0	0	0	0	0	2	0	0	0	0	2
7:00 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM		0	0	0	0	0	0	0	1	0	0	0	0	1
7:30 AM		0	0	1	0	0	0	0	1	0	0	0	0	2
7:45 AM		0	0	0	0	0	0	0	1	0	0	0	0	1
8:00 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 AM		0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM		0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES :		0	0	1	0	0	0	0	6	0	0	0	0	7
APPROACH %'s :		0.00%	0.00%	100.00%				0.00%	100.00%	0.00%				
PEAK HR START TIME :		800 AM											TOTAL	
PEAK HR VOL :		0	0	0	0	0	0	0	1	0	0	0	0	1
PEAK HR FACTOR :		0.000			0.000			0.250			0.000			0.250

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-122

Day: Thursday

City: Los Angeles

HEAVY TRUCKS

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			SR-101 SB Ramps			SR-101 SB Ramps			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	3	0	0	2	0	0	4	0	0	0	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	1	0	0	0	0	3	0	0	0	0	4
3:30 PM	0	0	1	0	0	0	0	2	0	0	0	0	3
3:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2
4:30 PM	0	0	1	0	0	0	0	2	0	0	0	0	3
4:45 PM	0	0	1	0	0	0	0	1	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	1	0	0	0	0	3	0	0	0	0	4
5:45 PM	0	0	1	0	0	0	0	1	0	0	0	0	2
TOTAL VOLUMES :	0	0	6	0	0	0	0	16	0	0	0	0	22
APPROACH %'s :	0.00%	0.00%	100.00%					0.00%	100.00%	0.00%			
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	0	2	0	0	0	0	4	0	0	0	0	6
PEAK HR FACTOR :	0.500			0.000			0.333			0.000			0.375

CONTROL : Signalized

Appendix D: Existing Intersection Analysis Worksheets

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HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↖		↖		↖↗	↖	↖	↖↗↘	
Traffic Volume (vph)	43	31	114	149	0	199	0	669	149	128	1169	0
Future Volume (vph)	43	31	114	149	0	199	0	669	149	128	1169	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	47	34	124	162	0	216	0	727	162	139	1271	0
RTOR Reduction (vph)	0	0	110	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	47	34	14	162	0	216	0	727	57	139	1271	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	10.3	10.3	10.3	21.3		21.3		26.8	26.8	13.6	44.9	
Effective Green, g (s)	10.3	10.3	10.3	21.3		21.3		26.8	26.8	13.6	44.9	
Actuated g/C Ratio	0.11	0.11	0.11	0.24		0.24		0.30	0.30	0.15	0.50	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	392	213	181	418		374		1053	471	267	2536	
v/s Ratio Prot	0.01	c0.02		0.09		c0.14		c0.21		0.08	c0.25	
v/s Ratio Perm			0.01						0.04			
v/c Ratio	0.12	0.16	0.08	0.39		0.58		0.69	0.12	0.52	0.50	
Uniform Delay, d1	35.8	35.9	35.6	28.9		30.4		27.9	23.0	35.2	15.1	
Progression Factor	0.80	0.81	0.59	0.90		0.91		1.56	3.71	1.38	0.66	
Incremental Delay, d2	0.6	1.6	0.8	2.7		6.3		3.5	0.5	6.1	0.6	
Delay (s)	29.4	30.7	21.9	28.6		33.8		47.0	86.0	54.5	10.5	
Level of Service	C	C	C	C		C		D	F	D	B	
Approach Delay (s)		25.1			31.6			54.1			14.8	
Approach LOS		C			C			D			B	

Intersection Summary

HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	51.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	59	14	10	149	96	13	37	7	180	66	186
Future Volume (vph)	235	59	14	10	149	96	13	37	7	180	66	186
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00		1.00	0.95			0.95			1.00	1.00
Frt	1.00	0.97		1.00	0.94			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.96	1.00
Satd. Flow (prot)	3433	1810		1770	3332			3432			1797	1583
Flt Permitted	0.95	1.00		0.71	1.00			0.99			0.96	1.00
Satd. Flow (perm)	3433	1810		1314	3332			3432			1797	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	64	15	11	162	104	14	40	8	196	72	202
RTOR Reduction (vph)	0	6	0	0	64	0	0	7	0	0	0	133
Lane Group Flow (vph)	255	73	0	11	202	0	0	55	0	0	268	69
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	11.9	51.2		34.8	34.8			6.5			18.8	30.7
Effective Green, g (s)	11.9	51.2		34.8	34.8			6.5			18.8	30.7
Actuated g/C Ratio	0.13	0.57		0.39	0.39			0.07			0.21	0.34
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	453	1029		508	1288			247			375	619
v/s Ratio Prot	c0.07	0.04			c0.06			c0.02			c0.15	0.02
v/s Ratio Perm				0.01								0.02
v/c Ratio	0.56	0.07		0.02	0.16			0.22			0.71	0.11
Uniform Delay, d1	36.6	8.7		17.1	18.0			39.4			33.1	20.3
Progression Factor	1.39	0.36		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.5	0.1		0.0	0.1			2.1			6.3	0.1
Delay (s)	52.4	3.2		17.1	18.1			41.4			39.5	20.4
Level of Service	D	A		B	B			D			D	C
Approach Delay (s)		40.8			18.0			41.4			31.3	
Approach LOS		D			B			D			C	

Intersection Summary

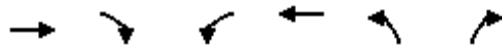
HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: N Vignes St & E Commercial St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↔		↔	↔	↔	↔
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	224	22	90	199	56	55
Future Volume (vph)	224	22	90	199	56	55
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	243	24	98	216	61	60

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	267	98	216	61	60
Volume Left (vph)	0	98	0	61	0
Volume Right (vph)	24	0	0	0	60
Hadj (s)	-0.02	0.53	0.03	0.53	-0.67
Departure Headway (s)	5.0	5.6	5.1	6.4	5.2
Degree Utilization, x	0.37	0.15	0.31	0.11	0.09
Capacity (veh/h)	693	616	679	519	629
Control Delay (s)	10.9	8.5	9.2	9.0	7.5
Approach Delay (s)	10.9	9.0		8.3	
Approach LOS	B	A		A	





















Intersection Summary

Delay	9.6
Level of Service	A
Intersection Capacity Utilization	31.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: E Commercial St & Ramirez St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	193	4	82	3	4	7	70	352	7	9	356	215
Future Volume (vph)	193	4	82	3	4	7	70	352	7	9	356	215
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	210	4	89	3	4	8	76	383	8	10	387	234
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total (vph)	303	15	76	383	8	10	387	234				
Volume Left (vph)	210	3	76	0	0	10	0	0				
Volume Right (vph)	89	8	0	0	8	0	0	234				
Hadj (s)	0.00	-0.25	0.53	0.03	-0.67	0.53	0.03	-0.67				
Departure Headway (s)	6.2	6.9	6.8	6.3	3.2	6.8	6.3	3.2				
Degree Utilization, x	0.52	0.03	0.14	0.66	0.01	0.02	0.68	0.21				
Capacity (veh/h)	539	407	512	554	1121	504	547	1122				
Control Delay (s)	15.8	10.1	9.7	19.6	5.0	8.8	20.5	5.8				
Approach Delay (s)	15.8	10.1	17.7					14.9				
Approach LOS	C	B	C					B				
Intersection Summary												
Delay			16.0									
Level of Service			C									
Intersection Capacity Utilization			55.2%	ICU Level of Service				B				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	161	147	24	344	40	252	675	0	29	833	428
Future Volume (vph)	103	161	147	24	344	40	252	675	0	29	833	428
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3286		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.25	1.00		0.55	1.00		0.24	1.00		0.95	1.00	1.00
Satd. Flow (perm)	457	3286		1024	3484		444	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	175	160	26	374	43	274	734	0	32	905	465
RTOR Reduction (vph)	0	115	0	0	0	0	0	0	0	0	0	197
Lane Group Flow (vph)	112	220	0	26	417	0	274	734	0	32	905	268
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	25.2	25.2		15.5	15.5		47.5	47.5		3.8	34.0	34.0
Effective Green, g (s)	25.2	25.2		15.5	15.5		47.5	47.5		3.8	34.0	34.0
Actuated g/C Ratio	0.28	0.28		0.17	0.17		0.53	0.53		0.04	0.38	0.38
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	203	920		176	600		489	1867		74	1336	598
v/s Ratio Prot	c0.03	0.07			c0.12		c0.11	0.21		0.02	c0.26	
v/s Ratio Perm	0.12			0.03			0.19					0.17
v/c Ratio	0.55	0.24		0.15	0.69		0.56	0.39		0.43	0.68	0.45
Uniform Delay, d1	25.6	25.0		31.6	35.0		20.8	12.7		42.0	23.4	21.0
Progression Factor	0.78	0.63		1.00	1.00		0.51	0.31		1.42	0.39	0.08
Incremental Delay, d2	3.2	0.1		0.4	3.5		1.3	0.6		3.6	2.5	2.2
Delay (s)	23.0	16.0		32.0	38.5		11.8	4.5		63.4	11.6	3.9
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		17.7			38.1			6.5			10.2	
Approach LOS		B			D			A			B	

Intersection Summary


















HCM 2000 Control Delay	13.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

6: N Vignes St & E Temple St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	48	24	62	7	101	3	352	89	11	6	46	60
Future Volume (vph)	48	24	62	7	101	3	352	89	11	6	46	60
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	52	26	67	8	110	3	383	97	12	7	50	65
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	78	67	121	492	122							
Volume Left (vph)	52	0	8	383	7							
Volume Right (vph)	0	67	3	12	65							
Hadj (s)	0.37	-0.67	0.03	0.18	-0.27							
Departure Headway (s)	6.7	5.7	5.9	5.0	5.1							
Degree Utilization, x	0.15	0.11	0.20	0.69	0.17							
Capacity (veh/h)	487	570	540	691	641							
Control Delay (s)	9.6	8.1	10.4	18.5	9.2							
Approach Delay (s)	8.9		10.4	18.5	9.2							
Approach LOS	A		B	C	A							
Intersection Summary												
Delay			14.5									
Level of Service			B									
Intersection Capacity Utilization			49.4%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗			↖	↗	↘	↖	↗	↘	↖	↗
Traffic Volume (vph)	0	0	0	0	511	26	2	901	49	13	828	163
Future Volume (vph)	0	0	0	0	511	26	2	901	49	13	828	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted					1.00	1.00	0.25	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)					3539	1583	475	3539	1583	420	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	555	28	2	979	53	14	900	177
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	23	0	0	27
Lane Group Flow (vph)	0	0	0	0	555	28	2	979	30	14	900	150
Turn Type	pm+pt				NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)					20.6	20.6	50.1	50.1	50.1	50.1	50.1	55.9
Effective Green, g (s)					20.6	20.6	50.1	50.1	50.1	50.1	50.1	55.9
Actuated g/C Ratio					0.23	0.23	0.56	0.56	0.56	0.56	0.56	0.62
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)					810	362	264	1970	881	233	1970	1062
v/s Ratio Prot					c0.16			c0.28			0.25	c0.01
v/s Ratio Perm						0.02	0.00		0.02	0.03		0.09
v/c Ratio					0.69	0.08	0.01	0.50	0.03	0.06	0.46	0.14
Uniform Delay, d1					31.7	27.2	8.9	12.2	9.0	9.2	11.9	7.1
Progression Factor					1.64	1.72	1.00	1.00	1.00	0.40	0.29	0.10
Incremental Delay, d2					1.6	0.1	0.1	0.9	0.1	0.4	0.6	0.1
Delay (s)					53.5	46.9	8.9	13.1	9.1	4.1	4.1	0.8
Level of Service					D	D	A	B	A	A	A	A
Approach Delay (s)		0.0			53.2			12.9			3.5	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕			↕	
Traffic Volume (vph)	30	113	10	178	514	393	4	18	26	26	32	19
Future Volume (vph)	30	113	10	178	514	393	4	18	26	26	32	19
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.95			0.93			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.98	
Satd. Flow (prot)		3502	1583		3320			1721			1770	
Flt Permitted		0.99	1.00		0.99			0.98			0.90	
Satd. Flow (perm)		3502	1583		3320			1700			1624	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	123	11	193	559	427	4	20	28	28	35	21
RTOR Reduction (vph)	0	0	8	0	96	0	0	22	0	0	14	0
Lane Group Flow (vph)	0	156	3	0	1083	0	0	30	0	0	70	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8				4
Permitted Phases			2				8			4		
Actuated Green, G (s)		23.1	23.1		35.3			18.1			18.1	
Effective Green, g (s)		23.1	23.1		35.3			18.1			18.1	
Actuated g/C Ratio		0.26	0.26		0.39			0.20			0.20	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		898	406		1302			341			326	
v/s Ratio Prot		c0.04			c0.33							
v/s Ratio Perm			0.00					0.02			c0.04	
v/c Ratio		0.17	0.01		0.83			0.09			0.22	
Uniform Delay, d1		26.0	24.9		24.7			29.2			30.0	
Progression Factor		1.05	1.00		0.69			1.00			1.00	
Incremental Delay, d2		0.4	0.0		2.8			0.5			1.5	
Delay (s)		27.7	24.9		19.9			29.7			31.5	
Level of Service		C	C		B			C			C	
Approach Delay (s)		27.6			19.9			29.7			31.5	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶ ↷ ↸	↶ ↷ ↸		↶ ↷ ↸	↶ ↷ ↸			↶ ↷ ↸	
Traffic Volume (vph)	0	0	0	465	1700	222	111	800	0	0	832	53
Future Volume (vph)	0	0	0	465	1700	222	111	800	0	0	832	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91	
Frt				1.00	0.98		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4719		1770	5085			5039	
Flt Permitted				0.95	1.00		0.22	1.00			1.00	
Satd. Flow (perm)				1522	4719		407	5085			5039	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	505	1848	241	121	870	0	0	904	58
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	454	2140	0	121	870	0	0	958	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				44.5	44.5		36.5	36.5			36.5	
Effective Green, g (s)				44.5	44.5		36.5	36.5			36.5	
Actuated g/C Ratio				0.49	0.49		0.41	0.41			0.41	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				752	2333		165	2062			2043	
v/s Ratio Prot				0.30	c0.45			0.17			0.19	
v/s Ratio Perm							c0.30					
v/c Ratio				0.60	0.92		0.73	0.42			0.47	
Uniform Delay, d1				16.4	21.0		22.6	19.2			19.6	
Progression Factor				1.00	1.00		0.75	0.61			0.19	
Incremental Delay, d2				3.6	7.2		19.8	0.5			0.7	
Delay (s)				20.0	28.2		36.8	12.2			4.5	
Level of Service				B	C		D	B			A	
Approach Delay (s)		0.0			26.8			15.2			4.5	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: N Alameda St & Los Angeles St WB/LA Union Station

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↔↗						↖↗↘		↖	↖↗↘	
Traffic Volume (vph)	104	51	17	0	0	0	0	503	103	59	1067	0
Future Volume (vph)	104	51	17	0	0	0	0	503	103	59	1067	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.98						0.97		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3250						4956		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.36	1.00	
Satd. Flow (perm)	1610	3250						4956		664	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	113	55	18	0	0	0	0	547	112	64	1160	0
RTOR Reduction (vph)	0	13	0	0	0	0	0	35	0	0	0	0
Lane Group Flow (vph)	62	111	0	0	0	0	0	624	0	64	1160	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	25.5	25.5						37.5		55.5	55.5	
Effective Green, g (s)	25.5	25.5						37.5		55.5	55.5	
Actuated g/C Ratio	0.28	0.28						0.42		0.62	0.62	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	456	920						2065		575	3135	
v/s Ratio Prot	c0.04	0.03						0.13		0.02	c0.23	
v/s Ratio Perm										0.05		
v/c Ratio	0.14	0.12						0.30		0.11	0.37	
Uniform Delay, d1	24.0	23.9						17.5		8.9	8.6	
Progression Factor	1.00	1.00						1.55		0.24	0.25	
Incremental Delay, d2	0.6	0.3						0.3		0.4	0.3	
Delay (s)	24.7	24.2						27.4		2.5	2.5	
Level of Service	C	C						C		A	A	
Approach Delay (s)		24.4			0.0			27.4			2.5	
Approach LOS		C			A			C			A	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	↘
Traffic Volume (vph)	47	483	96	112	1200	45	119	399	125	74	1136	152
Future Volume (vph)	47	483	96	112	1200	45	119	399	125	74	1136	152
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5058		1770	4903		1770	4995	
Flt Permitted	0.16	1.00	1.00	0.30	1.00		0.16	1.00		0.29	1.00	
Satd. Flow (perm)	290	3539	1583	564	5058		307	4903		546	4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	525	104	122	1304	49	129	434	136	80	1235	165
RTOR Reduction (vph)	0	0	62	0	5	0	0	63	0	0	19	0
Lane Group Flow (vph)	51	525	42	122	1348	0	129	507	0	80	1381	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.5	28.5	36.0	38.5	38.5		31.8	31.8		30.5	30.5	
Effective Green, g (s)	28.5	28.5	36.0	38.5	38.5		31.8	31.8		30.5	30.5	
Actuated g/C Ratio	0.32	0.32	0.40	0.43	0.43		0.35	0.35		0.34	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	91	1120	633	314	2163		230	1732		269	1692	
v/s Ratio Prot		0.15	0.01	0.02	c0.27		c0.05	0.10		0.02	c0.28	
v/s Ratio Perm	0.18		0.02	0.14			0.15			0.08		
v/c Ratio	0.56	0.47	0.07	0.39	0.62		0.56	0.29		0.30	0.82	
Uniform Delay, d1	25.5	24.7	16.6	16.6	20.1		30.9	21.0		21.0	27.2	
Progression Factor	0.87	0.84	0.77	0.27	0.31		0.61	0.22		0.57	0.71	
Incremental Delay, d2	22.3	1.4	0.2	2.3	0.9		9.5	0.4		2.7	4.2	
Delay (s)	44.4	22.1	13.1	6.8	7.2		28.3	5.0		14.6	23.4	
Level of Service	D	C	B	A	A		C	A		B	C	
Approach Delay (s)		22.4			7.1			9.3			22.9	
Approach LOS		C			A			A			C	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	54	112	61	48	729	142	56	255	12	140	937	236
Future Volume (vph)	54	112	61	48	729	142	56	255	12	140	937	236
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3353		1770	3539	1583	1770	3539	1583	1770	4932	
Flt Permitted	0.17	1.00		0.63	1.00	1.00	0.17	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	317	3353		1180	3539	1583	310	3539	1583	1083	4932	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	122	66	52	792	154	61	277	13	152	1018	257
RTOR Reduction (vph)	0	49	0	0	0	67	0	0	6	0	35	0
Lane Group Flow (vph)	59	139	0	52	792	87	61	277	7	152	1240	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	23.5	23.5		31.1	31.1	31.1	49.9	49.9	49.9	49.9	49.9	
Effective Green, g (s)	23.5	23.5		31.1	31.1	31.1	49.9	49.9	49.9	49.9	49.9	
Actuated g/C Ratio	0.26	0.26		0.35	0.35	0.35	0.55	0.55	0.55	0.55	0.55	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	875		428	1222	547	171	1962	877	600	2734	
v/s Ratio Prot		0.04		0.00	c0.22			0.08			c0.25	
v/s Ratio Perm	c0.19			0.04		0.05	0.20		0.00	0.14		
v/c Ratio	0.72	0.16		0.12	0.65	0.16	0.36	0.14	0.01	0.25	0.45	
Uniform Delay, d1	30.3	25.6		20.2	24.8	20.4	11.1	9.7	9.0	10.4	11.9	
Progression Factor	1.00	1.00		0.70	0.80	0.67	0.70	0.52	1.00	0.33	0.29	
Incremental Delay, d2	25.9	0.1		0.1	1.0	0.1	5.7	0.1	0.0	0.9	0.5	
Delay (s)	56.1	25.7		14.1	20.8	13.8	13.4	5.2	9.0	4.3	4.0	
Level of Service	E	C		B	C	B	B	A	A	A	A	
Approach Delay (s)		33.0			19.4			6.8			4.0	
Approach LOS		C			B			A			A	

Intersection Summary

























HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	430	193	245	1216	334	154	362	57	145	350	29
Future Volume (vph)	50	430	193	245	1216	334	154	362	57	145	350	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3498	3498
Flt Permitted	0.11	1.00	1.00	0.38	1.00	1.00	0.57	1.00	1.00	0.57	1.00	1.00
Satd. Flow (perm)	204	3539	1583	716	3539	1583	1064	3539	1583	1064	3498	3498
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	467	210	266	1322	363	167	393	62	158	380	32
RTOR Reduction (vph)	0	0	125	0	0	176	0	0	51	0	7	0
Lane Group Flow (vph)	54	467	85	266	1322	187	167	393	11	158	405	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	41.0	36.6	36.6	52.5	43.6	43.6	15.6	15.6	15.6	15.4	15.4	15.4
Effective Green, g (s)	41.0	36.6	36.6	52.5	43.6	43.6	15.6	15.6	15.6	15.4	15.4	15.4
Actuated g/C Ratio	0.46	0.41	0.41	0.58	0.48	0.48	0.17	0.17	0.17	0.17	0.17	0.17
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	169	1439	643	551	1714	766	251	613	274	247	598	598
v/s Ratio Prot	0.02	0.13		c0.06	c0.37		0.06	c0.11		0.06	c0.12	
v/s Ratio Perm	0.13		0.05	0.22		0.12	0.05		0.01	0.05		
v/c Ratio	0.32	0.32	0.13	0.48	0.77	0.24	0.67	0.64	0.04	0.64	0.68	0.68
Uniform Delay, d1	15.8	18.3	16.7	9.8	19.1	13.6	34.5	34.6	31.0	34.0	35.0	35.0
Progression Factor	1.05	0.65	2.84	0.73	0.63	0.21	0.90	0.90	1.00	0.66	0.66	0.66
Incremental Delay, d2	1.0	0.6	0.4	0.2	0.9	0.2	6.3	2.2	0.1	5.3	3.0	3.0
Delay (s)	17.7	12.4	47.9	7.3	13.0	3.1	37.4	33.4	31.0	27.8	26.1	26.1
Level of Service	B	B	D	A	B	A	D	C	C	C	C	C
Approach Delay (s)		23.0			10.4			34.2			26.6	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			19.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			71.9%			ICU Level of Service			C			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	111	66	68	103	124	325	34	173	98	416	145	227
Future Volume (vph)	111	66	68	103	124	325	34	173	98	416	145	227
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3153		1770	1863	1583	3433	3539	1583	3433	3215	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1137	2749		1770	1863	1583	3433	3539	1583	3433	3215	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	121	72	74	112	135	353	37	188	107	452	158	247
RTOR Reduction (vph)	0	64	0	0	0	251	0	0	69	0	117	0
Lane Group Flow (vph)	83	120	0	112	135	102	37	188	38	452	288	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.1	12.1		9.3	25.9	25.9	3.3	31.6	31.6	19.0	47.3	
Effective Green, g (s)	12.1	12.1		9.3	25.9	25.9	3.3	31.6	31.6	19.0	47.3	
Actuated g/C Ratio	0.13	0.13		0.10	0.29	0.29	0.04	0.35	0.35	0.21	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	152	369		182	536	455	125	1242	555	724	1689	
v/s Ratio Prot				c0.06	0.07		0.01	0.05		c0.13	c0.09	
v/s Ratio Perm	c0.07	0.04				0.06			0.02			
v/c Ratio	0.55	0.33		0.62	0.25	0.22	0.30	0.15	0.07	0.62	0.17	
Uniform Delay, d1	36.4	35.3		38.6	24.6	24.4	42.2	20.0	19.4	32.3	11.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.73	0.49	
Incremental Delay, d2	4.0	0.5		6.1	0.2	0.2	1.3	0.3	0.2	1.5	0.2	
Delay (s)	40.4	35.8		44.7	24.9	24.6	43.5	20.3	19.6	25.2	5.7	
Level of Service	D	D		D	C	C	D	C	B	C	A	
Approach Delay (s)		37.2			28.4			22.7			16.0	
Approach LOS		D			C			C			B	

Intersection Summary

HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑		↘	↑↑		↘	↑↑	
Traffic Volume (vph)	59	194	5	0	390	177	1	166	41	219	479	529
Future Volume (vph)	59	194	5	0	390	177	1	166	41	219	479	529
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3527			3374		1770	3433		1770	3261	
Flt Permitted	0.95	1.00			1.00		0.18	1.00		0.61	1.00	
Satd. Flow (perm)	1770	3527			3374		341	3433		1139	3261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	64	211	5	0	424	192	1	180	45	238	521	575
RTOR Reduction (vph)	0	3	0	0	61	0	0	18	0	0	166	0
Lane Group Flow (vph)	64	213	0	0	555	0	1	207	0	238	930	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.5	31.6			19.6		49.4	49.4		49.4	49.4	
Effective Green, g (s)	7.5	31.6			19.6		49.4	49.4		49.4	49.4	
Actuated g/C Ratio	0.08	0.35			0.22		0.55	0.55		0.55	0.55	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	147	1238			734		187	1884		625	1789	
v/s Ratio Prot	c0.04	0.06			c0.16			0.06			c0.29	
v/s Ratio Perm							0.00			0.21		
v/c Ratio	0.44	0.17			0.76		0.01	0.11		0.38	0.52	
Uniform Delay, d1	39.2	20.2			33.0		9.2	9.7		11.6	12.8	
Progression Factor	1.27	1.34			0.53		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.1			4.0		0.1	0.1		1.8	1.1	
Delay (s)	52.0	27.1			21.5		9.2	9.9		13.3	13.9	
Level of Service	D	C			C		A	A		B	B	
Approach Delay (s)		32.8			21.5			9.9			13.8	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

16: N Alameda St/N Spring St & W College St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	67	162	28	148	10	184	255	12	11	1123	149
Future Volume (vph)	78	67	162	28	148	10	184	255	12	11	1123	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1845		1770	3515		1770	4996	
Flt Permitted	0.48	1.00	1.00	0.71	1.00		0.14	1.00		0.57	1.00	
Satd. Flow (perm)	891	1863	1583	1322	1845		255	3515		1070	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	73	176	30	161	11	200	277	13	12	1221	162
RTOR Reduction (vph)	0	0	149	0	3	0	0	3	0	0	14	0
Lane Group Flow (vph)	85	73	27	30	169	0	200	287	0	12	1369	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	13.6	13.6	13.6	13.6	13.6		67.4	67.4		52.8	52.8	
Effective Green, g (s)	13.6	13.6	13.6	13.6	13.6		67.4	67.4		52.8	52.8	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.75	0.75		0.59	0.59	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	281	239	199	278		360	2632		627	2930	
v/s Ratio Prot		0.04			0.09		c0.06	0.08			0.27	
v/s Ratio Perm	c0.10		0.02	0.02			c0.35			0.01		
v/c Ratio	0.63	0.26	0.11	0.15	0.61		0.56	0.11		0.02	0.47	
Uniform Delay, d1	35.9	33.8	33.0	33.2	35.7		6.0	3.1		7.8	10.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.98	0.44		1.00	1.00	
Incremental Delay, d2	9.4	0.5	0.2	0.4	3.7		1.8	0.1		0.1	0.5	
Delay (s)	45.3	34.2	33.2	33.5	39.4		13.8	1.4		7.8	11.1	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		36.5			38.5			6.5			11.1	
Approach LOS		D			D			A			B	

Intersection Summary



















HCM 2000 Control Delay	16.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	62.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	62	0	0	0	55	357	228	0	1302	222
Future Volume (Veh/h)	0	0	62	0	0	0	55	357	228	0	1302	222
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	67	0	0	0	60	388	248	0	1415	241
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								206			797	
pX, platoon unblocked	0.91	0.91	0.91	0.91	0.91	0.99	0.91			0.99		
vC, conflicting volume	1850	2044	592	1047	2164	194	1656			388		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1555	1767	207	677	1899	171	1376			367		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	91	100	100	100	87			100		
cM capacity (veh/h)	63	66	727	252	54	836	450			1179		
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	67	60	194	194	248	566	566	524				
Volume Left	0	60	0	0	0	0	0	0				
Volume Right	67	0	0	0	248	0	0	241				
cSH	727	450	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.09	0.13	0.11	0.11	0.15	0.33	0.33	0.31				
Queue Length 95th (ft)	8	11	0	0	0	0	0	0				
Control Delay (s)	10.5	14.2	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.5	1.2				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			40.6%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	185	36	15	19	0	11	0	444	47	36	1328	0	
Future Volume (vph)	185	36	15	19	0	11	0	444	47	36	1328	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91		
Frt	1.00	0.96		1.00		0.85		0.99		1.00	1.00		
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00		
Satd. Flow (prot)	3433	1781		1770		1583		5012		1770	5085		
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.44	1.00		
Satd. Flow (perm)	3433	1781		1770		1583		5012		825	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	201	39	16	21	0	12	0	483	51	39	1443	0	
RTOR Reduction (vph)	0	14	0	0	0	12	0	9	0	0	0	0	
Lane Group Flow (vph)	201	41	0	21	0	0	0	525	0	39	1443	0	
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA		
Protected Phases	7	4		3				2			6		
Permitted Phases	4					8				6			
Actuated Green, G (s)	17.8	9.3		4.0		1.1		63.2		63.2	63.2		
Effective Green, g (s)	17.8	9.3		4.0		1.1		63.2		63.2	63.2		
Actuated g/C Ratio	0.20	0.10		0.04		0.01		0.70		0.70	0.70		
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)	678	184		78		19		3519		579	3570		
v/s Ratio Prot	c0.04	0.02		0.01				0.10			c0.28		
v/s Ratio Perm	0.02					0.00				0.05			
v/c Ratio	0.30	0.22		0.27		0.01		0.15		0.07	0.40		
Uniform Delay, d1	30.8	37.0		41.6		43.9		4.5		4.2	5.6		
Progression Factor	0.81	0.66		1.00		1.00		0.26		0.61	0.51		
Incremental Delay, d2	0.2	0.6		1.9		0.2		0.1		0.2	0.3		
Delay (s)	25.1	25.0		43.4		44.1		1.2		2.8	3.2		
Level of Service	C	C		D		D		A		A	A		
Approach Delay (s)		25.0			43.7			1.2			3.2		
Approach LOS		C			D			A			A		

Intersection Summary

HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↑↑			↑↑↑		↗	↖↑↑↑				
Traffic Volume (vph)	61	534	0	0	1452	19	116	156	92	0	0	0
Future Volume (vph)	61	534	0	0	1452	19	116	156	92	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5075		1522	4542				
Flt Permitted	0.12	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	231	3539			5075		1522	4542				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	580	0	0	1578	21	126	170	100	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	79	0	0	0	0
Lane Group Flow (vph)	66	580	0	0	1597	0	100	217	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	61.7	61.7			61.7		19.3	19.3				
Effective Green, g (s)	61.7	61.7			61.7		19.3	19.3				
Actuated g/C Ratio	0.69	0.69			0.69		0.21	0.21				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	158	2426			3479		326	974				
v/s Ratio Prot		0.16			c0.31		c0.07	0.05				
v/s Ratio Perm	0.29											
v/c Ratio	0.42	0.24			0.46		0.31	0.22				
Uniform Delay, d1	6.2	5.3			6.5		29.7	29.2				
Progression Factor	1.00	1.00			0.31		1.00	1.00				
Incremental Delay, d2	7.9	0.2			0.3		2.4	0.5				
Delay (s)	14.2	5.6			2.4		32.1	29.7				
Level of Service	B	A			A		C	C				
Approach Delay (s)		6.4			2.4		30.3				0.0	
Approach LOS		A			A		C				A	

Intersection Summary

HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	291	1515	58	84	255	0	0	327	40
Future Volume (vph)	0	0	0	291	1515	58	84	255	0	0	327	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					1.00		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3482	
Flt Permitted					0.99		0.45	1.00			1.00	
Satd. Flow (perm)					5022		833	3539			3482	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	316	1647	63	91	277	0	0	355	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	0	2022	0	91	277	0	0	388	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					53.5		27.5	27.5			27.5	
Effective Green, g (s)					53.5		27.5	27.5			27.5	
Actuated g/C Ratio					0.59		0.31	0.31			0.31	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					2985		254	1081			1063	
v/s Ratio Prot								0.08			c0.11	
v/s Ratio Perm					0.40		0.11					
v/c Ratio					0.68		0.36	0.26			0.36	
Uniform Delay, d1					12.4		24.4	23.5			24.4	
Progression Factor					0.12		0.61	0.61			1.00	
Incremental Delay, d2					0.5		3.9	0.6			1.0	
Delay (s)					2.0		18.6	15.0			25.4	
Level of Service					A		B	B			C	
Approach Delay (s)		0.0			2.0			15.9			25.4	
Approach LOS		A			A			B			C	

Intersection Summary

HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	30	129	147	0	0	0	0	309	59	0	618	0
Future Volume (vph)	30	129	147	0	0	0	0	309	59	0	618	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.93						0.98			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		3268						3454			3539	
Flt Permitted		1.00						1.00			1.00	
Satd. Flow (perm)		3268						3454			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	33	140	160	0	0	0	0	336	64	0	672	0
RTOR Reduction (vph)	0	106	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	227	0	0	0	0	0	400	0	0	672	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		30.5						50.5			50.5	
Effective Green, g (s)		30.5						50.5			50.5	
Actuated g/C Ratio		0.34						0.56			0.56	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		1107						1938			1985	
v/s Ratio Prot								0.12			c0.19	
v/s Ratio Perm		0.07										
v/c Ratio		0.21						0.21			0.34	
Uniform Delay, d1		21.1						9.8			10.7	
Progression Factor		1.00						0.59			0.47	
Incremental Delay, d2		0.4						0.2			0.4	
Delay (s)		21.6						6.0			5.4	
Level of Service		C						A			A	
Approach Delay (s)		21.6			0.0			6.0			5.4	
Approach LOS		C			A			A			A	

Intersection Summary

HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗		↘	↗↗		↘	↗↗	↘
Traffic Volume (vph)	32	373	167	97	720	118	68	317	50	164	888	91
Future Volume (vph)	32	373	167	97	720	118	68	317	50	164	888	91
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3465		1770	3467		1770	3539	1583
Flt Permitted	0.18	1.00		0.35	1.00		0.21	1.00		0.50	1.00	1.00
Satd. Flow (perm)	332	3375		649	3465		395	3467		934	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	405	182	105	783	128	74	345	54	178	965	99
RTOR Reduction (vph)	0	52	0	0	15	0	0	14	0	0	0	31
Lane Group Flow (vph)	35	535	0	105	896	0	74	385	0	178	965	68
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Effective Green, g (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.51	0.51		0.51	0.51	0.51
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	130	1331		255	1366		199	1752		472	1789	800
v/s Ratio Prot		0.16			c0.26			0.11			c0.27	
v/s Ratio Perm	0.11			0.16			0.19			0.19		0.04
v/c Ratio	0.27	0.40		0.41	0.66		0.37	0.22		0.38	0.54	0.08
Uniform Delay, d1	18.5	19.6		19.7	22.3		13.5	12.4		13.6	15.1	11.5
Progression Factor	1.00	1.00		0.75	0.76		0.74	0.65		0.68	0.66	0.46
Incremental Delay, d2	5.0	0.9		4.6	2.4		5.2	0.3		2.3	1.2	0.2
Delay (s)	23.5	20.5		19.3	19.2		15.2	8.4		11.4	11.2	5.5
Level of Service	C	C		B	B		B	A		B	B	A
Approach Delay (s)		20.7			19.2			9.4			10.7	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↗	↘	↑↑		↘	↑↑	
Traffic Volume (vph)	28	379	116	47	625	80	104	346	40	111	796	133
Future Volume (vph)	28	379	116	47	625	80	104	346	40	111	796	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3415		1770	3539	1583	1770	3485		1770	3463	
Flt Permitted	0.23	1.00		0.33	1.00	1.00	0.23	1.00		0.50	1.00	
Satd. Flow (perm)	422	3415		608	3539	1583	428	3485		936	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	30	412	126	51	679	87	113	376	43	121	865	145
RTOR Reduction (vph)	0	32	0	0	0	61	0	9	0	0	15	0
Lane Group Flow (vph)	30	506	0	51	679	26	113	410	0	121	995	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Effective Green, g (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	124	1005		179	1042	466	259	2110		566	2097	
v/s Ratio Prot		0.15			c0.19			0.12			c0.29	
v/s Ratio Perm	0.07			0.08		0.02	0.26			0.13		
v/c Ratio	0.24	0.50		0.28	0.65	0.05	0.44	0.19		0.21	0.47	
Uniform Delay, d1	24.1	26.3		24.5	27.7	22.8	9.5	7.9		8.0	9.8	
Progression Factor	1.00	1.00		0.56	0.54	0.49	1.00	1.00		0.86	0.85	
Incremental Delay, d2	4.6	1.8		3.7	2.9	0.2	5.3	0.2		0.8	0.7	
Delay (s)	28.7	28.1		17.3	17.9	11.3	14.8	8.1		7.7	9.0	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		28.1			17.2			9.6			8.9	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	335	215	198	783	180	103
Future Volume (vph)	335	215	198	783	180	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3331		1770	3539	3433	1583
Flt Permitted	1.00		0.41	1.00	0.95	1.00
Satd. Flow (perm)	3331		760	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	364	234	215	851	196	112
RTOR Reduction (vph)	85	0	0	0	0	83
Lane Group Flow (vph)	514	0	215	851	196	29
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	57.5		57.5	57.5	23.5	23.5
Effective Green, g (s)	57.5		57.5	57.5	23.5	23.5
Actuated g/C Ratio	0.64		0.64	0.64	0.26	0.26
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2128		485	2261	896	413
v/s Ratio Prot	0.15			0.24	c0.06	
v/s Ratio Perm			c0.28			0.02
v/c Ratio	0.24		0.44	0.38	0.22	0.07
Uniform Delay, d1	6.9		8.2	7.7	26.1	25.0
Progression Factor	0.41		0.75	0.77	0.87	0.89
Incremental Delay, d2	0.3		2.4	0.4	0.5	0.3
Delay (s)	3.1		8.5	6.4	23.1	22.6
Level of Service	A		A	A	C	C
Approach Delay (s)	3.1			6.8	22.9	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	76	292	162	102	567	63	152	218	47	24	300	33
Future Volume (vph)	76	292	162	102	567	63	152	218	47	24	300	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.99			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3350		1770	3486			3417			3478	
Flt Permitted	0.32	1.00		0.43	1.00			0.68			0.91	
Satd. Flow (perm)	588	3350		796	3486			2368			3168	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	317	176	111	616	68	165	237	51	26	326	36
RTOR Reduction (vph)	0	85	0	0	9	0	0	11	0	0	9	0
Lane Group Flow (vph)	83	408	0	111	675	0	0	442	0	0	379	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	40.5	40.5		40.5	40.5			40.5			40.5	
Effective Green, g (s)	40.5	40.5		40.5	40.5			40.5			40.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.45			0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	264	1507		358	1568			1065			1425	
v/s Ratio Prot		0.12			c0.19							
v/s Ratio Perm	0.14			0.14				c0.19			0.12	
v/c Ratio	0.31	0.27		0.31	0.43			0.42			0.27	
Uniform Delay, d1	15.9	15.5		15.8	16.9			16.7			15.5	
Progression Factor	0.52	0.39		1.32	1.36			1.00			0.54	
Incremental Delay, d2	2.8	0.4		2.2	0.8			1.2			0.4	
Delay (s)	11.2	6.5		23.0	23.8			17.9			8.8	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		7.1			23.7			17.9			8.8	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↙↘		↘	↙↘		↘	↙↘	↘	↘	↙↘	↘
Traffic Volume (vph)	282	223	127	284	871	8	207	487	88	25	993	717
Future Volume (vph)	282	223	127	284	871	8	207	487	88	25	993	717
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3212		1770	3534		1770	3539	1583	1770	3539	1583
Flt Permitted	0.17	0.56		0.45	1.00		0.13	1.00	1.00	0.46	1.00	1.00
Satd. Flow (perm)	283	1815		844	3534		236	3539	1583	849	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	307	242	138	309	947	9	225	529	96	27	1079	779
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	55	0	0	39
Lane Group Flow (vph)	175	474	0	309	955	0	225	529	41	27	1079	740
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	38.7	38.7		37.3	23.3		38.5	38.5	38.5	27.1	27.1	41.8
Effective Green, g (s)	38.7	38.7		37.3	23.3		38.5	38.5	38.5	27.1	27.1	41.8
Actuated g/C Ratio	0.43	0.43		0.41	0.26		0.43	0.43	0.43	0.30	0.30	0.46
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	338	1008		493	914		218	1513	677	255	1065	814
v/s Ratio Prot	0.08	0.08		0.10	c0.27		c0.08	0.15			0.30	c0.15
v/s Ratio Perm	0.14	0.13		0.16			c0.36		0.03	0.03		0.32
v/c Ratio	0.52	0.47		0.63	1.05		1.03	0.35	0.06	0.11	1.01	0.91
Uniform Delay, d1	18.9	18.3		18.7	33.4		22.4	17.3	15.1	22.7	31.4	22.3
Progression Factor	0.62	0.49		1.00	1.00		1.24	1.17	1.92	1.00	1.00	1.00
Incremental Delay, d2	1.3	0.3		2.5	42.2		68.5	0.6	0.2	0.8	30.9	13.9
Delay (s)	13.0	9.2		21.2	75.6		96.4	21.0	29.2	23.5	62.3	36.2
Level of Service	B	A		C	E		F	C	C	C	E	D
Approach Delay (s)		10.2			62.3			41.9			51.0	
Approach LOS		B			E			D			D	

Intersection Summary

HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.08		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	69	9	12	553	151	38	162	2	105	164	494
Future Volume (vph)	87	69	9	12	553	151	38	162	2	105	164	494
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1830		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.58	1.00		0.58	1.00	1.00
Satd. Flow (perm)	1770	1830		1770	1803		1079	1860		1079	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	75	10	13	601	164	41	176	2	114	178	537
RTOR Reduction (vph)	0	4	0	0	12	0	0	1	0	0	0	241
Lane Group Flow (vph)	95	81	0	13	753	0	41	177	0	114	178	296
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.6	50.1		1.0	40.5		25.4	25.4		25.4	25.4	25.4
Effective Green, g (s)	10.6	50.1		1.0	40.5		25.4	25.4		25.4	25.4	25.4
Actuated g/C Ratio	0.12	0.56		0.01	0.45		0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	208	1018		19	811		304	524		304	525	446
v/s Ratio Prot	c0.05	0.04		0.01	c0.42			0.10				0.10
v/s Ratio Perm							0.04			0.11		c0.19
v/c Ratio	0.46	0.08		0.68	0.93		0.13	0.34		0.38	0.34	0.66
Uniform Delay, d1	37.0	9.3		44.3	23.4		24.1	25.6		25.9	25.6	28.5
Progression Factor	0.72	0.83		1.00	1.00		1.00	1.00		0.46	0.44	0.64
Incremental Delay, d2	1.6	0.0		69.9	16.7		0.9	1.7		1.6	0.8	3.5
Delay (s)	28.1	7.7		114.2	40.0		25.0	27.4		13.5	12.0	21.8
Level of Service	C	A		F	D		C	C		B	B	C
Approach Delay (s)		18.5			41.3			26.9			18.6	
Approach LOS		B			D			C			B	

Intersection Summary

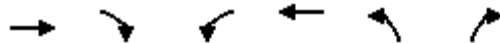
HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	0	363	139	536	196	0
Future Volume (vph)	0	363	139	536	196	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.85		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3008		1770	3539	1770	
Flt Permitted	1.00		0.51	1.00	0.95	
Satd. Flow (perm)	3008		945	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	395	151	583	213	0
RTOR Reduction (vph)	187	0	0	0	0	0
Lane Group Flow (vph)	208	0	151	583	213	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	47.5		47.5	47.5	33.5	
Effective Green, g (s)	47.5		47.5	47.5	33.5	
Actuated g/C Ratio	0.53		0.53	0.53	0.37	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1587		498	1867	658	
v/s Ratio Prot	0.07			c0.16	c0.12	
v/s Ratio Perm			0.16			
v/c Ratio	0.13		0.30	0.31	0.32	
Uniform Delay, d1	10.8		11.9	12.0	20.2	
Progression Factor	1.00		0.29	0.29	1.00	
Incremental Delay, d2	0.2		1.4	0.4	1.3	
Delay (s)	10.9		4.9	3.9	21.5	
Level of Service	B		A	A	C	
Approach Delay (s)	10.9			4.1	21.5	
Approach LOS	B			A	C	






















Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St














10/28/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	6	97	4	23	19	573	164	60	407	12
Future Volume (vph)	4	4	6	97	4	23	19	573	164	60	407	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.94		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1722		1770	1622		1770	3539	1583	1770	3524	
Flt Permitted		0.94		0.75	1.00		0.49	1.00	1.00	0.42	1.00	
Satd. Flow (perm)		1640		1393	1622		912	3539	1583	774	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	4	7	105	4	25	21	623	178	65	442	13
RTOR Reduction (vph)	0	6	0	0	22	0	0	0	39	0	1	0
Lane Group Flow (vph)	0	9	0	105	7	0	21	623	139	65	454	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		10.8		10.8	10.8		70.2	70.2	70.2	70.2	70.2	
Effective Green, g (s)		10.8		10.8	10.8		70.2	70.2	70.2	70.2	70.2	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		196		167	194		711	2760	1234	603	2748	
v/s Ratio Prot					0.00			c0.18				0.13
v/s Ratio Perm		0.01		c0.08			0.02		0.09	0.08		
v/c Ratio		0.05		0.63	0.04		0.03	0.23	0.11	0.11	0.17	
Uniform Delay, d1		35.0		37.7	35.0		2.2	2.6	2.4	2.4	2.5	
Progression Factor		1.00		1.00	1.00		2.19	2.52	7.94	1.54	1.44	
Incremental Delay, d2		0.1		7.2	0.1		0.1	0.2	0.2	0.4	0.1	
Delay (s)		35.1		44.9	35.1		5.0	6.8	19.1	4.0	3.7	
Level of Service		D		D	D		A	A	B	A	A	
Approach Delay (s)		35.1			42.8			9.5			3.8	
Approach LOS		D			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.7				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.28									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			43.3%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 31: Center St/Ramirez St & Keller St

10/28/2016

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	52	41	420	58	44	428	
Future Volume (Veh/h)	52	41	420	58	44	428	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	57	45	457	63	48	465	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None			None	
Median storage (veh)							
Upstream signal (ft)						556	
pX, platoon unblocked							
vC, conflicting volume	817	260			520		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	817	260			520		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	81	94			95		
cM capacity (veh/h)	300	739			1042		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	57	45	305	215	48	232	232
Volume Left	57	0	0	0	48	0	0
Volume Right	0	45	0	63	0	0	0
cSH	300	739	1700	1700	1042	1700	1700
Volume to Capacity	0.19	0.06	0.18	0.13	0.05	0.14	0.14
Queue Length 95th (ft)	17	5	0	0	4	0	0
Control Delay (s)	19.8	10.2	0.0	0.0	8.6	0.0	0.0
Lane LOS	C	B			A		
Approach Delay (s)	15.6		0.0		0.8		
Approach LOS	C						
Intersection Summary							
Average Delay			1.8				
Intersection Capacity Utilization			30.1%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis
 32: Union Station North Driveway & E Cesar E Chavez Ave

09/05/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	626	56	79	1280	77	54
Future Volume (vph)	626	56	79	1280	77	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3496		1770	3539	1770	1583
Flt Permitted	1.00		0.32	1.00	0.95	1.00
Satd. Flow (perm)	3496		598	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	680	61	86	1391	84	59
RTOR Reduction (vph)	13	0	0	0	0	38
Lane Group Flow (vph)	728	0	86	1391	84	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	26.2		26.2	26.2	19.8	19.8
Effective Green, g (s)	26.2		26.2	26.2	19.8	19.8
Actuated g/C Ratio	0.48		0.48	0.48	0.36	0.36
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1665		284	1685	637	569
v/s Ratio Prot	0.21			c0.39	c0.05	
v/s Ratio Perm			0.14			0.01
v/c Ratio	0.44		0.30	0.83	0.13	0.04
Uniform Delay, d1	9.5		8.8	12.4	11.8	11.4
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	3.4	0.4	0.1
Delay (s)	9.7		9.4	15.9	12.3	11.5
Level of Service	A		A	B	B	B
Approach Delay (s)	9.7			15.5	12.0	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	47.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

110: N Alameda St & Los Angeles St EB/LA Union Station

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	102	59	36	0	607	0	0	1024	320
Future Volume (vph)	0	0	0	102	59	36	0	607	0	0	1024	320
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.96	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6179	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6179	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	111	64	39	0	660	0	0	1113	348
RTOR Reduction (vph)	0	0	0	0	0	35	0	0	0	0	31	0
Lane Group Flow (vph)	0	0	0	111	64	4	0	660	0	0	1430	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				9.7	9.7	9.7		71.3			71.3	
Effective Green, g (s)				9.7	9.7	9.7		71.3			71.3	
Actuated g/C Ratio				0.11	0.11	0.11		0.79			0.79	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				190	200	170		4028			4895	
v/s Ratio Prot				c0.06	0.03			0.13			c0.23	
v/s Ratio Perm						0.00						
v/c Ratio				0.58	0.32	0.02		0.16			0.29	
Uniform Delay, d1				38.2	37.1	35.9		2.2			2.5	
Progression Factor				1.00	1.00	1.00		0.22			0.21	
Incremental Delay, d2				4.5	0.9	0.1		0.1			0.1	
Delay (s)				42.8	38.0	36.0		0.6			0.6	
Level of Service				D	D	D		A			A	
Approach Delay (s)		0.0			40.1			0.6			0.6	
Approach LOS		A			D			A			A	

Intersection Summary

HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↑	↖	↗		↖		↖↗	↖	↗	↖↗↗	
Traffic Volume (vph)	350	63	47	88	0	160	0	1197	164	133	720	0
Future Volume (vph)	350	63	47	88	0	160	0	1197	164	133	720	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	380	68	51	96	0	174	0	1301	178	145	783	0
RTOR Reduction (vph)	0	0	44	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	380	68	7	96	0	174	0	1301	105	145	783	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Effective Green, g (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.14		0.14		0.43	0.43	0.11	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	438	238	202	245		219		1513	677	186	2966	
v/s Ratio Prot	c0.11	0.04		0.05		c0.11		c0.37		c0.08	0.15	
v/s Ratio Perm			0.00						0.07			
v/c Ratio	0.87	0.29	0.03	0.39		0.79		0.86	0.16	0.78	0.26	
Uniform Delay, d1	38.5	35.5	34.4	35.3		37.5		23.3	15.8	39.2	9.2	
Progression Factor	1.13	1.12	1.00	1.09		1.08		1.19	2.28	1.35	0.46	
Incremental Delay, d2	17.4	2.5	0.2	4.5		24.4		5.4	0.4	26.1	0.2	
Delay (s)	60.9	42.2	34.6	43.1		65.1		33.1	36.3	79.1	4.5	
Level of Service	E	D	C	D		E		C	D	E	A	
Approach Delay (s)		55.6			57.3			33.5			16.1	
Approach LOS		E			E			C			B	

Intersection Summary

HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	44	16	1	44	283	19	440	18	110	19	164
Future Volume (vph)	340	44	16	1	44	283	19	440	18	110	19	164
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00		1.00	0.95			0.95			1.00	1.00
Frt	1.00	0.96		1.00	0.87			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.96	1.00
Satd. Flow (prot)	3433	1790		1770	3080			3512			1787	1583
Flt Permitted	0.95	1.00		0.71	1.00			1.00			0.96	1.00
Satd. Flow (perm)	3433	1790		1331	3080			3512			1787	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	370	48	17	1	48	308	21	478	20	120	21	178
RTOR Reduction (vph)	0	9	0	0	220	0	0	3	0	0	0	126
Lane Group Flow (vph)	370	56	0	1	136	0	0	516	0	0	141	52
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	14.4	44.7		25.8	25.8			19.8			12.0	26.4
Effective Green, g (s)	14.4	44.7		25.8	25.8			19.8			12.0	26.4
Actuated g/C Ratio	0.16	0.50		0.29	0.29			0.22			0.13	0.29
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	549	889		381	882			772			238	543
v/s Ratio Prot	c0.11	0.03			c0.04			c0.15			c0.08	0.01
v/s Ratio Perm				0.00								0.02
v/c Ratio	0.67	0.06		0.00	0.15			0.67			0.59	0.10
Uniform Delay, d1	35.6	11.8		22.9	24.0			32.1			36.7	23.1
Progression Factor	1.27	0.50		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.0	0.1		0.0	0.1			4.6			3.9	0.1
Delay (s)	48.4	6.0		22.9	24.0			36.7			40.6	23.2
Level of Service	D	A		C	C			D			D	C
Approach Delay (s)		42.1			24.0			36.7			30.9	
Approach LOS		D			C			D			C	

Intersection Summary

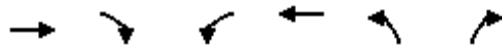
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: N Vignes St & E Commercial St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→		↵	↑	↵	↵
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	154	18	50	233	95	155
Future Volume (vph)	154	18	50	233	95	155
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	167	20	54	253	103	168

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	187	54	253	103	168
Volume Left (vph)	0	54	0	103	0
Volume Right (vph)	20	0	0	0	168
Hadj (s)	-0.03	0.53	0.03	0.53	-0.67
Departure Headway (s)	5.4	6.0	5.5	6.3	5.1
Degree Utilization, x	0.28	0.09	0.39	0.18	0.24
Capacity (veh/h)	630	571	629	538	658
Control Delay (s)	10.5	8.4	10.7	9.5	8.5
Approach Delay (s)	10.5	10.3		8.9	
Approach LOS	B	B		A	





















Intersection Summary

Delay	9.9
Level of Service	A
Intersection Capacity Utilization	27.8%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: Center St/Ramirez St & E Commercial St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	244	5	60	6	6	13	49	593	7	7	246	228
Future Volume (vph)	244	5	60	6	6	13	49	593	7	7	246	228
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	265	5	65	7	7	14	53	645	8	8	267	248
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total (vph)	335	28	53	645	8	8	267	248				
Volume Left (vph)	265	7	53	0	0	8	0	0				
Volume Right (vph)	65	14	0	0	8	0	0	248				
Hadj (s)	0.08	-0.22	0.53	0.03	-0.67	0.53	0.03	-0.67				
Departure Headway (s)	6.5	7.2	6.8	6.3	3.2	7.3	6.8	3.2				
Degree Utilization, x	0.61	0.06	0.10	1.00	0.01	0.02	0.50	0.22				
Capacity (veh/h)	534	444	515	645	1121	477	505	1122				
Control Delay (s)	19.0	10.7	9.4	61.5	5.0	9.2	15.2	5.9				
Approach Delay (s)	19.0	10.7	57.0					10.7				
Approach LOS	C	B	F					B				
Intersection Summary												
Delay			33.0									
Level of Service			D									
Intersection Capacity Utilization			68.7%	ICU Level of Service				C				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	436	190	29	154	91	87	955	0	73	713	301
Future Volume (vph)	244	436	190	29	154	91	87	955	0	73	713	301
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.36	1.00		0.39	1.00		0.36	1.00		0.95	1.00	1.00
Satd. Flow (perm)	671	3378		732	3342		667	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	474	207	32	167	99	95	1038	0	79	775	327
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	170
Lane Group Flow (vph)	265	621	0	32	266	0	95	1038	0	79	775	157
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.3	28.3		12.4	12.4		40.7	40.7		7.5	43.3	43.3
Effective Green, g (s)	28.3	28.3		12.4	12.4		40.7	40.7		7.5	43.3	43.3
Actuated g/C Ratio	0.31	0.31		0.14	0.14		0.45	0.45		0.08	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	350	1062		100	460		361	1600		147	1702	761
v/s Ratio Prot	c0.10	0.18			0.08		0.01	c0.29		0.04	c0.22	
v/s Ratio Perm	c0.14			0.04			0.10					0.10
v/c Ratio	0.76	0.58		0.32	0.58		0.26	0.65		0.54	0.46	0.21
Uniform Delay, d1	25.2	25.9		35.0	36.4		15.7	19.1		39.6	15.5	13.5
Progression Factor	0.60	0.47		1.00	1.00		0.67	0.74		1.37	0.42	0.06
Incremental Delay, d2	8.2	0.7		1.9	1.8		0.3	1.8		3.7	0.9	0.6
Delay (s)	23.2	12.9		36.8	38.1		10.9	15.9		58.0	7.5	1.4
Level of Service	C	B		D	D		B	B		E	A	A
Approach Delay (s)		15.8			38.0			15.5			9.2	
Approach LOS		B			D			B			A	

Intersection Summary


















HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

6: N Vignes St & E Temple St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	63	40	106	13	63	27	92	160	19	12	31	25
Future Volume (vph)	63	40	106	13	63	27	92	160	19	12	31	25
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	68	43	115	14	68	29	100	174	21	13	34	27
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	111	115	111	295	74							
Volume Left (vph)	68	0	14	100	13							
Volume Right (vph)	0	115	29	21	27							
Hadj (s)	0.34	-0.67	-0.10	0.06	-0.15							
Departure Headway (s)	5.9	4.9	5.2	4.9	5.0							
Degree Utilization, x	0.18	0.16	0.16	0.40	0.10							
Capacity (veh/h)	568	683	635	699	650							
Control Delay (s)	9.1	7.6	9.2	11.2	8.6							
Approach Delay (s)	8.3		9.2	11.2	8.6							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			9.7									
Level of Service			A									
Intersection Capacity Utilization			40.3%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	312	469	112	0	265	14	66	716	142	40	772	120
Future Volume (vph)	312	469	112	0	265	14	66	716	142	40	772	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.34	1.00			1.00	1.00	0.26	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	632	3437			3539	1583	485	3539	1583	536	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	339	510	122	0	288	15	72	778	154	43	839	130
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	77	0	0	38
Lane Group Flow (vph)	339	606	0	0	288	15	72	778	77	43	839	92
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	36.0	36.0			12.8	12.8	45.0	45.0	45.0	45.0	45.0	63.7
Effective Green, g (s)	36.0	36.0			12.8	12.8	45.0	45.0	45.0	45.0	45.0	63.7
Actuated g/C Ratio	0.40	0.40			0.14	0.14	0.50	0.50	0.50	0.50	0.50	0.71
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	1374			503	225	242	1769	791	268	1769	1199
v/s Ratio Prot	c0.14	0.18			0.08			0.22			c0.24	0.02
v/s Ratio Perm	c0.13					0.01	0.15		0.05	0.08		0.04
v/c Ratio	0.69	0.44			0.57	0.07	0.30	0.44	0.10	0.16	0.47	0.08
Uniform Delay, d1	20.4	19.7			36.0	33.4	13.2	14.4	11.8	12.2	14.7	4.1
Progression Factor	0.57	0.51			1.37	1.50	1.00	1.00	1.00	1.10	1.10	0.19
Incremental Delay, d2	3.8	0.2			1.2	0.1	3.1	0.8	0.2	1.2	0.8	0.0
Delay (s)	15.5	10.2			50.7	50.1	16.3	15.2	12.1	14.6	17.0	0.8
Level of Service	B	B			D	D	B	B	B	B	B	A
Approach Delay (s)		12.1			50.7			14.8			14.8	
Approach LOS		B			D			B			B	

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	69	570	22	77	302	75	6	76	224	79	27	29
Future Volume (vph)	69	570	22	77	302	75	6	76	224	79	27	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.98			0.90			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.97	
Satd. Flow (prot)		3520	1583		3422			1677			1757	
Flt Permitted		0.99	1.00		0.99			0.99			0.53	
Satd. Flow (perm)		3520	1583		3422			1670			964	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	75	620	24	84	328	82	7	83	243	86	29	32
RTOR Reduction (vph)	0	0	15	0	19	0	0	108	0	0	11	0
Lane Group Flow (vph)	0	695	9	0	475	0	0	225	0	0	136	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8				4
Permitted Phases			2				8			4		
Actuated Green, G (s)		33.0	33.0		17.0			26.5			26.5	
Effective Green, g (s)		33.0	33.0		17.0			26.5			26.5	
Actuated g/C Ratio		0.37	0.37		0.19			0.29			0.29	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		1290	580		646			491			283	
v/s Ratio Prot		c0.20			c0.14							
v/s Ratio Perm			0.01					0.13			c0.14	
v/c Ratio		0.54	0.02		0.73			0.46			0.48	
Uniform Delay, d1		22.5	18.2		34.4			25.9			26.1	
Progression Factor		0.64	1.00		1.11			1.00			1.00	
Incremental Delay, d2		1.6	0.0		3.4			3.1			5.7	
Delay (s)		15.9	18.2		41.7			29.0			31.8	
Level of Service		B	B		D			C			C	
Approach Delay (s)		16.0			41.7			29.0			31.8	
Approach LOS		B			D			C			C	

Intersection Summary

HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↵	↵↵↵		↵	↵↵↵			↵↵↵	
Traffic Volume (vph)	0	0	0	261	550	174	19	1688	0	0	592	24
Future Volume (vph)	0	0	0	261	550	174	19	1688	0	0	592	24
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91	
Frt				1.00	0.97		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4631		1770	5085			5056	
Flt Permitted				0.95	1.00		0.37	1.00			1.00	
Satd. Flow (perm)				1522	4631		695	5085			5056	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	284	598	189	21	1835	0	0	643	26
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	256	815	0	21	1835	0	0	664	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				30.5	30.5		50.5	50.5			50.5	
Effective Green, g (s)				30.5	30.5		50.5	50.5			50.5	
Actuated g/C Ratio				0.34	0.34		0.56	0.56			0.56	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				515	1569		389	2853			2836	
v/s Ratio Prot				0.17	c0.18			c0.36			0.13	
v/s Ratio Perm							0.03					
v/c Ratio				0.50	0.52		0.05	0.64			0.23	
Uniform Delay, d1				23.7	23.9		8.9	13.6			10.0	
Progression Factor				1.00	1.00		0.87	0.69			0.96	
Incremental Delay, d2				3.4	1.2		0.1	0.6			0.2	
Delay (s)				27.1	25.1		7.9	9.9			9.8	
Level of Service				C	C		A	A			A	
Approach Delay (s)		0.0			25.6			9.9			9.8	
Approach LOS		A			C			A			A	

Intersection Summary

HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: N Alameda St & Los Angeles St WB/LA Union Station

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↔						↕		↗	↕	↘
Traffic Volume (vph)	235	55	81	0	0	0	0	592	64	48	906	0
Future Volume (vph)	235	55	81	0	0	0	0	592	64	48	906	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.95						0.99		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3152						5010		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.32	1.00	
Satd. Flow (perm)	1610	3152						5010		601	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	255	60	88	0	0	0	0	643	70	52	985	0
RTOR Reduction (vph)	0	58	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	138	207	0	0	0	0	0	698	0	52	985	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	30.5	30.5						34.5		50.5	50.5	
Effective Green, g (s)	30.5	30.5						34.5		50.5	50.5	
Actuated g/C Ratio	0.34	0.34						0.38		0.56	0.56	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	545	1068						1920		486	2853	
v/s Ratio Prot	c0.09	0.07						0.14		0.01	c0.19	
v/s Ratio Perm										0.05		
v/c Ratio	0.25	0.19						0.36		0.11	0.35	
Uniform Delay, d1	21.5	21.0						19.9		11.9	10.8	
Progression Factor	1.00	1.00						0.94		0.39	0.41	
Incremental Delay, d2	1.1	0.4						0.4		0.4	0.3	
Delay (s)	22.6	21.5						19.0		5.0	4.7	
Level of Service	C	C						B		A	A	
Approach Delay (s)		21.9			0.0			19.0			4.7	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘	↑↑↑		↘	↑↑↑	
Traffic Volume (vph)	88	938	187	110	907	114	95	675	116	95	631	118
Future Volume (vph)	88	938	187	110	907	114	95	675	116	95	631	118
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5000		1770	4974		1770	4965	
Flt Permitted	0.24	1.00	1.00	0.11	1.00		0.21	1.00		0.19	1.00	
Satd. Flow (perm)	456	3539	1583	207	5000		390	4974		349	4965	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	96	1020	203	120	986	124	103	734	126	103	686	128
RTOR Reduction (vph)	0	0	49	0	17	0	0	27	0	0	30	0
Lane Group Flow (vph)	96	1020	154	120	1093	0	103	833	0	103	784	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	34.5	34.5	42.0	45.5	45.5		31.0	23.5		31.0	23.5	
Effective Green, g (s)	34.5	34.5	42.0	45.5	45.5		31.0	23.5		31.0	23.5	
Actuated g/C Ratio	0.38	0.38	0.47	0.51	0.51		0.34	0.26		0.34	0.26	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	174	1356	738	217	2527		249	1298		238	1296	
v/s Ratio Prot		c0.29	0.02	c0.04	0.22		0.03	c0.17		c0.04	0.16	
v/s Ratio Perm	0.21		0.08	0.24			0.11			0.11		
v/c Ratio	0.55	0.75	0.21	0.55	0.43		0.41	0.64		0.43	0.60	
Uniform Delay, d1	21.7	24.0	14.2	15.8	14.1		30.5	29.5		31.5	29.2	
Progression Factor	0.61	0.60	0.55	1.50	0.45		0.54	0.37		0.77	0.61	
Incremental Delay, d2	9.8	3.2	0.5	7.7	0.4		4.9	2.4		5.5	2.0	
Delay (s)	23.1	17.5	8.3	31.3	6.7		21.6	13.3		29.6	19.9	
Level of Service	C	B	A	C	A		C	B		C	B	
Approach Delay (s)		16.5			9.1			14.2			21.0	
Approach LOS		B			A			B			C	

Intersection Summary

HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	67.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	312	68	54	413	345	171	950	48	93	384	55
Future Volume (vph)	100	312	68	54	413	345	171	950	48	93	384	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3444		1770	3539	1583	1770	3539	1583	1770	4989	
Flt Permitted	0.36	1.00		0.39	1.00	1.00	0.47	1.00	1.00	0.22	1.00	
Satd. Flow (perm)	666	3444		727	3539	1583	875	3539	1583	410	4989	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	109	339	74	59	449	375	186	1033	52	101	417	60
RTOR Reduction (vph)	0	22	0	0	0	58	0	0	21	0	18	0
Lane Group Flow (vph)	109	391	0	59	449	317	186	1033	31	101	459	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	18.3	18.3		27.1	27.1	27.1	53.9	53.9	53.9	53.9	53.9	
Effective Green, g (s)	18.3	18.3		27.1	27.1	27.1	53.9	53.9	53.9	53.9	53.9	
Actuated g/C Ratio	0.20	0.20		0.30	0.30	0.30	0.60	0.60	0.60	0.60	0.60	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	135	700		268	1065	476	524	2119	948	245	2987	
v/s Ratio Prot		0.11		0.01	0.13			c0.29			0.09	
v/s Ratio Perm	c0.16			0.06		c0.20	0.21		0.02	0.25		
v/c Ratio	0.81	0.56		0.22	0.42	0.67	0.35	0.49	0.03	0.41	0.15	
Uniform Delay, d1	34.2	32.2		27.6	25.2	27.5	9.2	10.2	7.4	9.6	8.0	
Progression Factor	1.00	1.00		0.39	0.52	0.35	0.81	0.85	1.48	0.57	0.42	
Incremental Delay, d2	28.6	1.0		0.2	0.1	1.4	1.6	0.7	0.1	4.9	0.1	
Delay (s)	62.8	33.2		10.9	13.1	10.9	9.1	9.4	11.0	10.4	3.5	
Level of Service	E	C		B	B	B	A	A	B	B	A	
Approach Delay (s)		39.4			12.0			9.4			4.7	
Approach LOS		D			B			A			A	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	46	922	257	114	842	293	279	677	145	238	302	47
Future Volume (vph)	46	922	257	114	842	293	279	677	145	238	302	47
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3468	3468
Flt Permitted	0.15	1.00	1.00	0.15	1.00	1.00	0.38	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	283	3539	1583	283	3539	1583	714	3539	1583	373	3468	3468
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	50	1002	279	124	915	318	303	736	158	259	328	51
RTOR Reduction (vph)	0	0	188	0	0	196	0	0	120	0	14	0
Lane Group Flow (vph)	50	1002	91	124	915	122	303	736	38	259	365	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	29.3	29.3	29.3	34.4	34.4	34.4	36.3	21.7	21.7	32.9	20.0	20.0
Effective Green, g (s)	29.3	29.3	29.3	34.4	34.4	34.4	36.3	21.7	21.7	32.9	20.0	20.0
Actuated g/C Ratio	0.33	0.33	0.33	0.38	0.38	0.38	0.40	0.24	0.24	0.37	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	1152	515	241	1352	605	459	853	381	336	770	770
v/s Ratio Prot	0.01	c0.28		0.05	c0.26		0.11	c0.21		c0.11	0.11	0.11
v/s Ratio Perm	0.10		0.06	0.15		0.08	0.16		0.02	0.17		
v/c Ratio	0.35	0.87	0.18	0.51	0.68	0.20	0.66	0.86	0.10	0.77	0.47	0.47
Uniform Delay, d1	23.5	28.6	21.7	31.6	23.2	18.6	19.6	32.7	26.6	22.4	30.4	30.4
Progression Factor	0.45	0.51	0.14	0.79	0.72	0.29	0.74	0.70	0.40	0.92	0.77	0.77
Incremental Delay, d2	1.1	6.9	0.5	1.4	2.1	0.6	3.2	8.2	0.1	9.9	0.4	0.4
Delay (s)	11.6	21.5	3.7	26.4	18.8	6.0	17.7	31.2	10.8	30.6	23.7	23.7
Level of Service	B	C	A	C	B	A	B	C	B	C	C	C
Approach Delay (s)		17.4			16.5			25.1			26.5	26.5
Approach LOS		B			B			C			C	C

Intersection Summary

HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	150	69	80	152	125	507	43	437	67	293	226	124
Future Volume (vph)	150	69	80	152	125	507	43	437	67	293	226	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3148		1770	1863	1583	3433	3539	1583	3433	3351	
Flt Permitted	0.67	0.83		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1136	2655		1770	1863	1583	3433	3539	1583	3433	3351	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	163	75	87	165	136	551	47	475	73	318	246	135
RTOR Reduction (vph)	0	74	0	0	0	351	0	0	49	0	68	0
Lane Group Flow (vph)	103	148	0	165	136	200	47	475	24	318	313	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	13.2	13.2		13.2	30.9	30.9	3.9	29.3	29.3	16.3	41.7	
Effective Green, g (s)	13.2	13.2		13.2	30.9	30.9	3.9	29.3	29.3	16.3	41.7	
Actuated g/C Ratio	0.15	0.15		0.15	0.34	0.34	0.04	0.33	0.33	0.18	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	166	389		259	639	543	148	1152	515	621	1552	
v/s Ratio Prot				c0.09	0.07		0.01	c0.13		c0.09	0.09	
v/s Ratio Perm	c0.09	0.06				0.13			0.02			
v/c Ratio	0.62	0.38		0.64	0.21	0.37	0.32	0.41	0.05	0.51	0.20	
Uniform Delay, d1	36.0	34.7		36.1	20.9	22.2	41.8	23.6	20.8	33.3	14.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.87	0.88	
Incremental Delay, d2	7.0	0.6		5.1	0.2	0.4	1.2	1.1	0.2	0.6	0.3	
Delay (s)	43.1	35.3		41.2	21.1	22.6	43.0	24.7	21.0	29.5	12.9	
Level of Service	D	D		D	C	C	D	C	C	C	B	
Approach Delay (s)		37.8			26.0			25.7			20.5	
Approach LOS		D			C			C			C	

Intersection Summary

























HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	222	230	1	0	626	352	5	639	34	183	267	181
Future Volume (vph)	222	230	1	0	626	352	5	639	34	183	267	181
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3537			3348		1770	3512		1770	3324	
Flt Permitted	0.95	1.00			1.00		0.42	1.00		0.27	1.00	
Satd. Flow (perm)	1770	3537			3348		778	3512		504	3324	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	250	1	0	680	383	5	695	37	199	290	197
RTOR Reduction (vph)	0	1	0	0	87	0	0	4	0	0	117	0
Lane Group Flow (vph)	241	250	0	0	976	0	5	728	0	199	370	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	16.0	44.5			24.0		36.5	36.5		36.5	36.5	
Effective Green, g (s)	16.0	44.5			24.0		36.5	36.5		36.5	36.5	
Actuated g/C Ratio	0.18	0.49			0.27		0.41	0.41		0.41	0.41	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	314	1748			892		315	1424		204	1348	
v/s Ratio Prot	c0.14	0.07			c0.29			0.21			0.11	
v/s Ratio Perm							0.01			c0.39		
v/c Ratio	0.77	0.14			1.09		0.02	0.51		0.98	0.27	
Uniform Delay, d1	35.2	12.4			33.0		16.0	20.1		26.3	17.9	
Progression Factor	0.82	0.59			0.39		1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.1	0.0			55.3		0.1	1.3		57.0	0.5	
Delay (s)	39.0	7.4			68.0		16.1	21.4		83.3	18.4	
Level of Service	D	A			E		B	C		F	B	
Approach Delay (s)		22.9			68.0			21.3			37.2	
Approach LOS		C			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			41.9				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.97									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)				13.5		
Intersection Capacity Utilization			84.8%			ICU Level of Service				E		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: N Alameda St/N Spring St & W College St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	105	92	173	31	190	26	516	852	27	9	328	98
Future Volume (vph)	105	92	173	31	190	26	516	852	27	9	328	98
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1829		1770	3523		1770	4909	
Flt Permitted	0.38	1.00	1.00	0.69	1.00		0.44	1.00		0.24	1.00	
Satd. Flow (perm)	711	1863	1583	1290	1829		827	3523		441	4909	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	100	188	34	207	28	561	926	29	10	357	107
RTOR Reduction (vph)	0	0	152	0	6	0	0	2	0	0	55	0
Lane Group Flow (vph)	114	100	36	34	229	0	561	953	0	10	409	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.1	17.1	17.1	17.1	17.1		63.9	63.9		26.8	26.8	
Effective Green, g (s)	17.1	17.1	17.1	17.1	17.1		63.9	63.9		26.8	26.8	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.71	0.71		0.30	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	353	300	245	347		928	2501		131	1461	
v/s Ratio Prot		0.05			0.13		c0.22	0.27			0.08	
v/s Ratio Perm	c0.16		0.02	0.03			c0.21			0.02		
v/c Ratio	0.84	0.28	0.12	0.14	0.66		0.60	0.38		0.08	0.28	
Uniform Delay, d1	35.2	31.2	30.2	30.3	33.8		9.5	5.2		22.7	24.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.57	0.50		1.00	1.00	
Incremental Delay, d2	35.7	0.4	0.2	0.3	4.7		1.0	0.4		1.1	0.5	
Delay (s)	70.8	31.6	30.4	30.6	38.4		6.4	3.0		23.8	24.7	
Level of Service	E	C	C	C	D		A	A		C	C	
Approach Delay (s)		42.2			37.4			4.2			24.7	
Approach LOS		D			D			A			C	

Intersection Summary





















HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

8/16/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								 			  		
Traffic Volume (veh/h)	0	0	78	0	0	0	97	1078	626	0	676	49	
Future Volume (Veh/h)	0	0	78	0	0	0	97	1078	626	0	676	49	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	85	0	0	0	105	1172	680	0	735	53	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type								None			None		
Median storage (veh)													
Upstream signal (ft)								206			797		
pX, platoon unblocked	0.68	0.68		0.68	0.68	0.68				0.68			
vC, conflicting volume	1558	2144	272	1712	2170	586	788			1172			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	889	1746	272	1115	1785	0	788			325			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	88	100	100	100	87			100			
cM capacity (veh/h)	147	51	726	89	48	741	827			842			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3					
Volume Total	85	105	586	586	680	294	294	200					
Volume Left	0	105	0	0	0	0	0	0					
Volume Right	85	0	0	0	680	0	0	53					
cSH	726	827	1700	1700	1700	1700	1700	1700					
Volume to Capacity	0.12	0.13	0.34	0.34	0.40	0.17	0.17	0.12					
Queue Length 95th (ft)	10	11	0	0	0	0	0	0					
Control Delay (s)	10.6	10.0	0.0	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	A											
Approach Delay (s)	10.6	0.5				0.0							
Approach LOS	B												
Intersection Summary													
Average Delay			0.7										
Intersection Capacity Utilization			42.1%	ICU Level of Service						A			
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗		↖		↗		↖↖↖		↖	↖↖↖	
Traffic Volume (vph)	901	21	32	61	0	38	0	862	15	3	751	0
Future Volume (vph)	901	21	32	61	0	38	0	862	15	3	751	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1694		1770		1583		5072		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.25	1.00	
Satd. Flow (perm)	3433	1694		1770		1583		5072		469	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	979	23	35	66	0	41	0	937	16	3	816	0
RTOR Reduction (vph)	0	26	0	0	0	39	0	1	0	0	0	0
Lane Group Flow (vph)	979	32	0	66	0	2	0	952	0	3	816	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	34.3	22.3		7.5		3.3		46.7		46.7	46.7	
Effective Green, g (s)	34.3	22.3		7.5		3.3		46.7		46.7	46.7	
Actuated g/C Ratio	0.38	0.25		0.08		0.04		0.52		0.52	0.52	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	1308	419		147		58		2631		243	2638	
v/s Ratio Prot	c0.22	0.02		0.04				c0.19			0.16	
v/s Ratio Perm	0.06					0.00				0.01		
v/c Ratio	0.75	0.08		0.45		0.03		0.36		0.01	0.31	
Uniform Delay, d1	24.1	25.9		39.3		41.8		12.8		10.5	12.4	
Progression Factor	0.31	0.19		1.00		1.00		0.35		0.75	0.69	
Incremental Delay, d2	1.8	0.1		2.2		0.2		0.3		0.1	0.3	
Delay (s)	9.2	5.0		41.5		42.0		4.8		8.0	8.8	
Level of Service	A	A		D		D		A		A	A	
Approach Delay (s)		9.0			41.7			4.8			8.8	
Approach LOS		A			D			A			A	

Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	58.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑↑		↘	↙↑↑↑				
Traffic Volume (vph)	76	979	0	0	1170	22	402	856	234	0	0	0
Future Volume (vph)	76	979	0	0	1170	22	402	856	234	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5071		1522	4648				
Flt Permitted	0.16	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	290	3539			5071		1522	4648				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	83	1064	0	0	1272	24	437	930	254	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	46	0	0	0	0
Lane Group Flow (vph)	83	1064	0	0	1294	0	393	1182	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	47.5	47.5			47.5		33.5	33.5				
Effective Green, g (s)	47.5	47.5			47.5		33.5	33.5				
Actuated g/C Ratio	0.53	0.53			0.53		0.37	0.37				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	153	1867			2676		566	1730				
v/s Ratio Prot		c0.30			0.26		c0.26	0.25				
v/s Ratio Perm	0.29											
v/c Ratio	0.54	0.57			0.48		0.69	0.68				
Uniform Delay, d1	14.1	14.4			13.5		23.9	23.8				
Progression Factor	1.00	1.00			0.78		1.00	1.00				
Incremental Delay, d2	13.1	1.3			0.6		6.9	2.2				
Delay (s)	27.2	15.6			11.0		30.8	26.0				
Level of Service	C	B			B		C	C				
Approach Delay (s)		16.5			11.0		27.2				0.0	
Approach LOS		B			B		C				A	

Intersection Summary

HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	94	479	20	184	1048	0	0	149	38
Future Volume (vph)	0	0	0	94	479	20	184	1048	0	0	149	38
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5020		1770	3539			3432	
Flt Permitted					0.99		0.62	1.00			1.00	
Satd. Flow (perm)					5020		1163	3539			3432	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	102	521	22	200	1139	0	0	162	41
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	15	0
Lane Group Flow (vph)	0	0	0	0	641	0	200	1139	0	0	188	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					24.5		56.5	56.5			56.5	
Effective Green, g (s)					24.5		56.5	56.5			56.5	
Actuated g/C Ratio					0.27		0.63	0.63			0.63	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					1366		730	2221			2154	
v/s Ratio Prot								c0.32			0.05	
v/s Ratio Perm					0.13		0.17					
v/c Ratio					0.47		0.27	0.51			0.09	
Uniform Delay, d1					27.3		7.5	9.2			6.6	
Progression Factor					0.25		0.35	0.32			1.00	
Incremental Delay, d2					1.0		0.7	0.7			0.1	
Delay (s)					7.8		3.3	3.6			6.7	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			7.8			3.6			6.7	
Approach LOS		A			A			A			A	













Intersection Summary

HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	79	280	20	0	0	0	0	1153	180	0	243	0
Future Volume (vph)	79	280	20	0	0	0	0	1153	180	0	243	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3475						3467			3539	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		3475						3467			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	86	304	22	0	0	0	0	1253	196	0	264	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	407	0	0	0	0	0	1449	0	0	264	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		20.5						60.5			60.5	
Effective Green, g (s)		20.5						60.5			60.5	
Actuated g/C Ratio		0.23						0.67			0.67	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		791						2330			2378	
v/s Ratio Prot								c0.42			0.07	
v/s Ratio Perm		0.12										
v/c Ratio		0.52						0.62			0.11	
Uniform Delay, d1		30.4						8.3			5.2	
Progression Factor		1.00						0.59			1.38	
Incremental Delay, d2		2.4						1.0			0.1	
Delay (s)		32.8						5.9			7.3	
Level of Service		C						A			A	
Approach Delay (s)		32.8			0.0			5.9			7.3	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.3					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			55.8%					ICU Level of Service		B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	120	673	110	70	401	237	145	1080	71	84	387	158
Future Volume (vph)	120	673	110	70	401	237	145	1080	71	84	387	158
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3507		1770	3539	1583
Flt Permitted	0.27	1.00		0.18	1.00		0.49	1.00		0.13	1.00	1.00
Satd. Flow (perm)	497	3464		341	3342		917	3507		249	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	130	732	120	76	436	258	158	1174	77	91	421	172
RTOR Reduction (vph)	0	15	0	0	38	0	0	5	0	0	0	79
Lane Group Flow (vph)	130	837	0	76	656	0	158	1246	0	91	421	93
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	179	1250		123	1206		494	1889		134	1907	853
v/s Ratio Prot		0.24			0.20			0.36			0.12	
v/s Ratio Perm	c0.26			0.22			0.17			c0.37		0.06
v/c Ratio	0.73	0.67		0.62	0.54		0.32	0.66		0.68	0.22	0.11
Uniform Delay, d1	24.9	24.2		23.6	22.9		11.6	14.8		15.1	10.9	10.2
Progression Factor	1.00	1.00		0.71	0.69		0.52	0.45		0.88	0.81	0.42
Incremental Delay, d2	22.6	2.9		20.7	1.7		1.4	1.4		24.3	0.3	0.3
Delay (s)	47.4	27.1		37.5	17.5		7.3	8.1		37.5	9.0	4.5
Level of Service	D	C		D	B		A	A		D	A	A
Approach Delay (s)		29.8			19.5			8.0			11.7	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	78.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↗	↘	↑↑		↘	↑↑	
Traffic Volume (vph)	108	802	123	91	469	229	133	1004	82	83	447	170
Future Volume (vph)	108	802	123	91	469	229	133	1004	82	83	447	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3393	
Flt Permitted	0.41	1.00		0.15	1.00	1.00	0.33	1.00		0.13	1.00	
Satd. Flow (perm)	756	3469		285	3539	1583	622	3499		241	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	872	134	99	510	249	145	1091	89	90	486	185
RTOR Reduction (vph)	0	13	0	0	0	31	0	7	0	0	44	0
Lane Group Flow (vph)	117	993	0	99	510	218	145	1173	0	90	627	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Effective Green, g (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	315	1445		118	1474	659	300	1691		116	1639	
v/s Ratio Prot		0.29			0.14			0.34			0.18	
v/s Ratio Perm	0.15			c0.35		0.14	0.23			c0.37		
v/c Ratio	0.37	0.69		0.84	0.35	0.33	0.48	0.69		0.78	0.38	
Uniform Delay, d1	18.1	21.5		23.5	17.9	17.8	15.7	18.1		19.2	14.7	
Progression Factor	1.00	1.00		0.49	0.42	0.31	1.00	1.00		0.86	0.83	
Incremental Delay, d2	3.3	2.7		44.4	0.6	1.2	5.5	2.4		37.9	0.7	
Delay (s)	21.5	24.1		55.9	8.1	6.7	21.2	20.4		54.5	13.0	
Level of Service	C	C		E	A	A	C	C		D	B	
Approach Delay (s)		23.9			13.2			20.5			17.9	
Approach LOS		C			B			C			B	

Intersection Summary

HCM 2000 Control Delay	19.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	724	102	93	449	299	271
Future Volume (vph)	724	102	93	449	299	271
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.26	1.00	0.95	1.00
Satd. Flow (perm)	3474		479	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	787	111	101	488	325	295
RTOR Reduction (vph)	12	0	0	0	0	114
Lane Group Flow (vph)	886	0	101	488	325	181
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	50.5		50.5	50.5	30.5	30.5
Effective Green, g (s)	50.5		50.5	50.5	30.5	30.5
Actuated g/C Ratio	0.56		0.56	0.56	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1949		268	1985	1163	536
v/s Ratio Prot	c0.25			0.14	0.09	
v/s Ratio Perm			0.21			c0.11
v/c Ratio	0.45		0.38	0.25	0.28	0.34
Uniform Delay, d1	11.6		11.0	10.1	21.7	22.2
Progression Factor	0.26		0.94	0.91	0.64	0.37
Incremental Delay, d2	0.6		3.8	0.3	0.5	1.4
Delay (s)	3.6		14.1	9.4	14.3	9.5
Level of Service	A		B	A	B	A
Approach Delay (s)	3.6			10.2	12.0	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	83	784	125	67	556	78	178	412	136	31	184	62
Future Volume (vph)	83	784	125	67	556	78	178	412	136	31	184	62
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3466		1770	3474			3398			3402	
Flt Permitted	0.32	1.00		0.19	1.00			0.77			0.83	
Satd. Flow (perm)	599	3466		353	3474			2640			2835	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	852	136	73	604	85	193	448	148	34	200	67
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	29	0
Lane Group Flow (vph)	90	974	0	73	677	0	0	767	0	0	272	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.6	42.6		42.6	42.6			38.4			38.4	
Effective Green, g (s)	42.6	42.6		42.6	42.6			38.4			38.4	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.43			0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	283	1640		167	1644			1126			1209	
v/s Ratio Prot		c0.28			0.19							
v/s Ratio Perm	0.15			0.21				c0.29			0.10	
v/c Ratio	0.32	0.59		0.44	0.41			0.68			0.22	
Uniform Delay, d1	14.7	17.4		15.7	15.5			20.8			16.4	
Progression Factor	0.40	0.37		1.13	1.14			1.00			0.39	
Incremental Delay, d2	2.1	1.2		7.8	0.7			3.3			0.4	
Delay (s)	8.0	7.5		25.5	18.4			24.2			6.7	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.6			19.1			24.2			6.7	
Approach LOS		A			B			C			A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	423	630	294	152	589	35	223	543	79	37	539	365
Future Volume (vph)	423	630	294	152	589	35	223	543	79	37	539	365
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3228		1770	3509		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.65		0.25	1.00		0.27	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	273	2104		462	3509		508	3539	1583	551	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	460	685	320	165	640	38	242	590	86	40	586	397
RTOR Reduction (vph)	0	48	0	0	5	0	0	0	52	0	0	44
Lane Group Flow (vph)	368	1049	0	165	673	0	242	590	34	40	586	353
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.9	44.9		27.2	20.3		36.1	36.1	36.1	21.7	21.7	41.8
Effective Green, g (s)	44.9	44.9		27.2	20.3		36.1	36.1	36.1	21.7	21.7	41.8
Actuated g/C Ratio	0.50	0.50		0.30	0.23		0.40	0.40	0.40	0.24	0.24	0.46
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	434	1300		239	791		342	1419	634	132	853	735
v/s Ratio Prot	c0.19	c0.18		0.05	0.19		c0.08	0.17			0.17	0.11
v/s Ratio Perm	c0.23	0.22		0.16			c0.21		0.02	0.07		0.12
v/c Ratio	0.85	0.81		0.69	0.85		0.71	0.42	0.05	0.30	0.69	0.48
Uniform Delay, d1	21.5	18.9		24.2	33.4		28.9	19.4	16.5	28.0	31.1	16.6
Progression Factor	1.08	0.44		1.00	1.00		0.73	0.66	0.54	1.00	1.00	1.00
Incremental Delay, d2	10.1	2.6		8.3	8.8		3.8	0.5	0.1	5.8	4.5	0.5
Delay (s)	33.3	10.8		32.5	42.2		24.9	13.2	9.0	33.8	35.5	17.1
Level of Service	C	B		C	D		C	B	A	C	D	B
Approach Delay (s)		16.5			40.3			15.9			28.3	
Approach LOS		B			D			B			C	

Intersection Summary






















HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

8/15/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	468	395	10	6	237	159	16	303	4	92	128	201
Future Volume (vph)	468	395	10	6	237	159	16	303	4	92	128	201
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1856		1770	1751		1770	1859		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.63	1.00		0.28	1.00	1.00
Satd. Flow (perm)	1770	1856		1770	1751		1177	1859		524	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	509	429	11	7	258	173	17	329	4	100	139	218
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	165
Lane Group Flow (vph)	509	439	0	7	404	0	17	332	0	100	139	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2			6	
Permitted Phases							2			6		6
Actuated Green, G (s)	31.8	53.5		1.0	22.7		22.0	22.0		22.0	22.0	22.0
Effective Green, g (s)	31.8	53.5		1.0	22.7		22.0	22.0		22.0	22.0	22.0
Actuated g/C Ratio	0.35	0.59		0.01	0.25		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	625	1103		19	441		287	454		128	455	386
v/s Ratio Prot	c0.29	0.24		0.00	c0.23			0.18			0.07	
v/s Ratio Perm							0.01			c0.19		0.03
v/c Ratio	0.81	0.40		0.37	0.92		0.06	0.73		0.78	0.31	0.14
Uniform Delay, d1	26.4	9.7		44.2	32.7		26.1	31.3		31.8	27.8	26.6
Progression Factor	0.76	0.29		1.00	1.00		1.00	1.00		0.80	0.83	0.97
Incremental Delay, d2	6.9	0.2		11.7	23.5		0.4	10.0		27.0	1.2	0.5
Delay (s)	26.9	3.0		55.9	56.3		26.5	41.3		52.2	24.2	26.4
Level of Service	C	A		E	E		C	D		D	C	C
Approach Delay (s)		15.8			56.3			40.6			31.4	
Approach LOS		B			E			D			C	

Intersection Summary

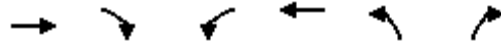
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	84.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	702	203	103	457	247	265
Future Volume (vph)	702	203	103	457	247	265
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.24	1.00	0.95	1.00
Satd. Flow (perm)	3420		444	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	763	221	112	497	268	288
RTOR Reduction (vph)	30	0	0	0	0	148
Lane Group Flow (vph)	954	0	112	497	268	140
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	54.5		54.5	54.5	26.5	26.5
Effective Green, g (s)	54.5		54.5	54.5	26.5	26.5
Actuated g/C Ratio	0.61		0.61	0.61	0.29	0.29
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2071		268	2143	521	466
v/s Ratio Prot	c0.28			0.14	c0.15	
v/s Ratio Perm			0.25			0.09
v/c Ratio	0.46		0.42	0.23	0.51	0.30
Uniform Delay, d1	9.7		9.4	8.1	26.4	24.6
Progression Factor	0.30		1.20	0.66	1.00	1.00
Incremental Delay, d2	0.6		4.7	0.2	3.6	1.6
Delay (s)	3.5		15.9	5.6	30.0	26.2
Level of Service	A		B	A	C	C
Approach Delay (s)	3.5			7.5	28.0	
Approach LOS	A			A	C	






















Intersection Summary

HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St














10/28/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	5	18	203	14	101	24	870	58	19	362	12
Future Volume (vph)	14	5	18	203	14	101	24	870	58	19	362	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Flt		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1705		1770	1617		1770	3539	1583	1770	3522	
Flt Permitted		0.90		0.73	1.00		0.51	1.00	1.00	0.27	1.00	
Satd. Flow (perm)		1555		1362	1617		956	3539	1583	502	3522	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	5	20	221	15	110	26	946	63	21	393	13
RTOR Reduction (vph)	0	16	0	0	75	0	0	0	20	0	2	0
Lane Group Flow (vph)	0	24	0	221	50	0	26	946	43	21	404	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.1		20.1	20.1		60.9	60.9	60.9	60.9	60.9	
Effective Green, g (s)		20.1		20.1	20.1		60.9	60.9	60.9	60.9	60.9	
Actuated g/C Ratio		0.22		0.22	0.22		0.68	0.68	0.68	0.68	0.68	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		347		304	361		646	2394	1071	339	2383	
v/s Ratio Prot					0.03			c0.27				0.11
v/s Ratio Perm		0.02		c0.16			0.03		0.03	0.04		
v/c Ratio		0.07		0.73	0.14		0.04	0.40	0.04	0.06	0.17	
Uniform Delay, d1		27.6		32.4	28.0		4.8	6.4	4.8	4.9	5.3	
Progression Factor		1.00		1.00	1.00		2.40	2.79	5.23	0.96	1.05	
Incremental Delay, d2		0.1		8.4	0.2		0.1	0.4	0.1	0.3	0.1	
Delay (s)		27.7		40.8	28.2		11.7	18.3	25.3	5.0	5.7	
Level of Service		C		D	C		B	B	C	A	A	
Approach Delay (s)		27.7			36.2			18.5			5.7	
Approach LOS		C			D			B			A	
Intersection Summary												
HCM 2000 Control Delay			19.1				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.48									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)				9.0	
Intersection Capacity Utilization			49.5%				ICU Level of Service				A	
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 31: Center St/Ramirez St & Keller St

10/28/2016

							
Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations			 			 	
Traffic Volume (veh/h)	19	16	795	14	12	383	
Future Volume (Veh/h)	19	16	795	14	12	383	
Sign Control	Stop		Free			Free	
Grade	0%		0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	21	17	864	15	13	416	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	540						
pX, platoon unblocked							
vC, conflicting volume	1106	440			879		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1106	440			879		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	90	97			98		
cM capacity (veh/h)	201	565			764		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	21	17	576	303	13	208	208
Volume Left	21	0	0	0	13	0	0
Volume Right	0	17	0	15	0	0	0
cSH	201	565	1700	1700	764	1700	1700
Volume to Capacity	0.10	0.03	0.34	0.18	0.02	0.12	0.12
Queue Length 95th (ft)	9	2	0	0	1	0	0
Control Delay (s)	25.0	11.6	0.0	0.0	9.8	0.0	0.0
Lane LOS	C	B			A		
Approach Delay (s)	19.0		0.0		0.3		
Approach LOS	C						
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			32.4%	ICU Level of Service	A		
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis
 32: Union Station North Driveway & E Cesar E Chavez Ave

09/05/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1088	61	66	1017	114	107
Future Volume (vph)	1088	61	66	1017	114	107
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3511		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3511		264	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1183	66	72	1105	124	116
RTOR Reduction (vph)	8	0	0	0	0	37
Lane Group Flow (vph)	1241	0	72	1105	124	79
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	28.2		28.2	28.2	22.8	22.8
Effective Green, g (s)	28.2		28.2	28.2	22.8	22.8
Actuated g/C Ratio	0.47		0.47	0.47	0.38	0.38
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1650		124	1663	672	601
v/s Ratio Prot	c0.35			0.31	c0.07	
v/s Ratio Perm			0.27			0.05
v/c Ratio	0.75		0.58	0.66	0.18	0.13
Uniform Delay, d1	13.0		11.6	12.3	12.4	12.1
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0		6.8	1.0	0.6	0.5
Delay (s)	15.0		18.3	13.3	13.0	12.6
Level of Service	B		B	B	B	B
Approach Delay (s)	15.0			13.6	12.8	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

110: N Alameda St & Los Angeles St EB/LA Union Station

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	134	53	59	0	827	0	0	820	108
Future Volume (vph)	0	0	0	134	53	59	0	827	0	0	820	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.98	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6296	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6296	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	146	58	64	0	899	0	0	891	117
RTOR Reduction (vph)	0	0	0	0	0	55	0	0	0	0	13	0
Lane Group Flow (vph)	0	0	0	146	58	9	0	899	0	0	995	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				12.8	12.8	12.8		68.2			68.2	
Effective Green, g (s)				12.8	12.8	12.8		68.2			68.2	
Actuated g/C Ratio				0.14	0.14	0.14		0.76			0.76	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				251	264	225		3853			4770	
v/s Ratio Prot				c0.08	0.03			c0.18			0.16	
v/s Ratio Perm						0.01						
v/c Ratio				0.58	0.22	0.04		0.23			0.21	
Uniform Delay, d1				36.1	34.2	33.3		3.2			3.1	
Progression Factor				1.00	1.00	1.00		0.36			0.33	
Incremental Delay, d2				3.4	0.4	0.1		0.1			0.1	
Delay (s)				39.5	34.6	33.4		1.3			1.1	
Level of Service				D	C	C		A			A	
Approach Delay (s)		0.0			37.0			1.3			1.1	
Approach LOS		A			D			A			A	

Intersection Summary

HCM 2000 Control Delay	5.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Appendix E: Bus Schedule and Information

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DOWNTOWN LOS ANGELES

EFFECTIVE JULY 11, 2016
EFFECTIVO 11 JULIO, 2016

Note: Schedules are subject to traffic, weather and other conditions. Please be patient as these conditions are out of the control of the driver and LADOT. Also remember to allow sufficient time to make transfers to other services./Nota: Los horarios están sujetos al tráfico, el clima y otras condiciones. Favor de ser paciente porque dichas condiciones están fuera del control del conductor y de LADOT. Recuerde el darse su suficiente tiempo para hacer transbordos a otros servicios.

WEEKDAY SCHEDULE/ HORARIO DE DÍA LABORABLE

ROUTE/ RUTA A	Every/ Cada 7 minutes from/ minutos de	6:00 AM - 6:30 PM
ROUTE/ RUTA B	Every/ Cada 8 minutes from/ minutos de	5:50 AM - 6:30 PM
ROUTE/ RUTA D	Every/ Cada 5 minutes from/ minutos de then every/ entonces cada 15 minutes from/ minutos de	5:50 AM - 6:00 PM 6:00 PM - 7:00 PM
ROUTE/ RUTA E	Every/ Cada 5 minutes from/ minutos de	6:30 AM - 7:00 PM
ROUTE/ RUTA F	Every/ Cada 10 minutes from/ minutos de then every/ entonces cada 20 minutes from/ minutos de	6:30 AM - 5:50 PM 5:50 PM - 6:30 PM

WEEKEND SCHEDULE/ HORARIO DE FIN DE SEMANA

ROUTE/ RUTA E	Early service on Saturday only/ Servicio a primera hora solamente los sábados					
*Leaves/ Sale Trinity @ Washington	Los Angeles @ 9th	7th @ Flower (westbound/ rumbo al oeste)	*Wilshire @ Witmer	7th @ Grand (eastbound/ rumbo al este)	7th @ Los Angeles	Arrives/ Llega Trinity @ Washington
SATURDAY/ SÁBADO		Every/ Cada 10 minutes from/ minutos de	6:30 AM - 5:00 PM			
SUNDAY/ DOMINGO		Every/ Cada 15 minutes from/ minutos de	10:00 AM - 5:00 PM			
:00	:07	:14	:19	:25	:30	:40
:15	:22	:29	:34	:40	:45	:55
:30	:37	:44	:49	:55	:00	:10
:45	:52	:59	:04	:10	:15	:25

* First buses leave these points at 6:30 AM on Saturday and 10:00 AM on Sunday. Last buses leave these points at 5:00 PM on Saturday and Sunday./Los primeros autobuses salen de estos puntos a las 6:30 AM los sábados y a las 10:00 AM los domingos. Los últimos autobuses salen de estos puntos a las 5:00 PM los sábados y domingos.

ROUTE/ RUTA F	Every/ Cada 20 minutes from/ minutos de	10:00 AM - 5:00 PM				
*Leaves/Sale Beaudry betw./entre 3rd & 4th	*Flower @ 7th	Figueroa @ Washington	Vermont @ Exposition	Jefferson @ Hoover	Figueroa @ 7th	Arrives/Llega Beaudry betw./entre 3rd & 4th
SATURDAY AND SUNDAY/SÁBADO Y DOMINGO						
:00	:04	:15	:18	:22	:28	:35
:20	:24	:35	:38	:42	:48	:55
:40	:44	:55	:58	:02	:08	:15

* First buses leave these points at 10:00 AM, last buses leave these points at 5:00 PM./Los primeros autobuses salen de estos puntos a las 10:00 AM, los últimos autobuses salen de estos puntos a las 5:00 PM.
















Times are approximate and may vary due to traffic and weather conditions. Please plan your trip accordingly./Los horarios son aproximados y pueden variar debido al tráfico y a las condiciones climáticas. Planee su viaje en consecuencia.

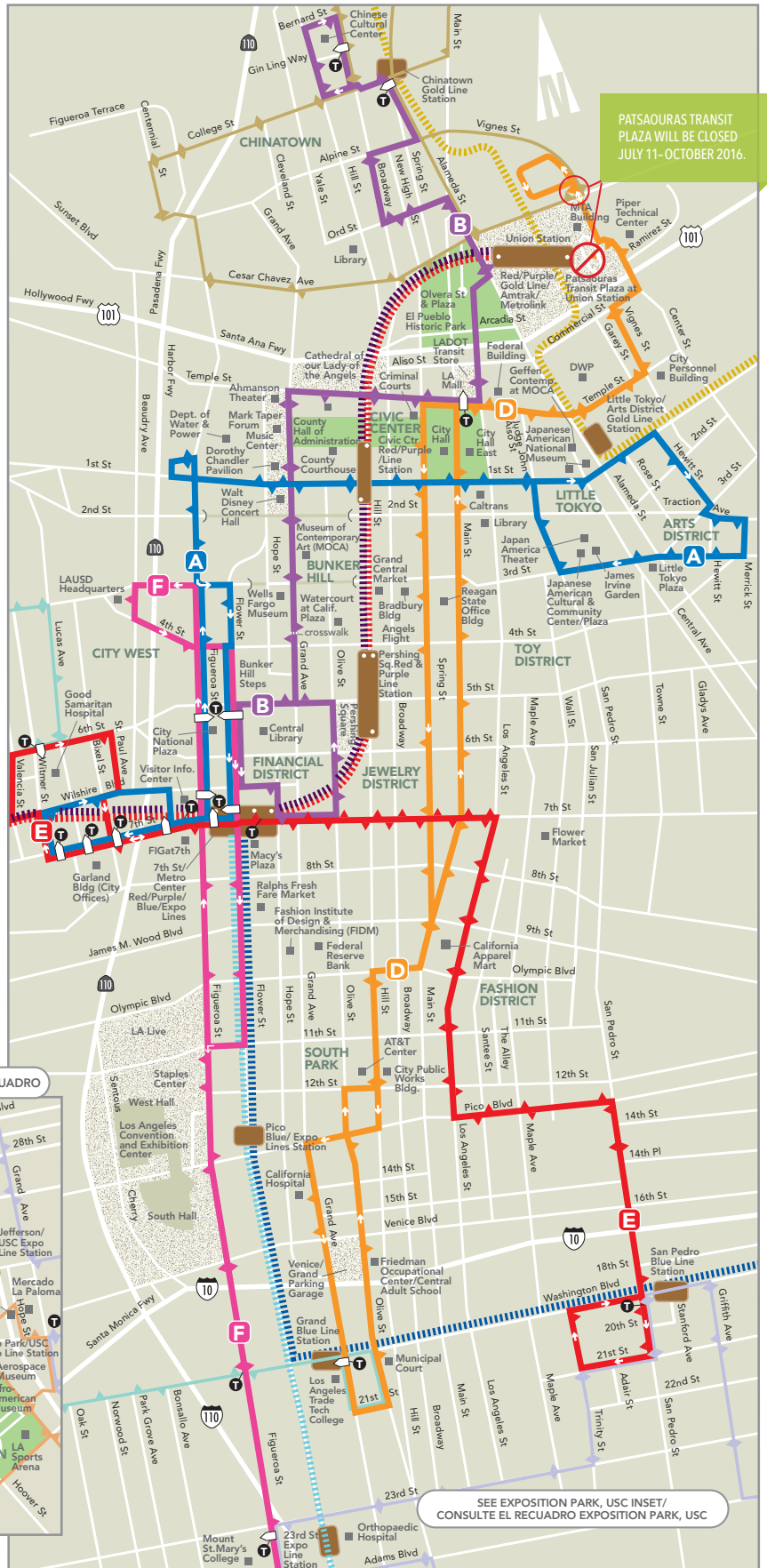


City of Los Angeles
Department of Transportation

(213, 310, 323 or/o 818) 808-2273
www.ladottransit.com

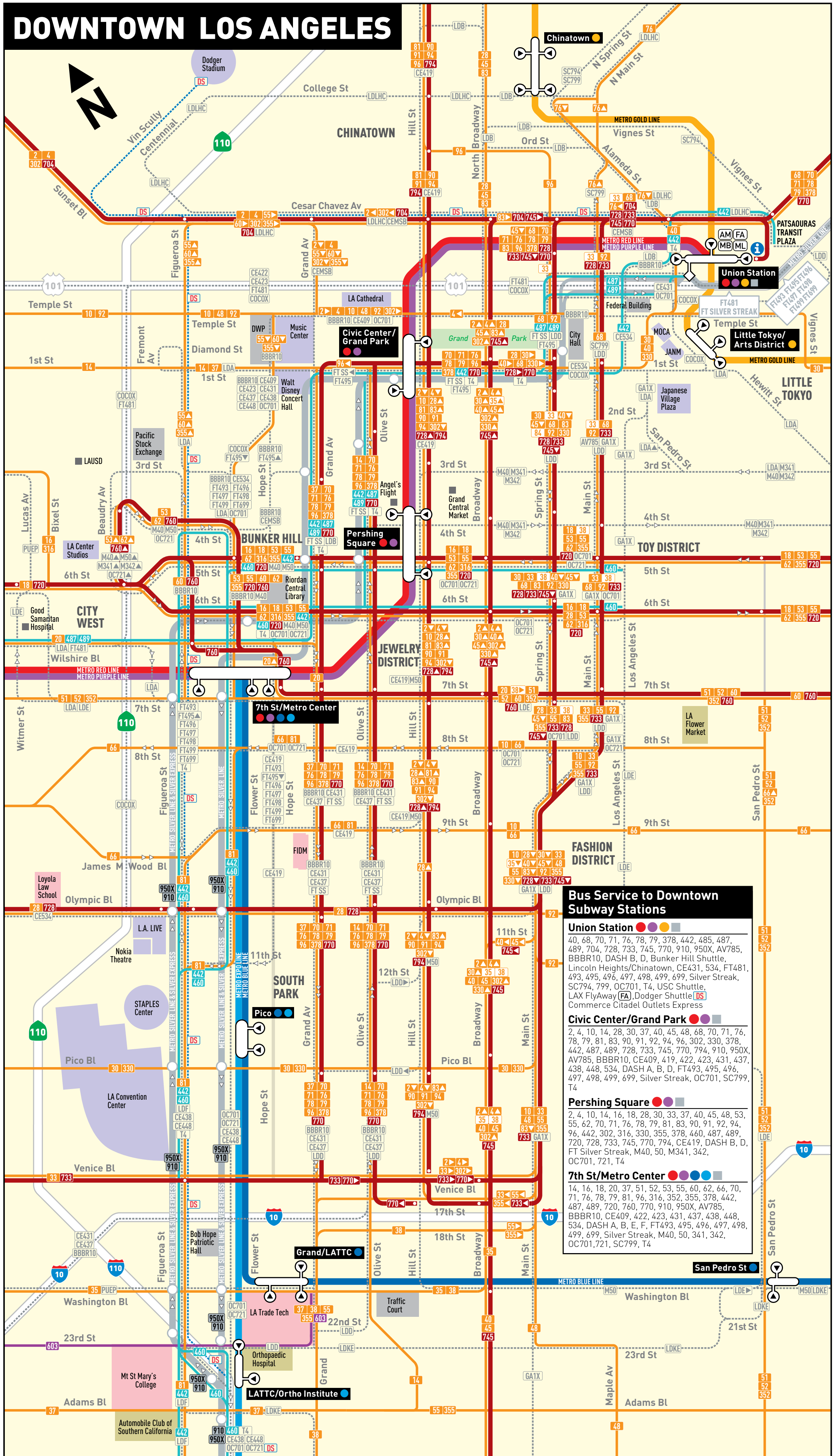
LEGEND/LEYENDA

- A** **Route/Ruta A**
Little Tokyo, City West
- B** **Route/Ruta B**
Chinatown, Financial District
- D** **Route/Ruta D**
Union Station, South Park
- E** **Route/Ruta E**
City West, Fashion District
- F** **Route/Ruta F**
Financial District, Exposition Park, USC
-  DASH Pico Union/Echo Park
-  DASH Lincoln Heights/Chinatown
-  DASH Southeast
-  DASH King-East
-  Metro Purple Line
-  Metro Blue Line
-  Metro Red Line
-  Metro Gold Line
-  Metro Expo Line
-  Bus stop - matches route color
(Parada de Autobús - corresponde al color de la ruta)
-  Multiple Route stop
(Parada de Rutas Múltiples)
-  Point of Interest (Punto de Interés)
-  Transfer Point (Punto de Transbordo)
-  Metro Station and Entrances
(Estación y Entrada de Metro)
-  Tunnel (Túnel)



stop closed through 08/19/16

DOWNTOWN LOS ANGELES



Bus Service to Downtown Subway Stations

Union Station ●●●●●

40, 68, 70, 71, 76, 78, 79, 378, 442, 485, 487, 489, 704, 728, 733, 745, 770, 910, 950X, AV785, BBBR10, DASH B, D, Bunker Hill Shuttle, Lincoln Heights/Chinatown, CE431, 534, FT481, 493, 495, 496, 497, 498, 499, 699, Silver Streak, SC794, 799, OC701, T4, USC Shuttle, LAX FlyAway (FA), Dodger Shuttle (DS), Commerce Citadel Outlets Express

Civic Center/Grand Park ●●●●●

2, 4, 10, 14, 28, 30, 37, 40, 45, 48, 68, 70, 71, 76, 78, 79, 81, 83, 90, 91, 92, 94, 96, 302, 330, 378, 442, 487, 489, 728, 733, 745, 770, 794, 910, 950X, AV785, BBBR10, CE409, 419, 422, 423, 431, 437, 438, 448, 534, DASH A, B, D, FT493, 495, 496, 497, 498, 499, 699, Silver Streak, OC701, SC799, T4

Pershing Square ●●●●●

2, 4, 10, 14, 16, 18, 28, 30, 33, 37, 40, 45, 48, 53, 55, 62, 70, 71, 76, 78, 79, 81, 83, 90, 91, 92, 94, 96, 442, 302, 316, 330, 355, 378, 460, 487, 489, 720, 728, 733, 745, 770, 794, CE419, DASH B, D, FT Silver Streak, M40, 50, M341, 342, OC701, 721, T4

7th St/Metro Center ●●●●●

14, 16, 18, 20, 37, 51, 52, 53, 55, 60, 62, 66, 70, 71, 76, 78, 79, 81, 96, 316, 352, 355, 378, 442, 487, 489, 720, 760, 770, 910, 950X, AV785, BBBR10, CE409, 422, 423, 431, 437, 438, 448, 534, DASH A, B, E, F, FT493, 495, 496, 497, 498, 499, 699, Silver Streak, M40, 50, 341, 342, OC701, 721, SC799, T4

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Appendix F: Pedestrian and Bicycle Counts

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Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	0	0	0	0	0	0	100.00%	0.00%	0.00%	1
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0			0			0			0			0
PEAK HR FACTOR :	0.000			0.000			0.000			0.000			0.000

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-002

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Garey St			N Garey St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	1	1	2	1	0	1	2	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES :	0	0	1	0	0	0	0	0	0	0	1	0	2
APPROACH %'s :	0.00%	0.00%	100.00%							0.00%	100.00%	0.00%	
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	0	1	0	1
PEAK HR FACTOR :	0.000			0.000			0.000			0.250			0.250

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	0	0	0	0	0	0	1	1	0	2
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	1	0	0	0	0	0	0	2	1	0	4
	0.00%	0.00%	100.00%							66.67%	33.33%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	0	0	0	0	1	0	0	1
PEAK HR FACTOR :	0.000			0.000			0.000			0.250			0.250

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-003

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	1	0	1	1	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	
3:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:00 PM	0	0	4	0	0	0	0	0	0	0	0	0	4
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	
5:30 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	4	0	0	0	0	1	0	1	1	0	7
	0.00%	0.00%	100.00%				0.00%	100.00%	0.00%	50.00%	50.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0			0			0			1			1
PEAK HR FACTOR :	0.000			0.000			0.000			0.250			0.250

CONTROL : 3-Way Stop (NB,EB,WB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	0	1	1	1	0	1	0	0	1	0	
6:00 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
6:15 AM	0	0	0	1	2	0	0	0	0	0	0	0	3
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	1	0	0	0	1	0	0	0	0	0	0	2
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:15 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	5	0	0	0	0	0	0	0	6
7:45 AM	1	1	0	0	3	1	0	1	0	0	0	0	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	1	0	0	1	0	1	0	0	0	0	0	3
8:45 AM	0	1	1	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	1	6	1	1	13	2	1	1	0	0	0	0	26
APPROACH %'s :	12.50%	75.00%	12.50%	6.25%	81.25%	12.50%	50.00%	50.00%	0.00%				
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	2	0	0	8	1	0	1	0	0	0	0	13
PEAK HR FACTOR :	0.375			0.450			0.250			0.000			0.464

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-004

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	Center St			Center St			E Commercial St			E Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	1	1	0	1	0	0	1	0	
3:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
3:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
3:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
4:00 PM	0	7	0	0	1	0	5	0	0	0	0	0	13
4:15 PM	0	7	0	0	0	0	0	0	0	0	0	0	7
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	2	0	0	5	0	0	0	0	0	0	0	7
5:30 PM	0	1	0	0	0	1	0	0	0	0	0	0	2
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	25	0	0	12	1	5	0	0	0	0	0	43
	0.00%	100.00%	0.00%	0.00%	92.31%	7.69%	100.00%	0.00%	0.00%				
PEAK HR START TIME :	430 PM												TOTAL
PEAK HR VOL :	0	3	0	0	7	0	0	0	0	0	0	0	10
PEAK HR FACTOR :	0.375			0.350			0.000			0.000			0.357

CONTROL : 4-Way Stop

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-005
 N/S Street: N Alameda St
 E/W Street: E Temple St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	1	3	2	9	2	7	1	2
6:15 AM	0	1	3	8	12	1	4	1
6:30 AM	1	3	1	18	4	2	10	2
6:45 AM	1	5	5	14	14	5	9	5
7:00 AM	0	7	3	16	11	1	7	3
7:15 AM	3	3	3	16	10	3	8	4
7:30 AM	0	5	1	22	17	3	14	5
7:45 AM	0	7	2	19	20	3	11	6
8:00 AM	1	2	0	13	15	1	6	2
8:15 AM	0	4	3	26	14	4	18	6
8:30 AM	0	5	2	18	16	5	5	4
8:45 AM	0	10	3	14	11	5	7	5
TOTALS	7	55	28	193	146	40	100	45

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	2	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0
7:45 AM	0	0	0	0	1	0	0	0
8:00 AM	0	0	0	0	1	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	1	0	0	0
TOTALS	0	0	0	0	6	3	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	2	8	0	3	0	3	10
3:15 PM	6	5	8	4	3	2	2	12
3:30 PM	9	0	16	2	8	12	1	7
3:45 PM	6	0	23	5	4	4	7	4
4:00 PM	5	2	16	1	2	8	1	11
4:15 PM	5	6	20	2	2	2	4	16
4:30 PM	5	0	32	4	12	12	10	10
4:45 PM	4	3	17	7	3	8	8	6
5:00 PM	8	2	18	7	9	10	8	11
5:15 PM	2	2	15	4	4	1	10	5
5:30 PM	4	3	12	2	5	3	8	7
5:45 PM	0	1	17	2	9	0	17	7
TOTALS	54	26	202	40	64	62	79	106

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	2	0	0
4:45 PM	0	0	0	0	2	2	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	1	0	2	4	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	2	1	1	2	0	1	2	0	
6:00 AM	0	1	0	0	2	1	0	0	0	0	1	0	5
6:15 AM	0	1	0	0	2	0	0	1	0	0	0	1	5
6:30 AM	0	4	0	0	1	0	0	0	0	0	0	0	5
6:45 AM	0	1	0	0	4	0	0	0	1	0	0	0	6
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	1	0	0	1	0	0	1	0	0	0	0	3
7:30 AM	0	4	0	0	2	0	0	0	0	0	0	0	6
7:45 AM	0	1	0	0	3	0	1	0	1	0	0	0	6
8:00 AM	0	0	0	0	4	0	0	0	0	0	1	0	5
8:15 AM	0	1	0	0	0	0	1	1	0	0	0	0	3
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	3	0	0	0	1	0	0	0	4
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	14	0	0	23	1	2	3	3	0	3	1	50
	0.00%	100.00%	0.00%	0.00%	95.83%	4.17%	25.00%	37.50%	37.50%	0.00%	75.00%	25.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	2	0	0	8	0	2	1	1	0	1	0	15
PEAK HR FACTOR :	0.500			0.500			0.500			0.250			0.625

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-005

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 0	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 1	WT 2	WR 0	
3:00 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
3:15 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	2	0	0	1	0	1	0	0	0	1	0	5
4:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
4:15 PM	0	1	0	0	2	0	0	1	0	0	0	0	4
4:30 PM	0	0	0	0	1	0	0	0	0	0	1	0	2
4:45 PM	0	4	0	0	1	0	0	0	0	0	1	0	6
5:00 PM	0	2	0	0	3	0	1	0	1	0	0	0	7
5:15 PM	0	0	0	0	4	0	0	1	0	0	0	0	5
5:30 PM	0	2	0	1	3	0	0	0	0	0	1	0	7
5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL 0	NT 18	NR 0	SL 1	ST 20	SR 0	EL 2	ET 2	ER 1	WL 0	WT 4	WR 0	TOTAL 48
APPROACH %'s :	0.00%	100.00%	0.00%	4.76%	95.24%	0.00%	40.00%	40.00%	20.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0 8 0			0 4 0			0 1 0			0 2 0			15
PEAK HR FACTOR :	0.500			0.500			0.250			0.500			0.625

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-006
 N/S Street: N Vignes St
 E/W Street: E Temple St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	7	2	2	0	1	11	0	0
6:15 AM	5	1	8	0	1	6	1	2
6:30 AM	7	0	5	0	0	12	1	1
6:45 AM	6	1	18	1	2	13	1	4
7:00 AM	9	2	14	1	2	17	2	0
7:15 AM	4	2	15	4	2	6	2	1
7:30 AM	6	2	13	2	2	9	2	5
7:45 AM	3	2	15	1	2	6	1	1
8:00 AM	3	0	12	11	1	5	3	2
8:15 AM	4	0	13	13	2	9	0	1
8:30 AM	1	0	17	9	5	7	2	3
8:45 AM	2	1	9	3	2	5	1	4
TOTALS	57	13	141	45	22	106	16	24

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	1	0	0	0	0	1	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	1	0	0	0	0	1	1	0
7:00 AM	0	0	0	0	0	1	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	0	1	0	0
7:45 AM	0	0	1	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	1	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	1	0	1
TOTALS	3	0	1	0	0	5	2	1

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	1	3	8	8	6	3	1
3:15 PM	0	0	3	5	6	3	2	0
3:30 PM	0	1	1	8	8	2	1	0
3:45 PM	0	0	4	4	4	1	0	0
4:00 PM	0	1	3	7	12	0	2	0
4:15 PM	0	4	2	13	17	2	0	0
4:30 PM	1	4	2	16	14	1	4	2
4:45 PM	0	2	4	15	8	5	1	0
5:00 PM	1	5	0	24	13	3	1	0
5:15 PM	1	2	1	9	7	2	0	0
5:30 PM	0	2	2	6	2	0	1	1
5:45 PM	0	0	3	6	3	7	1	0
TOTALS	3	22	28	121	102	32	16	4

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	1	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	2	0	0	1	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	1	2	0	1	2	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	1	0	0	1	0	0	1	1	0	1	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	1	0	0	0	0	0	1	0	0	0	0	0	2
6:30 AM	0	0	0	0	0	0	0	0	1	0	0	0	1
6:45 AM	2	0	0	0	0	0	0	0	0	0	0	0	2
7:00 AM	0	0	0	0	0	0	0	0	2	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:45 AM	0	0	0	0	2	0	0	0	1	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:15 AM	2	0	0	0	0	0	0	0	0	0	0	0	2
8:30 AM	0	1	0	0	1	0	0	0	1	0	0	0	3
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES :	5	1	0	0	3	0	1	1	5	0	0	0	16
APPROACH %'s :	83.33%	16.67%	0.00%	0.00%	100.00%	0.00%	14.29%	14.29%	71.43%				
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	2	0	0	0	0	0	0	0	2	0	0	0	4
PEAK HR FACTOR :	0.250			0.000			0.250			0.000			0.500

CONTROL : 4-Way Stop

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-006

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E Temple St			E Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
4:00 PM	0	4	2	0	0	0	0	1	0	0	1	0	8
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	1	1	0	0	0	0	0	2
4:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0	0	0	0	0	1
5:30 PM	0	0	0	0	1	1	0	0	1	0	0	0	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	1	4	2	0	2	2	3	1	1	0	1	0	17
APPROACH %'s :	14.29%	57.14%	28.57%	0.00%	50.00%	50.00%	60.00%	20.00%	20.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	0	0	0	1	1	0	0	1	0	0	0	4
PEAK HR FACTOR :	0.250			0.250			0.250			0.000			0.333

CONTROL : 4-Way Stop

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-007
 N/S Street: N Alameda St
 E/W Street: E 1st St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	5	5	1	4	5	8	0	0
6:15 AM	0	10	1	7	2	5	2	3
6:30 AM	5	11	0	10	1	17	2	3
6:45 AM	4	14	5	9	2	11	1	8
7:00 AM	4	21	3	11	0	14	1	2
7:15 AM	10	23	2	1	6	11	3	0
7:30 AM	2	22	3	5	3	9	2	4
7:45 AM	8	34	1	10	4	19	5	1
8:00 AM	3	15	5	5	11	7	1	0
8:15 AM	4	33	3	20	7	32	0	3
8:30 AM	2	31	3	16	9	24	0	0
8:45 AM	4	24	10	6	4	17	0	1
TOTALS	51	243	37	104	54	174	17	25

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	2	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	1	0	0	0	0	0	0
8:30 AM	1	0	0	0	0	0	0	0
8:45 AM	0	1	0	2	0	0	0	0
TOTALS	1	4	0	2	0	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	25	23	8	4	12	11	6	7
3:15 PM	15	16	4	27	8	6	3	3
3:30 PM	22	13	5	6	8	12	3	11
3:45 PM	34	12	5	17	8	9	6	1
4:00 PM	24	15	10	14	8	12	8	6
4:15 PM	45	19	11	12	17	17	13	9
4:30 PM	34	12	4	8	15	16	9	5
4:45 PM	36	32	6	12	16	16	12	5
5:00 PM	50	23	6	8	18	18	21	3
5:15 PM	44	41	12	11	13	15	17	4
5:30 PM	29	18	12	4	11	11	15	3
5:45 PM	40	3	4	8	5	1	12	2
TOTALS	398	227	87	131	139	144	125	59

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	1	0	0	0	0	0	0	0
3:30 PM	1	0	0	0	0	0	0	0
3:45 PM	2	1	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	2	0	0	0	0	0	0	0
4:30 PM	2	2	1	0	0	1	0	1
4:45 PM	1	1	0	0	1	0	0	0
5:00 PM	0	2	0	0	0	0	0	0
5:15 PM	1	0	0	0	0	0	0	0
5:30 PM	1	1	0	0	0	0	1	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	11	7	1	0	1	1	1	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	1	1	2	0	0	2	1	
6:00 AM	1	0	0	0	2	0	0	2	0	0	1	0	6
6:15 AM	0	2	0	0	2	0	0	1	0	0	2	0	7
6:30 AM	0	1	0	0	0	0	0	0	1	0	2	0	4
6:45 AM	0	1	0	0	2	0	0	2	0	0	5	0	10
7:00 AM	0	0	0	0	0	0	0	2	0	0	3	0	5
7:15 AM	0	2	0	0	0	0	0	1	0	0	6	0	9
7:30 AM	0	2	0	0	1	1	2	0	0	0	2	0	8
7:45 AM	0	0	0	0	1	0	0	0	0	0	4	0	5
8:00 AM	0	0	1	1	3	2	0	0	0	0	3	0	10
8:15 AM	0	0	0	1	0	0	1	0	0	0	6	0	8
8:30 AM	0	1	0	0	1	1	0	1	0	0	3	0	7
8:45 AM	0	0	2	0	7	0	0	0	0	0	3	0	12
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	9	3	2	19	4	3	9	1	0	40	0	91
	7.69%	69.23%	23.08%	8.00%	76.00%	16.00%	23.08%	69.23%	7.69%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	2	1	2	5	3	3	0	0	0	15	0	31
PEAK HR FACTOR :	0.375			0.417			0.375			0.625			0.775

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-007

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL 1	NT 2	NR 1	SL 1	ST 2	SR 1	EL 1	ET 2	ER 0	WL 0	WT 2	WR 1	
3:00 PM	0	4	0	0	0	1	0	2	0	0	3	0	10
3:15 PM	0	6	0	0	0	0	1	3	0	0	1	0	11
3:30 PM	0	0	0	0	1	1	0	4	1	0	1	0	8
3:45 PM	0	1	0	0	1	1	0	2	0	0	1	0	6
4:00 PM	0	3	0	0	1	0	2	5	1	0	4	0	16
4:15 PM	0	0	0	0	3	1	0	4	0	0	4	0	12
4:30 PM	0	3	0	0	2	1	0	4	0	0	8	0	18
4:45 PM	0	6	0	1	0	1	0	7	0	0	3	0	18
5:00 PM	0	4	0	1	0	1	0	5	0	0	5	0	16
5:15 PM	0	5	0	0	1	0	0	7	1	0	9	0	23
5:30 PM	0	2	0	0	2	0	0	1	0	0	2	0	7
5:45 PM	0	3	0	0	0	2	0	5	0	0	2	0	12
TOTAL VOLUMES :	NL 0	NT 37	NR 0	SL 2	ST 11	SR 9	EL 3	ET 49	ER 3	WL 0	WT 43	WR 0	TOTAL 157
APPROACH %'s :	0.00%	100.00%	0.00%	9.09%	50.00%	40.91%	5.45%	89.09%	5.45%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	400 PM												TOTAL
PEAK HR VOL :	0	12	0	1	6	3	2	20	1	0	19	0	64
PEAK HR FACTOR :	0.500			0.625			0.719			0.594			0.889

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-008
 N/S Street: N Vignes St
 E/W Street: E 1st St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	2	1	0	0	0	0	3
6:15 AM	1	0	0	2	0	0	1	0
6:30 AM	0	3	0	1	0	0	2	1
6:45 AM	0	5	0	0	0	0	2	0
7:00 AM	0	0	1	0	0	0	0	5
7:15 AM	0	2	0	0	0	0	1	1
7:30 AM	1	0	0	1	0	0	3	0
7:45 AM	1	1	1	0	0	0	0	1
8:00 AM	0	3	0	0	0	0	0	1
8:15 AM	0	0	1	3	0	0	1	2
8:30 AM	0	3	0	0	0	0	2	1
8:45 AM	1	6	0	1	0	0	1	3
TOTALS	4	25	4	8	0	0	13	18

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	1	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	1	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	1	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	2	0	0	0	0	2	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	3	0	0	1	5	1
3:15 PM	0	7	1	2	0	0	2	3
3:30 PM	3	1	1	0	0	0	4	0
3:45 PM	0	0	2	1	0	0	4	0
4:00 PM	0	0	2	0	0	0	1	4
4:15 PM	0	1	3	3	0	0	0	1
4:30 PM	2	1	1	1	0	0	2	1
4:45 PM	0	0	3	1	0	0	1	2
5:00 PM	0	3	1	2	0	0	5	1
5:15 PM	0	1	0	0	0	0	2	2
5:30 PM	3	2	2	0	0	0	5	2
5:45 PM	1	8	0	1	0	0	1	5
TOTALS	9	24	19	11	0	1	32	22

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	1	1	0	0	2	2
5:00 PM	0	2	0	0	0	0	1	2
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	2	1	1	0	0	3	4

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
6:00 AM	0	0	0	0	0	0	1	0	0	1	1	0	3
6:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
6:30 AM	0	0	0	0	0	1	0	0	0	0	1	1	3
6:45 AM	0	2	0	0	0	0	0	0	0	0	3	0	5
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	3	3	6
7:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
7:45 AM	0	0	0	0	0	0	0	0	0	1	3	0	4
8:00 AM	0	0	0	0	0	0	0	2	0	0	4	0	6
8:15 AM	0	3	0	0	0	0	0	0	0	0	5	0	8
8:30 AM	0	0	0	0	0	0	1	0	0	0	1	0	2
8:45 AM	0	1	0	0	2	0	0	2	0	0	1	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	6	0	0	2	1	2	5	0	2	25	4	47
	0.00%	100.00%	0.00%	0.00%	66.67%	33.33%	28.57%	71.43%	0.00%	6.45%	80.65%	12.90%	
PEAK HR START TIME :	645 AM												TOTAL
PEAK HR VOL :	0	2	0	0	0	0	0	1	0	0	8	3	14
PEAK HR FACTOR :	0.250			0.000			0.250			0.458			0.583

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-008

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			E 1st St			E 1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1	0	0	1	0	0.5	1.5	1	0.5	1	0.5	
3:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
3:15 PM	0	0	0	0	1	0	0	2	1	0	1	0	5
3:30 PM	0	0	1	0	0	0	0	1	2	0	1	0	5
3:45 PM	0	2	1	0	0	0	0	1	0	0	2	0	6
4:00 PM	0	4	0	2	0	0	2	1	0	1	1	0	11
4:15 PM	0	0	0	0	1	1	0	1	0	0	4	1	8
4:30 PM	1	0	1	0	0	0	0	3	0	0	5	0	10
4:45 PM	0	0	1	0	1	0	0	3	0	1	3	0	9
5:00 PM	0	0	1	0	0	0	0	6	0	0	3	0	10
5:15 PM	0	1	1	0	2	0	0	5	0	1	4	0	14
5:30 PM	0	0	1	0	1	2	0	2	0	0	3	0	9
5:45 PM	0	0	0	0	0	1	0	2	0	0	2	0	5
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	7	7	2	6	4	2	27	3	3	31	1	94
	6.67%	46.67%	46.67%	16.67%	50.00%	33.33%	6.25%	84.38%	9.38%	8.57%	88.57%	2.86%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	1	3	0	3	3	0	15	0	1	12	0	38
PEAK HR FACTOR :	0.500			0.500			0.625			0.650			0.679

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	3	0	1	2	0	1	2	1	
6:00 AM	0	0	0	0	0	0	1	0	0	0	1	0	2
6:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
6:30 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
6:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	4	1	0	1	0	0	1	0	0	3	0	10
7:45 AM	0	0	0	0	0	0	0	0	0	1	0	0	1
8:00 AM	1	1	0	1	1	0	0	0	0	0	0	0	4
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	1	1	0	0	0	0	0	1	0	0	0	0	3
8:45 AM	0	0	0	0	1	0	0	1	0	0	4	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	6	1	1	3	0	1	6	0	1	15	0	36
	22.22%	66.67%	11.11%	25.00%	75.00%	0.00%	14.29%	85.71%	0.00%	6.25%	93.75%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	5	1	1	2	0	0	1	0	1	4	0	16
PEAK HR FACTOR :	0.350			0.375			0.250			0.417			0.400

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-012

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St			N Alameda St			N Vignes St_Alpine St			N Vignes St_Alpine St			TOTAL																				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																							
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																				
3:00 PM	0	0	0	0	0	2	0	0	0	1	1	0	4																				
3:15 PM	0	0	1	1	0	0	0	2	1	0	1	0	6																				
3:30 PM	0	0	0	0	0	0	0	1	0	0	2	0	3																				
3:45 PM	0	0	0	0	2	0	0	0	0	0	3	0	5																				
4:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1																				
4:15 PM	0	0	3	0	0	0	0	1	0	0	2	0	6																				
4:30 PM	2	0	0	1	0	0	0	2	0	0	1	0	6																				
4:45 PM	0	0	0	0	0	2	0	3	0	0	0	0	5																				
5:00 PM	1	0	0	1	0	2	0	1	0	3	0	1	9																				
5:15 PM	1	0	0	1	0	0	0	1	0	0	2	0	5																				
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1																				
5:45 PM	0	2	0	0	0	0	0	3	0	0	0	0	5																				
TOTAL VOLUMES :	4	2	4	4	2	6	0	16	1	4	12	1	56																				
APPROACH %'s :	40.00%	20.00%	40.00%	33.33%	16.67%	50.00%	0.00%	94.12%	5.88%	23.53%	70.59%	5.88%																					
PEAK HR START TIME :	500 PM												TOTAL																				
PEAK HR VOL :	2			2			0			2			0			6			0			3			2			1			20		
PEAK HR FACTOR :	0.500			0.333			0.500			0.375			0.556																				

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1	2	0	1	2	0	
6:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
6:15 AM	0	0	0	0	0	1	0	3	0	0	0	0	4
6:30 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
6:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:15 AM	0	0	0	0	0	0	0	2	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	3	1	0	0	0	4
7:45 AM	0	1	0	0	0	0	0	2	0	0	0	0	3
8:00 AM	1	1	0	0	0	0	0	3	1	0	1	0	7
8:15 AM	0	0	0	0	1	0	1	0	0	0	2	0	4
8:30 AM	0	0	0	0	1	0	0	0	1	0	0	0	2
8:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES :	1	2	0	0	2	1	1	20	3	0	5	0	35
APPROACH %'s :	33.33%	66.67%	0.00%	0.00%	66.67%	33.33%	4.17%	83.33%	12.50%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	2	0	0	1	0	1	8	2	0	3	0	18
PEAK HR FACTOR :	0.375			0.250			0.688			0.375			0.643

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-015

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Vignes St			N Vignes St			N Main St			N Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	0	2	0	1	2	0	1	2	0	1	2	0	
3:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
3:15 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
3:30 PM	0	0	0	0	0	0	1	1	0	0	2	0	4
3:45 PM	0	1	0	0	0	0	0	2	0	0	2	0	5
4:00 PM	0	0	0	0	0	1	0	2	0	0	3	0	6
4:15 PM	0	0	0	0	3	2	0	4	0	0	1	0	10
4:30 PM	0	0	0	0	0	0	0	3	1	0	2	0	6
4:45 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
5:00 PM	0	3	0	0	0	0	0	4	0	0	1	0	8
5:15 PM	0	0	0	0	0	0	0	2	0	0	4	0	6
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	1	0	0	2	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	4	0	0	3	3	1	24	1	0	21	0	57
	0.00%	100.00%	0.00%	0.00%	50.00%	50.00%	3.85%	92.31%	3.85%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	3	0	0	0	0	0	8	0	0	7	0	18
PEAK HR FACTOR :	0.250			0.000			0.500			0.438			0.563

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-016
 N/S Street: N Alameda St_N Spring St
 E/W Street: W College St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	1	0	1	1	0	0	1	1
6:15 AM	3	0	3	2	0	0	1	4
6:30 AM	6	1	4	1	1	0	5	2
6:45 AM	1	0	12	3	1	0	1	2
7:00 AM	9	2	5	2	0	0	3	1
7:15 AM	1	2	5	5	2	3	0	1
7:30 AM	6	2	13	6	0	0	3	2
7:45 AM	2	1	14	9	3	2	1	1
8:00 AM	2	0	14	8	1	0	1	1
8:15 AM	6	1	14	6	0	4	5	7
8:30 AM	6	6	4	6	3	3	2	4
8:45 AM	0	1	9	5	2	2	1	3
TOTALS	43	16	98	54	13	14	24	29

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	1	0	0	0	0	0
7:00 AM	2	1	0	0	0	0	0	0
7:15 AM	0	0	1	1	1	0	1	0
7:30 AM	0	0	2	0	0	0	0	0
7:45 AM	0	0	0	1	0	0	0	0
8:00 AM	0	0	1	1	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	2	1	5	3	1	0	1	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	4	3	13	4	5	2	0	4
3:15 PM	2	3	13	6	2	2	4	14
3:30 PM	4	2	13	12	3	1	6	11
3:45 PM	5	1	10	6	3	2	8	6
4:00 PM	2	6	6	11	0	2	1	3
4:15 PM	2	1	8	7	2	1	3	7
4:30 PM	0	0	4	5	0	1	3	1
4:45 PM	2	2	10	7	4	3	3	4
5:00 PM	3	6	5	16	1	3	3	2
5:15 PM	1	4	7	8	3	1	0	2
5:30 PM	2	1	6	3	0	0	3	0
5:45 PM	1	0	4	1	1	0	2	4
TOTALS	28	29	99	86	24	18	36	58

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	1	0	0	0	0
3:30 PM	0	0	3	0	1	0	0	0
3:45 PM	0	0	1	0	0	0	0	0
4:00 PM	0	0	0	0	1	0	0	0
4:15 PM	0	0	0	0	0	1	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	1	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	5	1	3	1	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	3	0	1	1	1	1	1	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:30 AM	0	2	0	0	1	0	0	0	0	0	0	0	3
6:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:15 AM	0	0	0	0	0	0	2	0	0	0	0	0	2
7:30 AM	0	1	0	0	2	1	0	0	1	0	0	0	5
7:45 AM	0	0	0	0	0	1	0	0	1	0	2	0	4
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:30 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	8	0	0	7	2	2	1	2	0	2	0	24
	0.00%	100.00%	0.00%	0.00%	77.78%	22.22%	40.00%	20.00%	40.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	3	0	0	3	0	0	1	0	0	0	0	7
PEAK HR FACTOR :	0.250			0.750			0.250			0.000			0.438

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-016

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Alameda St_N Spring St			N Alameda St_N Spring St			W College St			W College St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	3	0	1	1	1	1	1	0	
3:00 PM	0	0	0	0	0	0	0	1	1	0	0	0	2
3:15 PM	0	3	1	0	2	0	0	1	0	0	1	0	8
3:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	2
3:45 PM	0	0	0	0	0	0	0	0	1	0	0	0	1
4:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
4:15 PM	0	4	0	0	2	0	1	0	0	0	1	0	8
4:30 PM	0	3	0	0	3	0	0	0	0	1	1	0	8
4:45 PM	0	1	0	0	1	0	1	0	0	0	0	0	3
5:00 PM	0	1	0	0	3	0	0	2	0	0	0	1	7
5:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	2
5:30 PM	0	1	0	0	1	0	0	0	0	0	1	0	3
5:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	17	2	0	14	0	3	4	3	1	5	1	50
	0.00%	89.47%	10.53%	0.00%	100.00%	0.00%	30.00%	40.00%	30.00%	14.29%	71.43%	14.29%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	5	1	0	4	0	1	2	0	0	1	1	15
PEAK HR FACTOR :	0.500			0.333			0.375			0.500			0.536

CONTROL : [Signalized](#)

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-021
 N/S Street: N Los Angeles St
 E/W Street: Arcadia St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	1	1	0	0	0	12	0	2
6:15 AM	2	4	1	2	4	10	3	3
6:30 AM	3	2	0	0	3	19	1	10
6:45 AM	1	3	0	0	2	24	0	7
7:00 AM	5	4	0	0	3	22	4	9
7:15 AM	0	5	0	0	0	22	2	9
7:30 AM	3	4	0	0	6	19	1	5
7:45 AM	2	9	0	0	0	21	1	10
8:00 AM	0	4	0	0	1	13	1	6
8:15 AM	1	5	0	0	5	26	5	10
8:30 AM	2	3	0	0	3	16	0	3
8:45 AM	2	5	0	0	5	8	3	4
TOTALS	22	49	1	2	32	212	21	78

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	1	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	1	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	1	0	0	0	0	1	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	7	3	0	0	22	4	4	1
3:15 PM	2	0	0	0	10	2	6	4
3:30 PM	3	3	0	0	12	2	6	6
3:45 PM	10	4	0	0	11	7	10	2
4:00 PM	5	1	0	0	17	1	11	7
4:15 PM	6	1	0	0	16	0	4	1
4:30 PM	7	2	0	0	16	1	16	4
4:45 PM	4	3	0	0	9	2	3	3
5:00 PM	7	4	0	0	8	0	13	3
5:15 PM	3	3	0	0	22	4	4	2
5:30 PM	3	1	0	0	8	0	9	8
5:45 PM	11	1	0	0	4	1	10	1
TOTALS	68	26	0	0	155	24	96	42

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	1
4:00 PM	1	0	0	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	0
5:00 PM	1	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	3	0	0	0	0	1	0	2

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	3	0	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	1	0	0	0	1	0	0	0	0	0	0	0	2
6:30 AM	0	2	0	0	4	0	0	0	0	0	1	0	7
6:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	4	0	0	0	0	0	0	0	5
7:45 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	8	0	0	0	0	1	0	0	9
8:30 AM	0	0	0	0	4	0	0	0	0	0	0	0	4
8:45 AM	0	1	0	0	4	1	0	0	0	0	2	0	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	5	0	0	33	1	0	1	0	1	3	0	45
	16.67%	83.33%	0.00%	0.00%	97.06%	2.94%	0.00%	100.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	0	0	0	15	0	0	1	0	1	0	0	17
PEAK HR FACTOR :	0.000			0.469			0.250			0.250			0.472

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-021

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Arcadia St			Arcadia St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	2	0	0	0	0	0	3	0	
3:00 PM	0	2	0	0	1	0	0	0	0	0	1	0	4
3:15 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
3:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
3:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	1	4	0	0	0	0	1	0	0	0	0	0	6
4:30 PM	0	1	0	0	0	0	0	0	0	1	0	0	2
4:45 PM	0	0	0	0	2	0	0	0	0	0	1	0	3
5:00 PM	0	3	0	0	1	0	0	0	0	0	0	0	4
5:15 PM	0	4	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
5:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	21	0	0	11	0	1	1	0	1	3	0	39
	4.55%	95.45%	0.00%	0.00%	100.00%	0.00%	50.00%	50.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	10	0	0	4	0	0	0	0	0	1	0	15
PEAK HR FACTOR :	0.625			0.333			0.000			0.250			0.750

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-022
 N/S Street: N Los Angeles St
 E/W Street: E Aliso St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	6	9	0	10	0	4
6:15 AM	0	0	1	3	4	13	5	3
6:30 AM	0	0	6	7	4	23	0	11
6:45 AM	0	0	3	9	3	23	0	8
7:00 AM	0	0	5	4	4	27	1	9
7:15 AM	0	0	0	3	2	26	0	9
7:30 AM	0	0	5	11	5	17	1	6
7:45 AM	0	0	3	11	1	33	1	10
8:00 AM	0	0	0	3	1	17	2	5
8:15 AM	0	1	1	6	4	30	5	11
8:30 AM	0	0	7	9	1	17	3	4
8:45 AM	0	0	2	7	6	8	2	4
TOTALS	0	1	39	82	35	244	20	84

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	6	3	20	3	3	1
3:15 PM	0	0	1	1	7	2	0	4
3:30 PM	0	0	5	6	17	3	8	9
3:45 PM	0	0	4	7	19	7	6	5
4:00 PM	0	0	6	10	16	3	8	5
4:15 PM	0	0	6	15	24	0	5	2
4:30 PM	0	0	8	22	29	1	8	0
4:45 PM	0	0	4	16	12	2	1	0
5:00 PM	1	0	16	11	17	0	11	1
5:15 PM	0	0	6	5	25	3	7	3
5:30 PM	0	0	12	1	15	0	2	4
5:45 PM	0	0	6	4	5	0	5	0
TOTALS	1	0	80	101	206	24	64	34

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	1	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0
3:45 PM	0	0	0	1	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	1	1	1	0	0	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL														
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																	
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
	0	3	0	0	2	0	0	4	0	0	0	0															
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0															
6:15 AM	0	1	0	0	1	0	0	1	0	0	0	0	3														
6:30 AM	0	2	0	0	3	0	0	0	0	0	0	0	5														
6:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2														
7:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3														
7:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2														
7:30 AM	0	1	0	1	3	0	0	0	0	0	0	0	5														
7:45 AM	0	0	0	0	2	0	0	0	0	0	0	0	2														
8:00 AM	0	0	0	0	2	0	0	0	0	2	1	0	5														
8:15 AM	0	0	0	0	8	0	1	0	0	0	0	0	9														
8:30 AM	0	0	0	0	3	0	0	0	1	0	0	0	4														
8:45 AM	0	1	0	0	6	0	0	0	0	0	0	0	7														
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
APPROACH %'s :	0	6	0	1	34	0	1	1	1	2	1	0	47														
	0.00%	100.00%	0.00%	2.86%	97.14%	0.00%	33.33%	33.33%	33.33%	66.67%	33.33%	0.00%															
PEAK HR START TIME :	745 AM												TOTAL														
PEAK HR VOL :	0			0			0			1			1			2			1			0			20		
PEAK HR FACTOR :	0.000			0.469			0.500			0.250			0.556														

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-022

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			E Aliso St			E Aliso St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	0	2	0	0	4	0	0	0	0	
3:00 PM	0	1	1	0	1	0	0	0	0	0	0	0	3
3:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
3:30 PM	0	0	0	0	4	0	0	0	0	0	0	0	4
3:45 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	5	0	0	0	0	0	0	0	0	0	0	5
4:30 PM	1	1	0	0	0	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:00 PM	0	1	0	0	1	0	1	2	0	0	0	0	5
5:15 PM	0	4	0	0	0	0	0	0	0	0	0	0	4
5:30 PM	0	1	0	0	4	0	0	0	0	0	0	0	5
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	15	1	0	17	0	1	3	0	0	0	0	38
	5.88%	88.24%	5.88%	0.00%	100.00%	0.00%	25.00%	75.00%	0.00%				
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	6	0	0	5	0	1	3	0	0	0	0	15
PEAK HR FACTOR :	0.375			0.313			0.333			0.000			0.750

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-023
 N/S Street: N Los Angeles St
 E/W Street: Temple St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	3	3	6	3	6	9	2	3
6:15 AM	6	9	2	5	4	5	6	8
6:30 AM	9	2	4	12	9	18	0	7
6:45 AM	10	7	10	19	18	23	2	14
7:00 AM	4	13	3	19	17	20	4	12
7:15 AM	12	10	11	21	11	15	3	10
7:30 AM	3	8	5	24	13	10	4	9
7:45 AM	13	17	7	29	20	27	8	21
8:00 AM	16	11	4	33	18	9	12	9
8:15 AM	15	10	5	39	15	20	7	11
8:30 AM	19	13	4	52	17	16	7	8
8:45 AM	8	13	6	28	14	19	1	5
TOTALS	118	116	67	284	162	191	56	117

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	1	0	0	0
7:45 AM	0	0	0	0	1	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	1	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	3	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	7	8	18	8	19	9	6	7
3:15 PM	7	5	11	4	11	7	9	0
3:30 PM	9	5	17	14	20	12	21	11
3:45 PM	13	11	33	13	23	13	7	5
4:00 PM	19	6	22	6	14	12	17	3
4:15 PM	5	15	20	5	22	6	8	9
4:30 PM	15	14	47	7	26	11	16	5
4:45 PM	6	4	16	2	7	5	3	7
5:00 PM	10	5	45	10	24	4	8	4
5:15 PM	8	8	26	3	21	9	16	1
5:30 PM	7	2	22	5	12	11	6	1
5:45 PM	2	1	14	6	6	3	3	5
TOTALS	108	84	291	83	205	102	120	58

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	1	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	1	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	1	2	1	1	2	0	1	2	1	
6:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:15 AM	0	0	0	0	1	0	0	1	1	0	0	0	3
6:30 AM	0	2	0	0	3	0	0	0	0	0	0	0	5
6:45 AM	0	0	0	0	2	0	0	2	0	0	0	0	4
7:00 AM	0	0	0	0	3	0	0	1	0	0	0	0	4
7:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
8:15 AM	0	0	0	0	7	2	0	1	0	0	1	0	11
8:30 AM	0	0	0	0	3	0	0	0	1	0	0	0	4
8:45 AM	0	1	0	0	5	0	0	0	0	0	0	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	3	1	0	29	2	0	6	2	0	1	0	44
	0.00%	75.00%	25.00%	0.00%	93.55%	6.45%	0.00%	75.00%	25.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	0	1	0	10	2	0	2	1	0	1	0	17
PEAK HR FACTOR :	0.250			0.333			0.750			0.250			0.386

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-023

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			Temple St			Temple St			TOTAL																													
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																																
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																													
3:00 PM	0	0	0	0	0	0	1	0	0	0	1	0	2																													
3:15 PM	1	1	0	0	1	0	0	0	0	0	0	0	3																													
3:30 PM	0	0	0	0	1	0	1	0	0	0	0	0	2																													
3:45 PM	0	0	0	0	2	0	0	3	0	0	0	0	5																													
4:00 PM	1	0	0	0	1	0	0	2	0	0	1	0	5																													
4:15 PM	0	5	0	0	1	0	1	0	0	0	0	0	7																													
4:30 PM	0	2	0	0	3	0	0	0	0	0	1	0	6																													
4:45 PM	0	0	0	1	1	0	0	1	0	0	0	0	3																													
5:00 PM	0	3	0	0	1	0	0	0	0	0	0	0	4																													
5:15 PM	0	2	0	0	1	0	0	1	0	0	0	0	4																													
5:30 PM	0	1	0	0	2	0	0	0	0	0	0	0	3																													
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0																													
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																													
APPROACH %'s :	2	14	0	1	14	0	3	7	0	0	3	0	44																													
	12.50%	87.50%	0.00%	6.67%	93.33%	0.00%	30.00%	70.00%	0.00%	0.00%	100.00%	0.00%																														
PEAK HR START TIME :	445 PM												TOTAL																													
PEAK HR VOL :	0			6			0			1			5			0			0			2			0			0			0			0			0			14		
PEAK HR FACTOR :	0.500			0.750			0.500			0.000			0.875																													

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-024
 N/S Street: N Los Angeles St
 E/W Street: 1st St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	3	8	15	18	6	16	2	4
6:15 AM	3	5	20	19	7	7	7	2
6:30 AM	7	6	43	27	6	11	7	6
6:45 AM	9	11	25	33	11	27	10	20
7:00 AM	5	27	25	39	13	21	4	14
7:15 AM	2	16	29	39	11	11	11	14
7:30 AM	5	7	43	34	9	6	9	11
7:45 AM	12	24	40	44	22	13	12	21
8:00 AM	9	23	40	63	19	12	18	15
8:15 AM	11	31	23	56	16	17	15	15
8:30 AM	14	29	34	44	13	18	11	7
8:45 AM	8	23	39	26	12	22	8	19
TOTALS	88	210	376	442	145	181	114	148

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	26	9	38	43	21	29	16	12
3:15 PM	16	19	38	40	20	13	19	12
3:30 PM	22	15	41	38	22	14	14	12
3:45 PM	32	22	47	43	19	15	27	12
4:00 PM	20	20	53	31	21	13	20	11
4:15 PM	21	9	38	31	18	23	10	2
4:30 PM	18	13	38	27	19	18	9	1
4:45 PM	13	10	29	27	9	11	7	5
5:00 PM	30	3	58	28	25	17	12	9
5:15 PM	13	9	34	23	16	11	16	7
5:30 PM	10	3	33	16	13	18	6	6
5:45 PM	7	1	32	18	6	11	5	4
TOTALS	228	133	479	365	209	193	161	93

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	2	0	0	0	0	0
3:15 PM	0	0	4	1	0	1	0	0
3:30 PM	0	0	1	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	1
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	2	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	1	0	9	1	0	1	0	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	1	3	0	1	3	0	1	2	1	
6:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
6:15 AM	0	0	2	0	0	0	0	0	0	0	1	0	3
6:30 AM	0	2	0	0	0	3	0	2	0	0	1	0	8
6:45 AM	0	0	0	0	0	1	0	2	0	0	3	0	6
7:00 AM	0	0	0	0	1	0	0	1	0	0	2	0	4
7:15 AM	0	0	0	0	2	0	0	1	0	0	2	0	5
7:30 AM	0	0	1	0	3	1	0	1	0	0	3	0	9
7:45 AM	0	1	1	0	2	0	0	0	0	0	5	0	9
8:00 AM	0	0	0	0	0	0	0	1	0	1	2	0	4
8:15 AM	0	0	1	0	9	0	0	0	0	1	5	0	16
8:30 AM	0	0	0	0	2	0	0	0	0	0	1	0	3
8:45 AM	0	0	0	0	2	2	1	4	0	0	0	0	9
TOTAL VOLUMES :	0	3	5	0	21	7	1	13	0	2	26	0	78
APPROACH %'s :	0.00%	37.50%	62.50%	0.00%	75.00%	25.00%	7.14%	92.86%	0.00%	7.14%	92.86%	0.00%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	0	0	1	0	13	2	1	5	0	2	8	0	32
PEAK HR FACTOR :	0.250			0.417			0.300			0.417			0.500

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-024

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	N Los Angeles St			N Los Angeles St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
3:15 PM	0	2	0	0	1	0	0	2	0	1	3	0	9
3:30 PM	1	1	1	0	2	0	0	1	0	0	3	0	9
3:45 PM	0	1	0	0	3	1	1	3	0	0	0	0	9
4:00 PM	0	1	0	0	1	1	0	4	0	2	2	1	12
4:15 PM	0	3	0	0	2	0	0	4	0	2	5	0	16
4:30 PM	0	1	0	0	2	0	3	7	0	0	3	0	16
4:45 PM	0	0	0	0	2	0	1	4	0	0	5	0	12
5:00 PM	1	2	0	0	3	0	0	7	0	0	4	0	17
5:15 PM	0	1	0	0	1	0	0	2	0	0	3	0	7
5:30 PM	0	0	0	0	3	0	0	1	0	0	1	0	5
5:45 PM	0	1	0	0	2	0	0	4	0	2	0	0	9
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	13	1	0	22	2	5	40	0	7	30	1	123
	12.50%	81.25%	6.25%	0.00%	91.67%	8.33%	11.11%	88.89%	0.00%	18.42%	78.95%	2.63%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	4	0	0	9	0	0	14	0	2	8	0	38
PEAK HR FACTOR :	0.417			0.750			0.500			0.625			0.559

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-025
 N/S Street: Judge John Aiso St
 E/W Street: Temple St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	7	4	4	7	2	0	0	0
6:15 AM	0	1	1	9	7	1	0	0
6:30 AM	0	0	3	8	9	0	0	0
6:45 AM	0	2	3	8	14	0	0	0
7:00 AM	0	3	6	12	17	1	0	0
7:15 AM	1	1	5	19	25	3	0	0
7:30 AM	0	0	4	22	24	3	0	0
7:45 AM	2	3	7	23	29	2	1	0
8:00 AM	2	5	1	27	21	3	0	0
8:15 AM	2	1	7	48	27	8	1	0
8:30 AM	1	3	6	32	30	8	0	0
8:45 AM	3	3	6	20	30	8	0	0
TOTALS	18	26	53	235	235	37	2	0

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	1	0	1	0	0
6:30 AM	0	0	0	2	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	2	1	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	5	1	1	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	11	7	10	33	0	0
3:15 PM	0	0	14	14	11	30	0	0
3:30 PM	0	0	22	6	4	42	0	0
3:45 PM	0	0	12	11	38	31	0	0
4:00 PM	0	0	24	12	6	29	0	0
4:15 PM	0	0	19	0	8	15	0	0
4:30 PM	0	0	27	2	3	48	0	0
4:45 PM	0	0	14	4	2	26	0	0
5:00 PM	0	0	35	5	0	14	1	0
5:15 PM	0	0	15	3	3	7	0	0
5:30 PM	0	0	19	2	13	4	0	0
5:45 PM	0	0	14	4	3	4	0	0
TOTALS	0	0	226	70	101	283	1	0

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	2	0	0
3:15 PM	0	0	1	2	0	1	0	0
3:30 PM	0	0	0	0	3	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	2	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	2	2	3	5	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM	0	0	0	0	0	0	0	0	0	2	0	0	2
6:15 AM	1	1	0	0	0	0	0	2	0	1	0	0	5
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:00 AM	0	0	0	0	0	0	0	2	0	1	1	0	4
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	1	0	0	0	0	0	0	0	0	0	0	0	1
7:45 AM	0	0	1	0	0	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	1	0	0	0	2
8:15 AM	1	0	0	0	0	0	0	1	0	0	0	0	2
8:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	3	2	1	0	0	0	0	6	1	4	2	0	19
	50.00%	33.33%	16.67%				0.00%	85.71%	14.29%	66.67%	33.33%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	1	1	0	0	0	0	1	1	0	1	0	6
PEAK HR FACTOR :	0.750			0.000			0.500			0.250			0.750

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-025

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St			Judge John Aiso St			Temple St			Temple St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
3:30 PM	0	0	0	0	1	0	0	0	0	1	1	0	3
3:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
4:45 PM	1	0	1	0	0	0	0	1	0	0	0	0	3
5:00 PM	1	0	0	0	0	0	0	0	0	1	0	0	2
5:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:30 PM	1	0	0	0	0	0	0	1	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	3	0	3	0	1	0	0	5	0	2	6	0	20
	50.00%	0.00%	50.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	25.00%	75.00%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	3	0	1	0	0	0	0	2	0	1	0	0	7
PEAK HR FACTOR :	0.500			0.000			0.500			0.250			0.583

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-026
 N/S Street: Judge John Aiso St_San Pedro St
 E/W Street: 1st St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	1	6	0	6	1	2	1	0
6:15 AM	2	6	8	6	2	4	0	2
6:30 AM	3	8	4	3	5	4	2	0
6:45 AM	3	18	6	10	9	5	2	2
7:00 AM	4	9	5	7	2	6	8	6
7:15 AM	2	13	9	14	5	5	1	5
7:30 AM	2	8	4	8	4	8	2	3
7:45 AM	3	19	9	12	5	12	3	7
8:00 AM	2	12	7	14	7	11	1	5
8:15 AM	5	12	5	15	8	12	3	10
8:30 AM	6	15	13	7	12	6	5	6
8:45 AM	6	14	12	6	10	10	5	14
TOTALS	39	140	82	108	70	85	33	60

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	2	0	0	0	0
6:30 AM	0	0	0	1	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	2	1	0	0	0
7:15 AM	0	0	0	1	0	0	0	0
7:30 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	1	0	0	0	0
8:00 AM	0	0	0	4	1	0	0	0
8:15 AM	0	0	1	0	0	0	0	0
8:30 AM	0	0	1	1	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	2	12	2	1	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	7	18	34	26	20	15	6	6
3:15 PM	19	16	22	30	13	10	13	6
3:30 PM	16	10	23	24	15	10	17	3
3:45 PM	18	19	15	30	6	11	10	4
4:00 PM	18	26	27	16	26	11	10	7
4:15 PM	15	12	31	35	19	12	5	3
4:30 PM	19	9	28	25	10	15	12	2
4:45 PM	20	12	34	20	20	20	10	12
5:00 PM	15	14	22	31	14	12	15	5
5:15 PM	17	14	37	38	16	14	21	2
5:30 PM	8	7	22	17	16	18	18	4
5:45 PM	9	5	27	13	17	8	12	13
TOTALS	181	162	322	305	192	156	149	67

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	1	2	4	2	2	1	0	0
3:15 PM	0	0	0	2	1	0	0	0
3:30 PM	0	0	2	3	1	0	0	0
3:45 PM	0	3	3	1	0	0	1	1
4:00 PM	0	0	0	2	0	0	1	0
4:15 PM	0	0	2	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	1	0	0	0	0
TOTALS	1	5	12	11	4	1	2	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
6:00 AM	0	0	0	0	1	0	0	1	0	0	1	0	3
6:15 AM	0	0	0	0	1	0	1	1	0	1	0	0	4
6:30 AM	0	0	0	0	0	0	0	2	0	0	1	0	3
6:45 AM	0	0	0	0	0	0	0	1	0	0	3	0	4
7:00 AM	0	0	0	0	0	0	0	1	0	1	1	0	3
7:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
7:30 AM	0	0	0	0	0	0	0	3	0	1	3	0	7
7:45 AM	0	1	0	0	1	0	0	2	0	0	3	0	7
8:00 AM	0	0	0	0	0	0	0	0	0	0	4	1	5
8:15 AM	0	0	0	0	0	0	0	0	0	0	4	0	4
8:30 AM	0	0	1	0	1	0	0	0	0	1	3	1	7
8:45 AM	0	0	0	0	2	1	0	2	0	0	1	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1	1	0	6	1	1	13	0	4	26	2	55
	0.00%	50.00%	50.00%	0.00%	85.71%	14.29%	7.14%	92.86%	0.00%	12.50%	81.25%	6.25%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	1	1	0	2	0	0	2	0	1	14	2	23
PEAK HR FACTOR :	0.500			0.500			0.250			0.850			0.821

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-026

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	Judge John Aiso St_San Pedro St			Judge John Aiso St_San Pedro St			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	0	0	2	0	1	3	0	1	2	0	
3:00 PM	0	0	0	0	0	0	0	2	0	1	1	0	4
3:15 PM	0	1	0	0	0	0	0	3	0	1	2	0	7
3:30 PM	0	0	1	0	1	0	0	3	0	0	2	0	7
3:45 PM	0	1	0	0	0	0	2	0	0	0	1	0	4
4:00 PM	0	2	1	0	1	0	0	3	0	1	3	0	11
4:15 PM	0	0	0	0	0	0	0	2	0	0	5	0	7
4:30 PM	0	0	0	0	0	0	3	4	0	3	2	0	12
4:45 PM	0	1	0	0	1	0	0	3	0	0	4	0	9
5:00 PM	0	2	0	0	0	0	0	7	0	0	2	0	11
5:15 PM	0	1	1	0	0	0	0	1	0	0	2	0	5
5:30 PM	0	0	0	0	0	0	0	1	0	1	3	0	5
5:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	8	3	0	3	0	5	32	0	7	30	0	88
	0.00%	72.73%	27.27%	0.00%	100.00%	0.00%	13.51%	86.49%	0.00%	18.92%	81.08%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	4	1	0	1	0	0	12	0	1	11	0	30
PEAK HR FACTOR :	0.625			0.250			0.429			0.750			0.682

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	1	1.5	1.5	0	1	2	0	
6:00 AM	0	0	0	0	1	0	0	0	0	1	2	0	4
6:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
6:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
6:45 AM	0	0	0	0	1	0	0	1	0	0	0	0	2
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
7:30 AM	0	0	0	0	0	0	0	1	0	0	4	0	5
7:45 AM	0	1	0	0	0	1	0	1	0	0	0	0	3
8:00 AM	0	1	0	0	0	0	0	0	0	0	2	0	3
8:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
8:30 AM	0	0	0	0	1	0	0	0	0	0	1	0	2
8:45 AM	0	0	0	0	1	0	0	1	0	0	1	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	2	0	0	5	1	0	4	0	1	15	0	28
	0.00%	100.00%	0.00%	0.00%	83.33%	16.67%	0.00%	100.00%	0.00%	6.25%	93.75%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	2	0	0	0	1	0	2	0	0	7	0	12
PEAK HR FACTOR :	0.500			0.250			0.500			0.438			0.600

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-027

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			Cesar Chavez Ave			Cesar Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	1	1.5	1.5	0	1	2	0	
3:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1
3:15 PM	0	0	0	0	1	0	0	2	0	0	0	0	3
3:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3
3:45 PM	0	1	0	0	1	0	0	0	0	0	1	0	3
4:00 PM	0	0	0	0	0	1	3	0	0	0	2	0	6
4:15 PM	0	0	0	0	1	0	6	1	0	0	0	0	8
4:30 PM	0	9	0	0	0	0	0	1	0	0	0	0	10
4:45 PM	0	1	0	0	0	1	0	4	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
5:15 PM	0	1	0	0	0	0	1	2	0	0	2	0	6
5:30 PM	1	1	0	0	1	1	1	3	0	0	0	0	8
5:45 PM	0	0	0	0	0	1	0	1	0	0	3	0	5
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	13	0	0	4	4	12	17	0	0	9	0	60
	7.14%	92.86%	0.00%	0.00%	50.00%	50.00%	41.38%	58.62%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	1	3	0	0	1	2	2	10	0	0	2	0	21
PEAK HR FACTOR :	0.500			0.375			0.750			0.250			0.656

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5	
6:00 AM	0	0	0	1	0	0	0	0	0	0	2	1	4
6:15 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
6:30 AM	0	0	0	0	0	1	0	0	0	0	2	0	3
6:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	2
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	6	0	6
7:30 AM	0	0	0	0	0	0	0	1	0	0	4	0	5
7:45 AM	0	0	0	0	0	0	0	0	0	0	5	0	5
8:00 AM	0	0	0	0	0	1	1	0	0	0	1	0	3
8:15 AM	0	0	0	0	0	2	0	0	0	0	5	0	7
8:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3
8:45 AM													
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	0	0	1	0	4	1	2	0	0	32	1	41
				20.00%	0.00%	80.00%	33.33%	66.67%	0.00%	0.00%	96.97%	3.03%	
PEAK HR START TIME :	715 AM												TOTAL
PEAK HR VOL :	0	0	0	0	0	1	1	1	0	0	16	0	19
PEAK HR FACTOR :	0.000			0.250			0.500			0.667			0.792

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-028

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	Mission Rd			Mission Rd			1st St			1st St			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																											
	1	1	0	1	1	1	1	0.5	0.5	1	0.5	0.5																											
3:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	2																										
3:15 PM	0	0	0	0	0	1	0	4	0	0	1	0	6																										
3:30 PM	0	0	0	1	0	0	0	1	0	0	2	0	4																										
3:45 PM	0	0	0	0	1	0	0	3	0	0	2	1	7																										
4:00 PM	0	0	0	0	0	0	0	3	0	0	1	0	4																										
4:15 PM	0	0	0	0	0	1	0	2	0	0	2	0	5																										
4:30 PM	0	7	0	0	0	2	1	0	0	1	2	0	13																										
4:45 PM	0	0	1	0	0	1	0	6	0	0	4	0	12																										
5:00 PM	0	3	0	0	0	0	0	5	0	0	2	0	10																										
5:15 PM	0	0	0	1	0	0	0	6	0	0	3	0	10																										
5:30 PM	0	0	0	0	1	0	0	4	0	0	2	0	7																										
5:45 PM	0	0	0	0	0	1	0	3	0	0	1	0	5																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	0	10	1	2	2	6	1	37	0	1	24	1	85																										
	0.00%	90.91%	9.09%	20.00%	20.00%	60.00%	2.63%	97.37%	0.00%	3.85%	92.31%	3.85%																											
PEAK HR START TIME :	500 PM												TOTAL																										
PEAK HR VOL :	0			3			0			1			1			1			0			18			0			0			8			0			32		
PEAK HR FACTOR :	0.250			0.750			0.750			0.667			0.800																										

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5663-029
 N/S Street: Central Ave
 E/W Street: 1st St
 DATE: 11/5/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	3	4	2	4	1	1	2	2
6:15 AM	4	10	7	6	0	0	1	4
6:30 AM	1	6	7	4	0	0	1	2
6:45 AM	1	8	6	9	1	0	0	4
7:00 AM	3	14	2	8	0	0	2	6
7:15 AM	5	19	2	4	1	2	2	14
7:30 AM	1	21	3	5	0	0	4	11
7:45 AM	6	27	5	11	1	3	7	16
8:00 AM	3	18	5	3	1	1	3	3
8:15 AM	1	16	3	15	0	4	1	11
8:30 AM	3	25	5	16	0	0	3	21
8:45 AM	7	23	5	14	2	7	3	13
TOTALS	38	191	52	99	7	18	29	107

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	2	0	0	0	0	0
6:45 AM	0	0	0	2	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	2	2	0	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	17	18	12	6	5	2	33	30
3:15 PM	6	12	8	33	5	0	7	23
3:30 PM	23	22	9	12	4	0	29	20
3:45 PM	29	18	20	14	4	0	28	15
4:00 PM	19	16	15	7	3	0	27	20
4:15 PM	23	16	31	14	8	1	28	26
4:30 PM	26	12	15	11	6	2	35	15
4:45 PM	20	31	17	6	17	2	26	35
5:00 PM	38	17	26	7	4	3	27	21
5:15 PM	29	28	33	24	8	5	26	33
5:30 PM	16	21	25	14	9	7	16	21
5:45 PM	19	9	20	12	3	2	22	19
TOTALS	265	220	231	160	76	24	304	278

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	2	0
3:45 PM	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	1	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	2	0	0	0	2	2

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

AM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	2	0	1	2	0	
6:00 AM	0	0	0	0	0	0	0	1	0	0	1	1	3
6:15 AM	0	0	0	0	0	0	0	1	0	2	2	0	5
6:30 AM	0	0	1	0	0	0	0	1	0	1	2	0	5
6:45 AM	0	0	1	0	2	0	0	1	0	1	5	0	10
7:00 AM	0	0	0	0	0	0	0	2	0	3	1	0	6
7:15 AM	0	0	1	0	0	0	0	0	0	2	4	0	7
7:30 AM	0	0	2	0	0	0	0	1	2	1	3	0	9
7:45 AM	0	0	0	0	0	0	1	1	0	2	6	0	10
8:00 AM	0	0	0	0	0	0	0	0	0	1	4	0	5
8:15 AM	0	0	1	0	0	0	0	0	0	4	7	0	12
8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3
8:45 AM	0	1	0	0	0	0	0	2	0	2	2	0	7
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1	6	0	2	0	1	10	2	19	40	1	82
	0.00%	14.29%	85.71%	0.00%	100.00%	0.00%	7.69%	76.92%	15.38%	31.67%	66.67%	1.67%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	0	1	0	0	0	1	1	0	7	20	0	30
PEAK HR FACTOR :	0.250			0.000			0.250			0.614			0.625

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5663-029

Day: Thursday

City: Los Angeles

BIKES

Date: 11/5/2015

PM

NS/EW Streets:	Central Ave			Central Ave			1st St			1st St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	0	1	0	0	0	0	2	0	1	2	0	
3:00 PM	0	0	0	0	0	0	0	1	0	1	3	0	5
3:15 PM	1	0	0	0	0	0	0	2	1	0	1	0	5
3:30 PM	0	0	0	0	0	0	0	4	1	0	2	0	7
3:45 PM	0	0	1	0	0	0	0	1	0	0	1	0	3
4:00 PM	0	0	2	0	0	0	0	3	0	1	4	0	10
4:15 PM	0	0	2	0	1	0	0	2	0	0	3	0	8
4:30 PM	0	0	0	0	0	0	0	4	0	1	8	0	13
4:45 PM	0	0	2	0	0	0	0	4	1	0	6	0	13
5:00 PM	0	0	0	0	0	0	0	4	1	0	4	0	9
5:15 PM	0	0	3	0	0	0	0	2	0	2	4	0	11
5:30 PM	0	0	0	0	0	0	0	0	1	0	1	0	2
5:45 PM	1	0	1	0	0	0	0	3	0	0	3	1	9
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	0	11	0	1	0	0	30	5	5	40	1	95
	15.38%	0.00%	84.62%	0.00%	100.00%	0.00%	0.00%	85.71%	14.29%	10.87%	86.96%	2.17%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	0	4	0	0	0	0	9	2	2	12	1	31
PEAK HR FACTOR :	0.417			0.000			0.550			0.625			0.705

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-005
 N/S Street: Alameda St
 E/W Street: Ord St_Main St
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	1	0	0	2	1	4	2
6:15 AM	2	0	0	0	5	2	20	1
6:30 AM	0	0	0	0	2	3	25	8
6:45 AM	0	1	0	0	3	1	5	8
7:00 AM	0	0	0	0	2	2	9	6
7:15 AM	0	0	0	0	0	4	6	14
7:30 AM	0	0	0	0	5	0	9	2
7:45 AM	0	0	0	0	2	5	5	9
8:00 AM	0	0	0	0	4	1	8	2
8:15 AM	0	0	0	0	5	1	8	13
8:30 AM	0	0	0	0	5	3	3	5
8:45 AM	0	0	0	0	0	1	7	6
TOTALS	2	2	0	0	35	24	109	76

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	1	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	3	2	9	9
3:15 PM	0	0	0	0	0	4	1	5
3:30 PM	0	0	0	0	2	2	7	8
3:45 PM	0	1	0	0	0	2	13	12
4:00 PM	0	0	0	0	0	1	8	9
4:15 PM	0	0	0	0	3	1	2	5
4:30 PM	0	0	0	0	1	7	2	6
4:45 PM	0	0	0	1	3	4	7	15
5:00 PM	0	0	0	0	1	5	4	6
5:15 PM	0	0	0	0	1	6	8	7
5:30 PM	0	0	0	0	1	2	9	11
5:45 PM	0	0	0	0	2	0	3	3
TOTALS	0	1	0	1	17	36	73	96

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	1
4:00 PM	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	1	3

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-005

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Ord St_Main St			Ord St_Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	0	3	0	0	0	1	0	0	0	
6:00 AM	0	0	1	0	3	0	0	0	0	0	0	0	4
6:15 AM	0	1	1	0	0	0	0	0	0	0	0	0	2
6:30 AM	0	1	1	0	2	0	0	0	0	0	0	0	4
6:45 AM	0	2	1	0	1	0	0	0	0	0	0	0	4
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	1	0	2	1	0	0	0	0	0	0	4
7:30 AM	0	1	0	0	7	0	0	0	0	0	0	0	8
7:45 AM	0	1	0	0	4	1	0	0	0	0	0	0	6
8:00 AM	1	0	1	0	1	0	0	0	0	0	0	0	3
8:15 AM	0	1	1	0	0	1	0	0	0	0	0	0	3
8:30 AM	0	1	1	0	4	0	0	0	0	0	0	0	6
8:45 AM	0	2	0	0	5	1	0	0	0	0	0	0	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	10	8	0	31	4	0	0	0	0	0	0	54
	5.26%	52.63%	42.11%	0.00%	88.57%	11.43%							
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	1	3	3	0	9	2	0	0	0	0	0	0	18
PEAK HR FACTOR :	0.875			0.550			0.000			0.000			0.750

CONTROL : 1-Way Stop (EB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-005

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Ord St_Main St			Ord St_Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	1	1	0	3	0	0	0	0	0	0	0	5
3:15 PM	0	4	1	0	1	0	0	0	0	0	0	0	6
3:30 PM	1	2	1	0	2	0	0	0	0	0	0	0	6
3:45 PM	0	2	0	0	1	0	0	0	1	0	0	0	4
4:00 PM	0	1	5	0	1	0	0	0	0	2	0	0	9
4:15 PM	0	1	1	0	2	0	0	0	0	2	0	0	6
4:30 PM	0	3	1	0	1	0	0	0	2	0	0	0	7
4:45 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
5:00 PM	0	0	4	0	2	0	0	1	0	0	0	0	7
5:15 PM	0	1	1	0	2	0	0	0	0	0	0	0	4
5:30 PM	0	4	3	0	1	0	0	0	0	0	0	0	8
5:45 PM	1	0	3	0	4	0	0	0	0	0	0	0	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	20	21	0	23	0	0	1	3	4	0	0	74
	4.65%	46.51%	48.84%	0.00%	100.00%	0.00%	0.00%	25.00%	75.00%	100.00%	0.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	1	5	11	0	9	0	0	1	0	0	0	0	27
PEAK HR FACTOR :	0.607			0.563			0.250			0.000			0.844

CONTROL : 1-Way Stop (EB)

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-006
 N/S Street: Alameda St
 E/W Street: Main St
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	3	2	4	1
6:15 AM	0	0	1	2	6	2	12	6
6:30 AM	0	0	0	1	3	2	3	4
6:45 AM	0	0	3	6	13	5	1	10
7:00 AM	0	0	2	1	7	3	11	7
7:15 AM	0	0	0	0	8	4	4	15
7:30 AM	0	0	2	1	10	0	6	6
7:45 AM	0	1	0	3	4	8	18	6
8:00 AM	0	0	0	1	12	1	6	9
8:15 AM	0	0	2	4	10	3	12	13
8:30 AM	0	0	4	3	19	4	4	3
8:45 AM	0	0	1	2	6	3	7	10
TOTALS	0	1	15	24	101	37	88	90

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	1	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1
TOTALS	0	0	0	0	1	0	0	2

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	2	7	3	4	5	11	15
3:15 PM	0	0	5	2	3	6	4	9
3:30 PM	0	0	2	11	3	8	11	16
3:45 PM	0	0	5	5	4	10	11	21
4:00 PM	0	0	1	4	3	8	8	10
4:15 PM	0	0	1	2	3	1	6	6
4:30 PM	0	0	6	3	10	6	2	16
4:45 PM	0	0	0	2	5	11	11	6
5:00 PM	0	0	0	1	2	8	7	3
5:15 PM	0	0	4	0	5	11	5	5
5:30 PM	0	0	3	1	5	10	4	8
5:45 PM	0	0	1	0	3	3	6	9
TOTALS	0	2	35	34	50	87	86	124

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	1	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	1	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	1	1	0	0	1	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-006

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Main St			Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	2.5	0	0.5	1	0	1	
6:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
6:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
6:30 AM	0	1	0	0	3	0	0	0	0	0	0	0	4
6:45 AM	0	4	1	0	2	0	0	0	0	0	0	0	7
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
7:30 AM	0	1	0	1	3	0	0	0	0	0	0	0	5
7:45 AM	0	2	0	0	2	0	0	1	0	0	0	0	5
8:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	3
8:30 AM	0	1	0	0	7	0	0	0	0	0	0	1	9
8:45 AM	0	0	0	0	2	0	0	1	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	16	1	1	25	0	0	2	0	0	0	1	46
	0.00%	94.12%	5.88%	3.85%	96.15%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	7	0	0	10	0	0	1	0	0	0	1	19
PEAK HR FACTOR :	0.583			0.357			0.250			0.250			0.528

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-006

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Main St			Main St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	2.5	0	0.5	1	0	1	
3:00 PM	0	1	0	0	3	0	1	0	0	0	0	0	5
3:15 PM	0	1	0	0	2	0	2	0	0	0	0	0	5
3:30 PM	0	1	0	0	2	0	2	0	0	0	0	0	5
3:45 PM	0	0	0	0	2	0	1	0	0	0	0	0	3
4:00 PM	0	1	0	0	3	0	4	0	0	0	0	0	8
4:15 PM	0	2	0	0	3	0	0	0	0	0	0	0	5
4:30 PM	0	2	0	0	1	0	1	0	0	0	0	0	4
4:45 PM	0	2	0	0	0	0	1	0	0	0	0	0	3
5:00 PM	0	2	0	0	2	0	2	0	0	0	0	0	6
5:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:30 PM	0	2	0	0	2	0	5	0	0	0	0	0	9
5:45 PM	0	2	0	0	3	1	1	0	0	0	0	1	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	16	0	0	24	1	20	0	0	0	0	1	62
	0.00%	100.00%	0.00%	0.00%	96.00%	4.00%	100.00%	0.00%	0.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	445 PM												TOTAL
PEAK HR VOL :	0	6	0	0	5	0	8	0	0	0	0	0	19
PEAK HR FACTOR :	0.750			0.625			0.400			0.000			0.528

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-009
 N/S Street: Main St
 E/W Street: Cesar E. Chavez Ave
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	2	5	5	4	2	2	0	0
6:15 AM	1	7	12	3	13	3	0	0
6:30 AM	5	4	3	3	0	3	0	1
6:45 AM	1	6	3	1	5	1	0	0
7:00 AM	2	4	5	0	9	3	0	0
7:15 AM	7	5	7	1	4	4	1	0
7:30 AM	8	5	7	0	9	7	0	1
7:45 AM	7	9	3	6	6	4	0	0
8:00 AM	12	5	6	3	3	11	0	0
8:15 AM	9	3	4	1	5	10	0	0
8:30 AM	9	4	10	3	5	8	0	0
8:45 AM	7	4	1	6	2	6	0	0
TOTALS	70	61	66	31	63	62	1	2

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	1	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	1	0	0	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	18	13	2	8	10	11	0	0
3:15 PM	13	17	9	8	13	2	0	0
3:30 PM	15	16	8	6	18	5	0	0
3:45 PM	17	16	9	5	10	10	0	0
4:00 PM	16	26	13	8	13	11	1	0
4:15 PM	14	16	10	18	13	9	1	1
4:30 PM	15	19	12	7	13	3	1	0
4:45 PM	16	15	10	4	20	8	0	0
5:00 PM	11	9	20	7	10	7	0	0
5:15 PM	7	19	13	7	17	3	0	0
5:30 PM	6	26	11	7	26	3	0	0
5:45 PM	7	16	9	7	17	1	0	0
TOTALS	155	208	126	92	180	73	3	1

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	5	0	0	0	0	0
3:30 PM	0	0	17	0	5	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	3	1	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	1	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	1	1	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	28	2	5	0	1	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-009

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Main St			Main St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1.5	2.5	0	0	0	0	1	2	0	0	3	0	
6:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
6:15 AM	2	0	0	0	1	0	0	2	0	0	0	0	5
6:30 AM	1	0	1	0	2	0	0	1	0	0	1	0	6
6:45 AM	0	1	0	0	0	0	0	1	0	0	0	0	2
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1
7:15 AM	0	0	0	0	1	0	0	2	0	1	1	0	5
7:30 AM	0	0	0	0	3	0	0	0	0	0	1	0	4
7:45 AM	1	1	0	0	0	1	0	0	0	0	1	0	4
8:00 AM	2	0	0	0	0	0	0	0	1	0	0	0	3
8:15 AM	0	0	0	0	0	0	0	2	0	0	2	0	4
8:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	4
8:45 AM	0	1	1	0	0	1	1	1	0	0	3	0	8
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	6	3	2	0	7	2	1	11	1	1	13	0	47
	54.55%	27.27%	18.18%	0.00%	77.78%	22.22%	7.69%	84.62%	7.69%	7.14%	92.86%	0.00%	
PEAK HR START TIME :	800 AM												TOTAL
PEAK HR VOL :	2	1	1	0	0	1	1	3	1	0	9	0	19
PEAK HR FACTOR :	0.500			0.250			0.625			0.563			0.594

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-009

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Main St			Main St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL																	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																				
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																	
	1.5	2.5	0	0	0	0	1	2	0	0	3	0																		
3:00 PM	2	1	0	0	3	0	0	5	0	0	0	0	11																	
3:15 PM	1	5	1	0	0	0	0	0	0	0	1	0	8																	
3:30 PM	2	2	0	0	1	0	0	1	1	0	0	0	7																	
3:45 PM	1	2	1	0	0	0	0	2	0	0	0	0	6																	
4:00 PM	2	4	0	0	0	0	1	2	0	0	3	0	12																	
4:15 PM	1	0	0	0	0	0	0	0	0	0	2	0	3																	
4:30 PM	2	1	0	0	0	0	1	2	0	0	1	0	7																	
4:45 PM	0	0	0	0	1	0	1	0	0	0	3	0	5																	
5:00 PM	1	2	0	0	1	0	0	6	0	0	1	0	11																	
5:15 PM	1	0	0	0	0	0	0	4	0	0	4	0	9																	
5:30 PM	2	7	0	0	0	0	0	2	0	0	0	0	11																	
5:45 PM	1	3	0	0	0	0	0	1	0	0	2	0	7																	
TOTAL VOLUMES :	NL 16	NT 27	NR 2	SL 0	ST 6	SR 0	EL 3	ET 25	ER 1	WL 0	WT 17	WR 0	TOTAL 97																	
APPROACH %'s :	35.56%	60.00%	4.44%	0.00%	100.00%	0.00%	10.34%	86.21%	3.45%	0.00%	100.00%	0.00%																		
PEAK HR START TIME :	500 PM												TOTAL																	
PEAK HR VOL :	5			12			0			0			13			0			0			7			0			38		
PEAK HR FACTOR :	0.472			0.250			0.542			0.438			0.864																	

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-010

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
6:00 AM	0	4	0	0	1	0	0	0	0	0	1	0	6
6:15 AM	0	1	0	0	3	0	0	1	0	0	2	0	7
6:30 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
6:45 AM	0	2	0	0	4	0	0	1	0	0	2	0	9
7:00 AM	0	1	0	0	0	0	0	1	0	0	1	0	3
7:15 AM	0	1	0	0	0	0	0	2	0	0	1	0	4
7:30 AM	0	3	0	0	0	0	0	0	0	0	0	0	3
7:45 AM	1	5	0	0	1	2	0	3	0	0	0	0	12
8:00 AM	0	0	0	0	1	1	0	0	0	0	0	0	2
8:15 AM	0	3	0	0	0	0	0	2	0	1	1	0	7
8:30 AM	1	4	0	0	0	0	0	3	0	0	0	0	8
8:45 AM	0	3	0	1	0	0	0	1	0	0	1	0	6
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	2	28	0	1	12	3	0	14	0	1	9	0	70
	6.67%	93.33%	0.00%	6.25%	75.00%	18.75%	0.00%	100.00%	0.00%	10.00%	90.00%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	2	12	0	0	2	3	0	8	0	1	1	0	29
PEAK HR FACTOR :	0.583			0.417			0.667			0.250			0.604

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-010

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
	1	3	0	1	2	0	1	2	1	1	3	0																											
3:00 PM	2	2	0	0	1	0	0	2	0	0	3	0	10																										
3:15 PM	0	1	0	0	0	0	0	2	0	0	2	0	5																										
3:30 PM	0	2	0	0	1	0	0	1	0	0	0	0	4																										
3:45 PM	1	0	0	0	0	0	0	0	0	0	2	0	3																										
4:00 PM	0	1	1	0	3	0	0	3	0	0	1	1	10																										
4:15 PM	1	2	0	0	1	0	1	2	1	0	1	0	9																										
4:30 PM	0	2	0	0	2	0	0	0	0	0	2	0	6																										
4:45 PM	0	2	0	0	1	0	0	1	0	0	0	0	4																										
5:00 PM	0	2	0	0	2	0	0	3	0	0	4	0	11																										
5:15 PM	0	4	0	0	1	0	0	3	0	0	4	0	12																										
5:30 PM	0	2	0	0	2	0	0	0	0	0	4	0	8																										
5:45 PM	0	4	0	0	2	0	0	1	0	0	2	0	9																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	4	24	1	0	16	0	1	18	1	0	25	1	91																										
	13.79%	82.76%	3.45%	0.00%	100.00%	0.00%	5.00%	90.00%	5.00%	0.00%	96.15%	3.85%																											
PEAK HR START TIME :	445 PM												TOTAL																										
PEAK HR VOL :	0			10			0			0			6			0			0			7			0			0			12			0			35		
PEAK HR FACTOR :	0.625			0.750			0.583			0.750			0.729																										

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-012
 N/S Street: Vignes St
 E/W Street: Cesar E. Chavez Ave
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	6	2	4	2	5	0	17	28
6:15 AM	3	1	3	3	4	2	8	46
6:30 AM	2	1	9	4	3	0	8	43
6:45 AM	0	1	2	0	0	1	13	50
7:00 AM	3	1	4	3	3	0	8	43
7:15 AM	3	1	2	2	2	1	12	63
7:30 AM	6	3	2	9	4	4	25	43
7:45 AM	8	3	4	2	2	1	7	49
8:00 AM	0	1	1	4	0	0	11	81
8:15 AM	5	0	0	4	1	0	11	53
8:30 AM	1	3	2	2	0	1	6	45
8:45 AM	2	0	4	2	1	4	6	59
TOTALS	39	17	37	37	25	14	132	603

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	0	0	0	3
6:45 AM	0	0	0	0	0	0	0	1
7:00 AM	0	1	0	1	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	1	0	1	0	0	0	5

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	1	1	3	10	3	8	2	30
3:15 PM	1	4	1	3	0	4	7	66
3:30 PM	2	4	6	9	1	4	9	67
3:45 PM	0	6	1	6	0	4	7	61
4:00 PM	1	12	7	7	2	6	7	65
4:15 PM	2	4	8	3	2	2	14	72
4:30 PM	0	4	4	5	0	2	9	57
4:45 PM	2	2	2	10	1	3	8	80
5:00 PM	0	2	6	1	6	2	4	56
5:15 PM	0	0	2	2	1	3	2	32
5:30 PM	0	1	3	4	2	1	7	56
5:45 PM	0	3	2	8	0	2	3	21
TOTALS	9	43	45	68	18	41	79	663

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	1
3:30 PM	0	0	1	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	3	0	0	0	0	1

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-012

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St			Vignes St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL																										
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																													
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR																											
	1	2	1	1	2	0	1	2	1	1	2	1																											
6:00 AM	0	1	0	0	2	0	0	0	0	0	0	0	3																										
6:15 AM	0	2	0	0	2	0	0	0	1	0	0	0	5																										
6:30 AM	0	0	0	0	0	0	0	3	1	0	0	0	4																										
6:45 AM	0	0	0	0	2	0	0	1	0	0	1	0	4																										
7:00 AM	0	1	0	0	1	0	0	1	0	0	0	0	3																										
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0																											
7:30 AM	0	0	0	0	2	0	0	0	0	0	3	0	5																										
7:45 AM	1	1	0	0	1	0	0	1	0	0	1	0	5																										
8:00 AM	1	0	0	0	1	0	0	1	0	0	2	0	5																										
8:15 AM	0	0	0	0	2	0	0	0	0	0	6	0	8																										
8:30 AM	0	1	0	0	1	0	0	1	0	0	3	0	6																										
8:45 AM	0	0	0	0	2	0	0	1	0	0	0	0	3																										
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																										
APPROACH %'s :	2	6	0	0	16	0	0	9	2	0	16	0	51																										
	25.00%	75.00%	0.00%	0.00%	100.00%	0.00%	0.00%	81.82%	18.18%	0.00%	100.00%	0.00%																											
PEAK HR START TIME :	730 AM												TOTAL																										
PEAK HR VOL :	2			1			0			0			6			0			0			2			0			0			12			0			23		
PEAK HR FACTOR :	0.375			0.750			0.500			0.500			0.719																										

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-012

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St			Vignes St			Cesar E. Chavez Ave			Cesar E. Chavez Ave			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	2	1	1	2	0	1	2	1	1	2	1	
3:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
3:15 PM	0	0	0	0	1	0	0	0	0	0	3	0	4
3:30 PM	0	1	0	0	0	0	0	2	0	0	0	0	3
3:45 PM	0	2	1	0	0	0	0	0	0	0	0	0	3
4:00 PM	0	2	0	0	1	0	0	1	0	0	2	0	6
4:15 PM	1	0	1	0	0	0	0	1	0	0	2	0	5
4:30 PM	0	2	0	0	1	0	0	1	0	0	0	0	4
4:45 PM	1	0	0	0	3	0	0	0	0	0	0	0	4
5:00 PM	0	0	0	0	0	0	0	1	0	0	4	0	5
5:15 PM	2	1	0	0	1	0	0	5	0	0	3	0	12
5:30 PM	0	2	0	0	2	0	0	3	0	0	0	0	7
5:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	4	10	2	0	11	0	0	15	0	0	14	0	56
	25.00%	62.50%	12.50%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	2	3	0	0	5	0	0	9	0	0	7	0	26
PEAK HR FACTOR :	0.417			0.625			0.450			0.438			0.542

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-015

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St (North)			Alameda St (North)			Los Angeles St			Los Angeles St			TOTAL											
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND														
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
	0	3	0	0	4	0	0	0	0	1	1	1												
6:00 AM	0	0	0	0	4	0	0	0	0	0	0	0	4											
6:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1											
6:30 AM	0	0	0	0	2	0	0	0	1	0	4	0	7											
6:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	3											
7:00 AM	0	0	0	0	2	0	0	0	0	1	1	0	4											
7:15 AM	0	2	0	0	0	1	0	0	0	0	0	0	3											
7:30 AM	0	1	0	0	2	1	0	0	0	0	1	0	5											
7:45 AM	0	0	0	0	4	0	0	0	0	0	0	0	4											
8:00 AM	0	0	0	0	1	2	0	0	0	0	1	0	4											
8:15 AM	0	1	0	0	0	0	1	0	0	1	4	0	7											
8:30 AM	0	1	0	0	1	1	0	0	0	0	1	1	5											
8:45 AM	0	1	0	0	0	1	0	0	0	1	0	0	3											
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL											
APPROACH %'s :	0	9	0	0	16	6	1	0	1	3	12	2	50											
	0.00%	100.00%	0.00%	0.00%	72.73%	27.27%	50.00%	0.00%	50.00%	17.65%	70.59%	11.76%												
PEAK HR START TIME :	745 AM												TOTAL											
PEAK HR VOL :	0			2			0			0			1			6			1			20		
PEAK HR FACTOR :	0.500			0.563			0.250			0.400			0.714											

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-015

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St (North)			Alameda St (North)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
3:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	1	3	0	0	0	0	1	0	0	5
3:45 PM	0	2	0	0	0	0	0	0	0	0	0	2	4
4:00 PM	0	1	0	0	0	1	0	1	0	0	0	0	3
4:15 PM	0	2	0	1	2	0	0	0	0	0	0	0	5
4:30 PM	0	4	0	1	4	0	0	1	0	0	0	1	11
4:45 PM	0	3	0	0	4	0	0	0	0	0	1	0	8
5:00 PM	0	3	0	0	0	0	0	0	0	0	1	1	5
5:15 PM	0	2	0	0	0	0	0	1	0	0	0	0	3
5:30 PM	0	1	0	0	3	0	1	0	0	0	0	0	5
5:45 PM	0	2	0	0	0	0	0	0	0	0	2	0	4
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	21	0	3	16	1	1	3	0	1	4	4	54
	0.00%	100.00%	0.00%	15.00%	80.00%	5.00%	25.00%	75.00%	0.00%	11.11%	44.44%	44.44%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	5	0	2	5	1	0	1	0	1	0	2	17
PEAK HR FACTOR :	0.625			0.500			0.250			0.375			0.850

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-016
 N/S Street: Alameda St
 E/W Street: US-101 NB Ramp
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	3	1	2	2
6:15 AM	0	0	0	0	1	0	0	1
6:30 AM	0	0	0	0	1	0	3	3
6:45 AM	0	0	1	0	1	1	7	5
7:00 AM	0	0	0	0	2	0	9	5
7:15 AM	0	0	0	0	2	3	7	3
7:30 AM	0	0	0	0	1	0	4	1
7:45 AM	0	0	0	0	3	1	14	5
8:00 AM	0	0	0	0	0	1	5	5
8:15 AM	0	0	0	0	6	0	4	2
8:30 AM	0	0	0	0	1	0	10	8
8:45 AM	0	0	0	0	5	0	13	5
TOTALS	0	0	1	0	26	7	78	45

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	1	1
6:30 AM	0	0	0	0	1	0	0	0
6:45 AM	0	0	0	0	1	0	1	0
7:00 AM	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	1	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	2	1	1
8:45 AM	0	0	0	0	0	1	0	0
TOTALS	0	0	0	0	4	3	4	2

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	3	3	11	5
3:15 PM	1	0	0	0	8	4	6	7
3:30 PM	0	0	0	0	2	4	3	1
3:45 PM	0	0	0	0	5	3	8	8
4:00 PM	0	0	0	0	2	1	8	7
4:15 PM	0	0	0	0	4	0	6	7
4:30 PM	0	0	0	0	3	6	5	3
4:45 PM	0	0	0	0	2	0	7	2
5:00 PM	0	0	0	0	2	3	2	2
5:15 PM	0	0	0	0	1	4	7	7
5:30 PM	0	0	0	0	2	6	18	8
5:45 PM	0	0	0	0	0	0	7	9
TOTALS	1	0	0	0	34	34	88	66

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	1	0	0
3:15 PM	0	0	0	0	0	3	0	0
3:30 PM	0	0	0	0	0	2	0	0
3:45 PM	0	0	0	0	0	1	0	0
4:00 PM	0	0	0	0	1	0	0	1
4:15 PM	0	0	0	0	0	0	0	1
4:30 PM	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	1	0	0
5:00 PM	0	0	0	0	0	1	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	3	3	0
TOTALS	0	0	0	0	1	12	4	2

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-016

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			US-101 NB Ramp			US-101 NB Ramp			TOTAL																				
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																							
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																				
	1	2	0	0	3	0	0	0	0	0	0	0																					
6:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3																				
6:15 AM	0	0	0	0	2	0	0	0	0	0	0	1	3																				
6:30 AM	0	2	0	0	1	0	0	0	0	0	0	0	3																				
6:45 AM	0	2	0	0	0	0	0	0	0	0	0	0	2																				
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2																				
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0																				
7:30 AM	0	1	0	0	5	0	0	0	0	0	0	0	6																				
7:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	4																				
8:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3																				
8:15 AM	0	1	0	0	2	0	0	0	0	0	0	0	3																				
8:30 AM	0	2	0	0	3	0	0	0	0	0	0	0	5																				
8:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	4																				
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL																				
APPROACH %'s :	0	13	0	0	24	0	0	0	0	0	0	1	38																				
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%				0.00%	0.00%	100.00%																					
PEAK HR START TIME :	730 AM												TOTAL																				
PEAK HR VOL :	0			5			0			0			11			0			0			0			0			0			16		
PEAK HR FACTOR :	0.417			0.550			0.000			0.000			0.000			0.667																	

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-016

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			US-101 NB Ramp			US-101 NB Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	0	0	3	0	0	0	0	0	0	0	
3:00 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
3:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
3:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
3:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:15 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
4:30 PM	0	3	0	0	2	0	0	0	0	0	0	0	5
4:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:00 PM	0	5	0	0	1	0	0	0	0	0	0	0	6
5:15 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
5:30 PM	0	3	0	0	3	0	0	0	0	0	0	0	6
5:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	23	0	0	16	0	0	0	0	0	0	0	39
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%							
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	4	0	0	5	0	0	0	0	0	0	0	9
PEAK HR FACTOR :	0.500			0.625			0.000			0.000			0.563

CONTROL : No Control

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-017

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Express Lanes Entrance_Exit			Express Lanes Entrance_Exit			TOTAL			
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND						
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR				
	0	1.5	1.5	1	3	0	0	0	0	0	0	0				
6:00 AM	0	1	0	0	4	0	0	0	0	0	0	0	5			
6:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2			
6:30 AM	0	1	0	0	1	0	0	0	0	0	0	0	2			
6:45 AM	0	2	0	0	1	0	0	0	0	0	0	0	3			
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2			
7:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1			
7:30 AM	0	1	0	0	3	0	0	0	0	0	0	0	4			
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2			
8:00 AM	0	2	0	0	1	0	0	0	0	0	0	0	3			
8:15 AM	0	2	0	0	1	0	0	0	0	0	0	0	3			
8:30 AM	0	1	0	0	4	0	0	0	0	0	0	0	5			
8:45 AM	0	1	0	0	2	0	0	0	0	0	0	0	3			
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL			
APPROACH %'s :	0	12	0	0	23	0	0	0	0	0	0	0	35			
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%										
PEAK HR START TIME :	730 AM												TOTAL			
PEAK HR VOL :	0			6			0			0			0			12
PEAK HR FACTOR :	0.750			0.500			0.000			0.000			0.750			

CONTROL : Unsignalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-017

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Express Lanes Entrance_Exit			Express Lanes Entrance_Exit			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	1.5	1.5	1	3	0	0	0	0	0	0	0	
3:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	2
3:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
4:00 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
4:15 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
4:30 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
4:45 PM	0	2	0	0	2	0	0	0	0	0	0	0	4
5:00 PM	0	4	0	0	1	0	0	0	0	0	0	0	5
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:45 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	20	0	1	13	0	0	0	0	0	0	0	34
	0.00%	100.00%	0.00%	7.14%	92.86%	0.00%							
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	6	0	0	4	0	0	0	0	0	0	0	10
PEAK HR FACTOR :	0.750			0.500			0.000			0.000			0.625

CONTROL : Unsignalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-018
 N/S Street: Alameda St
 E/W Street: Arcadia St_US-101 NB Off Ramp
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	1	18	0	0	1	26	1	6
6:15 AM	2	9	0	0	0	14	1	8
6:30 AM	4	22	0	0	6	48	3	18
6:45 AM	1	12	0	0	1	39	0	12
7:00 AM	1	14	0	0	5	35	0	13
7:15 AM	1	13	0	0	2	41	1	12
7:30 AM	7	14	0	0	3	40	1	7
7:45 AM	2	12	0	0	1	33	2	11
8:00 AM	3	18	0	0	2	52	2	17
8:15 AM	4	16	0	0	3	46	5	17
8:30 AM	1	5	0	0	3	23	7	5
8:45 AM	2	9	0	0	0	32	1	6
TOTALS	29	162	0	0	27	429	24	132

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	1	1	0	0
7:00 AM	0	1	0	0	1	2	0	0
7:15 AM	0	0	0	0	0	2	0	0
7:30 AM	0	0	0	0	0	1	0	0
7:45 AM	0	0	0	0	1	2	0	0
8:00 AM	0	0	0	0	0	1	0	0
8:15 AM	0	1	0	0	1	2	0	0
8:30 AM	0	0	0	0	0	1	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	2	0	0	4	12	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	16	3	0	0	13	5	14	5
3:15 PM	16	1	0	0	18	2	16	6
3:30 PM	28	0	0	0	16	9	33	1
3:45 PM	25	1	0	0	18	6	25	0
4:00 PM	44	3	0	0	37	3	44	2
4:15 PM	27	3	0	0	26	4	39	4
4:30 PM	58	1	0	0	23	3	70	1
4:45 PM	40	8	0	0	14	9	39	2
5:00 PM	14	1	0	0	26	10	19	0
5:15 PM	2	0	0	0	15	2	5	0
5:30 PM	8	1	0	0	9	10	14	0
5:45 PM	6	0	0	0	17	6	6	0
TOTALS	284	22	0	0	232	69	324	21

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	1	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	1	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-018

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Arcadia St_US-101 NB Off Ramp			Arcadia St_US-101 NB Off Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	3	0	0	3	0	0	0	0	1.5	1	1.5	
6:00 AM	0	0	0	0	3	0	0	0	0	0	1	0	4
6:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
6:30 AM	0	2	0	1	1	0	0	0	0	0	0	0	4
6:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:15 AM	0	1	0	0	2	0	0	0	0	0	2	0	5
7:30 AM	1	1	0	0	6	0	0	0	0	0	2	0	10
7:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	4	0	0	0	0	0	2	0	6
8:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:30 AM	0	2	0	0	5	1	0	0	0	0	0	0	8
8:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	1	10	0	1	31	1	0	0	0	0	7	0	51
	9.09%	90.91%	0.00%	3.03%	93.94%	3.03%				0.00%	100.00%	0.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	1	3	0	0	14	0	0	0	0	0	4	0	22
PEAK HR FACTOR :	0.500			0.583			0.000			0.500			0.550

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-018

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Arcadia St_US-101 NB Off Ramp			Arcadia St_US-101 NB Off Ramp			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	1	3	0	0	3	0	0	0	0	1.5	1	1.5	
3:00 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
3:15 PM	0	4	0	0	1	0	0	0	0	0	0	0	5
3:30 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
3:45 PM	0	1	0	0	2	0	0	0	0	0	0	0	3
4:00 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1
4:30 PM	0	1	0	0	3	0	0	0	0	0	0	0	4
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:30 PM	0	3	0	0	3	0	0	0	0	0	0	0	6
5:45 PM	0	5	0	0	2	0	0	0	0	0	0	0	7
TOTAL VOLUMES :	0	28	0	0	14	0	0	0	0	0	0	0	42
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%							
PEAK HR START TIME :	3:30 PM												TOTAL
PEAK HR VOL :	0	6	0	0	4	0	0	0	0	0	0	0	10
PEAK HR FACTOR :	0.750			0.500			0.000			0.000			0.833

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-019
 N/S Street: Alameda St
 E/W Street: Aliso St_Commercial St
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	16	41	0	21	0	4
6:15 AM	0	0	1	33	0	17	1	9
6:30 AM	0	0	2	48	5	27	1	17
6:45 AM	0	0	0	70	1	45	0	8
7:00 AM	0	0	3	67	5	34	0	13
7:15 AM	0	0	0	62	0	38	2	12
7:30 AM	0	0	2	47	2	39	1	6
7:45 AM	0	0	2	60	2	23	1	7
8:00 AM	0	0	7	74	1	46	2	11
8:15 AM	0	0	5	49	4	40	3	12
8:30 AM	0	0	7	41	3	24	0	2
8:45 AM	0	0	4	43	0	27	1	6
TOTALS	0	0	49	635	23	381	12	107

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	1	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	1	0	1	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	2	0	1	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	36	5	12	6	16	3
3:15 PM	0	0	36	5	6	2	18	6
3:30 PM	0	0	38	6	18	8	33	1
3:45 PM	0	0	22	10	11	5	28	2
4:00 PM	0	1	57	1	33	0	44	4
4:15 PM	0	0	27	10	23	8	28	3
4:30 PM	0	0	69	5	21	4	73	2
4:45 PM	0	0	37	0	15	5	30	4
5:00 PM	0	0	37	10	18	7	20	1
5:15 PM	0	0	17	4	8	4	11	1
5:30 PM	0	0	15	6	8	12	12	0
5:45 PM	0	0	18	5	9	5	6	0
TOTALS	0	1	409	67	182	66	319	27

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	2
4:30 PM	0	0	0	0	0	1	0	0
4:45 PM	0	0	0	0	1	0	1	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	1	1	1	2

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-019

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St			Alameda St			Aliso St_Commercial St			Aliso St_Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	1	1	3	0	2	1	1	1	0	1	
6:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
6:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
6:30 AM	0	2	1	1	0	0	0	1	0	0	0	0	5
6:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
7:00 AM	0	0	1	0	2	0	0	0	0	0	0	0	3
7:15 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
7:30 AM	0	0	0	0	8	0	0	0	0	0	1	0	9
7:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
8:00 AM	0	0	0	0	4	0	0	0	0	0	0	0	4
8:15 AM	0	3	0	0	1	0	0	0	0	0	0	0	4
8:30 AM	0	1	0	1	3	0	0	0	0	0	0	0	5
8:45 AM	0	1	0	0	2	0	0	0	0	0	0	0	3
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	11	2	2	30	0	0	1	0	0	1	0	47
	0.00%	84.62%	15.38%	6.25%	93.75%	0.00%	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	7	0	1	9	0	0	0	0	0	0	0	17
PEAK HR FACTOR :	0.583			0.625			0.000			0.000			0.850

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-019

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St			Alameda St			Aliso St_Commercial St			Aliso St_Commercial St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	2	1	1	3	0	2	1	1	1	0	1	3
3:00 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
3:15 PM	0	5	0	0	1	0	0	0	0	0	0	0	6
3:30 PM	0	3	0	0	1	0	1	0	0	0	0	0	5
3:45 PM	0	0	0	0	3	0	0	0	0	0	0	0	3
4:00 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
4:15 PM	0	2	0	0	0	0	0	0	0	0	0	1	3
4:30 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
4:45 PM	0	4	0	0	2	0	0	1	0	0	0	0	7
5:00 PM	0	6	0	0	1	0	0	0	0	0	0	0	7
5:15 PM	0	3	0	0	2	0	0	0	0	0	0	0	5
5:30 PM	0	4	0	0	2	0	1	0	0	0	0	0	7
5:45 PM	0	6	0	0	1	0	0	0	0	0	0	0	7
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	39	0	0	16	0	2	1	0	0	0	1	59
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%	66.67%	33.33%	0.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	330 PM												TOTAL
PEAK HR VOL :	0	7	0	0	5	0	1	0	0	0	0	1	14
PEAK HR FACTOR :	0.583			0.417			0.250			0.250			0.700

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-021

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St_US-101 NB Ramps			Vignes St_US-101 NB Ramps			Ramirez St			Ramirez St																	
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND																	
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
	3	2	1	2	2	0	1.5	1	0.5	0	2	1															
6:00 AM	0	0	0	0	0	0	1	0	0	0	0	0	1														
6:15 AM	0	0	0	1	0	1	0	0	0	0	0	0	2														
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0															
6:45 AM	0	0	0	1	0	0	0	1	0	0	0	0	2														
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1														
7:15 AM	0	0	0	1	0	0	0	1	0	0	0	0	2														
7:30 AM	0	0	0	0	0	0	1	1	0	0	0	0	2														
7:45 AM	0	0	0	0	0	0	0	1	0	0	0	0	1														
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1														
8:15 AM	0	0	0	1	0	0	0	1	0	0	0	0	2														
8:30 AM	0	0	0	0	0	0	0	2	0	0	0	0	2														
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0															
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL														
APPROACH %'s :	0	0	0	5	0	1	2	7	0	0	1	0	16														
	83.33%			0.00%			16.67%			22.22%			77.78%			0.00%			0.00%			100.00%			0.00%		
PEAK HR START TIME :	730 AM												TOTAL														
PEAK HR VOL :	0	0	0	2	0	0	1	3	0	0	0	0	6														
PEAK HR FACTOR :	0.000			0.500			0.500			0.000			0.750														

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-021

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St_US-101 NB Ramps			Vignes St_US-101 NB Ramps			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
	3	2	1	2	2	0	1.5	1	0.5	0	2	1	
3:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1
3:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
3:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	2
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	3
4:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
4:30 PM	0	0	0	1	0	1	0	0	0	0	1	2	5
4:45 PM	0	0	0	1	0	0	1	0	0	0	1	0	3
5:00 PM	0	0	0	0	0	1	0	0	0	0	1	0	2
5:15 PM	0	0	0	1	0	1	0	0	0	0	0	0	2
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	2	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	1	0	3	0	4	1	1	0	0	7	7	24
	0.00%	100.00%	0.00%	42.86%	0.00%	57.14%	50.00%	50.00%	0.00%	0.00%	50.00%	50.00%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	0	0	0	2	0	2	1	1	0	0	3	2	11
PEAK HR FACTOR :	0.000			0.500			0.500			0.417			0.550

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: 15-5779-115
 N/S Street: Alameda St (South)
 E/W Street: Los Angeles St
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	1	4	4	2	1	3	1
6:15 AM	0	0	3	1	3	3	1	3
6:30 AM	0	0	3	11	2	2	0	3
6:45 AM	0	0	3	9	1	3	2	1
7:00 AM	0	1	3	20	4	1	1	2
7:15 AM	0	0	0	3	3	6	2	1
7:30 AM	0	0	4	23	4	1	1	1
7:45 AM	0	0	3	11	2	5	2	2
8:00 AM	0	0	4	13	2	0	1	3
8:15 AM	0	0	7	13	7	2	5	0
8:30 AM	0	0	6	8	4	3	1	0
8:45 AM	0	0	6	15	10	2	3	3
TOTALS	0	2	46	131	44	29	22	20

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	0
6:30 AM	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	1	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	1
TOTALS	0	0	0	1	0	0	0	1

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	10	3	0	3	2	4
3:15 PM	0	0	13	13	3	2	3	5
3:30 PM	0	0	26	12	2	4	5	1
3:45 PM	0	0	14	6	4	5	0	5
4:00 PM	0	0	19	10	3	3	3	1
4:15 PM	0	0	13	4	8	2	5	4
4:30 PM	0	0	26	3	4	6	2	4
4:45 PM	0	0	15	2	1	3	3	1
5:00 PM	0	0	4	6	5	2	3	5
5:15 PM	0	0	12	6	1	5	1	1
5:30 PM	0	0	20	2	7	10	3	1
5:45 PM	0	0	3	0	5	5	2	1
TOTALS	0	0	175	67	43	50	32	33

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	1	1	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	1	0	0	1	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	1	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	1	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	2	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	4	1	1	1	1	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-115

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Alameda St (South)			Alameda St (South)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
6:00 AM	0	0	0	2	2	0	0	0	0	1	0	0	5
6:15 AM	0	0	0	0	0	0	0	1	0	0	1	0	2
6:30 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
6:45 AM	0	3	0	0	0	0	0	0	0	0	0	0	3
7:00 AM	0	0	0	0	3	0	0	0	0	0	0	0	3
7:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	0	0	2	0	2	0	0	5
7:45 AM	0	0	0	1	3	0	0	0	0	1	0	0	5
8:00 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
8:15 AM	0	1	0	0	1	0	1	0	0	1	2	0	6
8:30 AM	0	1	0	0	2	0	0	0	0	0	1	0	4
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	8	0	4	15	0	1	3	0	5	4	0	40
	0.00%	100.00%	0.00%	21.05%	78.95%	0.00%	25.00%	75.00%	0.00%	55.56%	44.44%	0.00%	
PEAK HR START TIME :	745 AM												TOTAL
PEAK HR VOL :	0	2	0	2	6	0	1	0	0	2	3	0	16
PEAK HR FACTOR :	0.500			0.500			0.250			0.417			0.667

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: 15-5779-115

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Alameda St (South)			Alameda St (South)			Los Angeles St			Los Angeles St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	0	3	0	1	3	0	1.5	1	0.5	0	0	0	
3:00 PM	0	1	1	0	0	0	0	1	0	0	0	0	3
3:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1
3:30 PM	0	1	0	0	0	0	0	1	0	2	0	0	4
3:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1
4:00 PM	0	1	0	1	0	0	0	1	0	0	0	0	3
4:15 PM	0	0	0	0	1	0	0	3	1	0	0	0	5
4:30 PM	0	1	1	0	2	0	0	2	0	0	1	0	7
4:45 PM	0	1	1	0	1	0	1	2	0	0	0	0	6
5:00 PM	0	1	4	0	1	0	0	4	0	0	0	1	11
5:15 PM	0	1	0	1	0	0	0	7	0	0	0	0	9
5:30 PM	0	0	0	0	1	0	1	2	0	0	0	0	4
5:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	9	7	2	6	0	2	24	1	2	2	1	56
	0.00%	56.25%	43.75%	25.00%	75.00%	0.00%	7.41%	88.89%	3.70%	40.00%	40.00%	20.00%	
PEAK HR START TIME :	300 PM												TOTAL
PEAK HR VOL :	0	2	1	0	0	0	0	3	0	2	1	0	9
PEAK HR FACTOR :	0.375			0.000			0.750			0.375			0.563

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: Historical
 N/S Street: Vignes St
 E/W Street: Bauchet St
 DATE: 11/19/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	7	0	10	1	0	0	3	2
6:15 AM	2	1	5	0	1	0	0	0
6:30 AM	2	0	5	1	1	0	1	1
6:45 AM	6	0	4	5	0	2	3	1
7:00 AM	1	0	2	0	0	0	0	1
7:15 AM	1	0	3	2	0	0	2	3
7:30 AM	2	1	5	3	1	0	0	1
7:45 AM	2	0	0	2	0	0	2	2
8:00 AM	3	0	4	0	0	0	1	1
8:15 AM	4	2	6	1	2	3	0	2
8:30 AM	0	0	6	5	1	0	0	1
8:45 AM	0	0	3	1	0	2	2	0
TOTALS	30	4	53	21	6	7	14	15

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
6:00 AM	0	0	0	0	0	0	0	0
6:15 AM	0	0	0	0	0	0	0	1
6:30 AM	1	0	0	0	0	0	0	0
6:45 AM	1	0	0	0	0	0	0	0
7:00 AM	1	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	1	0	0	0	0	0	0	0
8:30 AM	0	0	0	1	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
TOTALS	4	0	0	1	0	0	0	1

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	1	4	9	9	3	0	2	2
3:15 PM	0	5	2	11	0	0	0	0
3:30 PM	0	5	4	11	1	0	1	1
3:45 PM	0	4	11	14	2	1	0	1
4:00 PM	0	5	7	12	0	0	1	0
4:15 PM	0	0	15	13	1	1	0	0
4:30 PM	0	10	7	9	1	0	0	2
4:45 PM	0	2	4	7	0	0	5	0
5:00 PM	0	2	9	7	0	0	0	0
5:15 PM	0	1	3	6	0	0	0	0
5:30 PM	0	1	3	5	0	0	0	0
5:45 PM	0	1	1	5	0	0	0	1
TOTALS	1	40	75	109	8	2	9	7

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	1	1	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	0	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	1	1	0	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

AM

NS/EW Streets:	Vignes St			Vignes St			Bauchet St			Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	0	0	1	0	1	1	0	
6:00 AM	0	1	1	0	0	0	0	0	0	0	0	0	2
6:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	
6:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	1
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	1	1
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
7:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
7:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1
8:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	
8:30 AM	0	0	0	0	1	0	0	1	0	0	0	0	2
8:45 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	3	1	1	4	0	0	1	0	0	0	1	11
	0.00%	75.00%	25.00%	20.00%	80.00%	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%	100.00%	
PEAK HR START TIME :	730 AM												TOTAL
PEAK HR VOL :	0	1	0	0	2	0	0	0	0	0	0	0	3
PEAK HR FACTOR :	0.250			0.500			0.000			0.000			0.750

CONTROL : Signalized

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

BIKES

Date: 11/19/2015

PM

NS/EW Streets:	Vignes St			Vignes St			Bauchet St			Bauchet St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
	1	2	1	1	2	0	0	1	0	1	1	0	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	1	1
3:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	1
3:30 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
3:45 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
4:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2
5:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
5:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:30 PM	0	1	0	0	1	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
TOTAL VOLUMES :	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	TOTAL
APPROACH %'s :	0	10	0	0	6	0	0	0	0	1	0	1	18
	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%				50.00%	0.00%	50.00%	
PEAK HR START TIME :	415 PM												TOTAL
PEAK HR VOL :	0	1	0	0	3	0	0	0	0	0	0	0	4
PEAK HR FACTOR :	0.250			0.375			0.000			0.000			0.500

CONTROL : Signalized

PREPARED BY NATIONAL DATA & SURVEYING SERVICES

PROJECT#: Historical
 N/S Street: Center St
 E/W Street: Ramirez St
 DATE: 6/18/2015
 CITY: Los Angeles

DAY: Thursday

A M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	2	3	0	0
7:15 AM	0	0	0	0	2	3	0	0
7:30 AM	0	0	0	0	3	2	0	0
7:45 AM	0	0	0	0	1	2	0	0
8:00 AM	2	1	0	0	2	4	0	0
8:15 AM	1	1	0	0	0	1	0	0
8:30 AM	0	0	0	0	0	3	0	0
8:45 AM	0	0	0	0	1	2	0	0
9:00 AM	0	0	0	0	0	2	0	0
9:15 AM	0	0	0	0	1	3	0	0
9:30 AM	0	0	0	0	0	1	0	0
9:45 AM	0	0	0	0	2	0	0	0
TOTALS	3	2	0	0	14	26	0	0

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
7:00 AM	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0
8:00 AM	0	0	0	0	0	0	0	0
8:15 AM	0	0	0	0	0	0	0	0
8:30 AM	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0
9:30 AM	0	0	0	0	0	0	0	0
9:45 AM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	0	0	0	0

P M

Adult Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	1	0	0	0
3:45 PM	0	1	0	0	1	3	0	0
4:00 PM	0	0	0	0	1	1	0	0
4:15 PM	0	0	0	0	3	1	0	0
4:30 PM	0	0	0	0	5	0	0	0
4:45 PM	0	0	0	0	1	0	0	0
5:00 PM	0	0	0	0	1	3	0	0
5:15 PM	0	0	0	0	4	0	0	0
5:30 PM	0	0	0	0	0	1	0	0
5:45 PM	0	0	0	0	1	1	0	0
TOTALS	0	1	0	0	18	10	0	0

School-Aged Pedestrians

T I M E	NORTH LEG		SOUTH LEG		EAST LEG		WEST LEG	
	EB	WB	EB	WB	NB	SB	NB	SB
3:00 PM	0	0	0	0	0	0	0	0
3:15 PM	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0
4:00 PM	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	0
5:00 PM	0	0	0	0	0	0	0	0
5:15 PM	0	0	0	0	1	0	0	0
5:30 PM	0	0	0	0	0	0	0	0
5:45 PM	0	0	0	0	0	0	0	0
TOTALS	0	0	0	0	1	0	0	0

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

BIKES

Date: 6/18/2015

AM

NS/EW Streets:	Center St			Center St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
7:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	0	1	0	0	0	0	0	0	0	2
8:00 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:15 AM	0	0	0	0	2	0	0	0	0	0	0	0	2
8:30 AM	0	0	0	0	1	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	4	0	0	0	0	0	0	0	4
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	2	0	0	1	0	0	0	0	1	0	0	4
9:30 AM	0	1	0	0	1	0	0	0	0	1	0	0	3
9:45 AM	0	1	0	0	5	0	0	0	0	0	0	0	6
TOTAL VOLUMES :	0	6	0	0	20	0	0	0	0	2	0	0	28
APPROACH %'s :	0.00%	100.00%	0.00%	0.00%	100.00%	0.00%				100.00%	0.00%	0.00%	
PEAK HR START TIME :	700 AM												TOTAL
PEAK HR VOL :	0 2 0			0 4 0			0 0 0			0 0 0			6
PEAK HR FACTOR :	0.500			0.500			0.000			0.000			0.750

CONTROL : 1-Way Stop (SB)

Intersection Turning Movement

Prepared by:

National Data & Surveying Services

Project ID: Historical

Day: Thursday

City: Los Angeles

BIKES

Date: 6/18/2015

PM

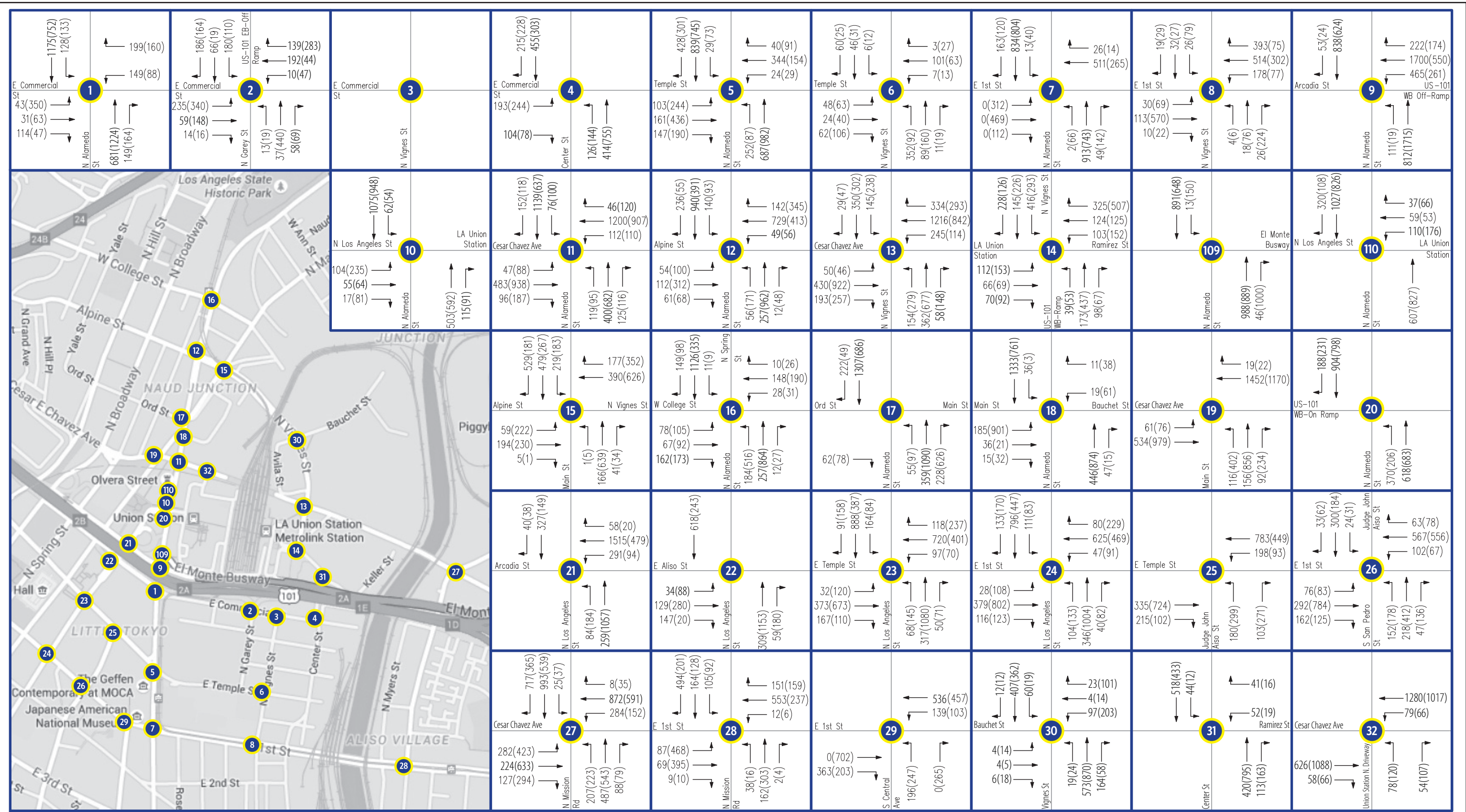
NS/EW Streets:	Center St			Center St			Ramirez St			Ramirez St			TOTAL
	NORTHBOUND			SOUTHBOUND			EASTBOUND			WESTBOUND			
LANES:	NL	NT	NR	SL	ST	SR	EL	ET	ER	WL	WT	WR	
3:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
3:15 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
3:30 PM	0	0	1	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	1	0	0	0	0	0	0	0	1	0	0	2
4:00 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
4:15 PM	0	3	4	0	1	0	0	0	0	1	0	0	9
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	2
5:00 PM	0	3	0	0	0	0	0	0	0	0	0	0	3
5:15 PM	0	2	0	0	1	0	0	0	0	0	0	0	3
5:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1
5:45 PM	0	3	0	1	0	0	0	0	0	0	0	0	4
TOTAL VOLUMES :	0	21	5	1	3	0	0	0	0	2	0	0	32
APPROACH %'s :	0.00%	80.77%	19.23%	25.00%	75.00%	0.00%				100.00%	0.00%	0.00%	
PEAK HR START TIME :	500 PM												TOTAL
PEAK HR VOL :	0	8	0	1	2	0	0	0	0	0	0	0	11
PEAK HR FACTOR :	0.667			0.750			0.000			0.000			0.688

CONTROL : 1-Way Stop (SB)

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Appendix G: Existing Plus Project Level of Service Analysis

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Intersection Location

xx(yy) AM(PM) Peak Hour Volumes

Existing Plus Project Traffic Volumes
LINK UNION STATION (LINK US)



Table X-X. Existing Plus Project Peak Hour Intersection Level of Service

Intersection	Intersection	AM Peak						PM Peak					
		Existing		Existing with Project		Delta	Significant Impact?	Existing		Existing with Project		Delta	Significant Impact?
		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)		Delay (Sec)	LOS	Delay (Sec)	LOS	Delay (Sec)	
1	Alameda Street and Commercial Street	29.9	C	29.6	C	-0.3	No	33.9	C	33.9	C	0	No
2	Garey Street and Commercial Street	31.4	C	57.7	E	26.3	Yes	34.2	C	59.7	E	25.5	Yes
3	Vignes Street and Commercial Street ^a	9.6	A	11.1	B	1.5	NA	9.9	A	11.9	B	2	NA
4	Center Street and Commercial Street ^a	16.0	C	72.5	F	56.5	Yes	33.0	D	145.3	F	112.3	Yes
5	Alameda Street and Temple Street	13.9	B	14.2	B	0.3	No	15.4	B	15.4	B	0	No
6	Vignes Street and Temple Street ^a	14.5	B	14.5	B	0	No	9.7	A	9.7	A	0	No
7	Alameda Street and First Street	17.8	B	18.2	B	0.4	No	17.3	B	17.5	B	0.2	No
8	Vignes Street and First Street	21.7	C	19.7	B	-2	No	27.4	C	27.2	C	-0.2	No
9	Alameda Street and El Monte Busway/Arcadia Street	19.5	B	19.4	B	-0.1	No	14.5	B	14.4	B	-0.1	No
10	Alameda Street and Los Angeles Street EB	12.4	B	11.6	B	-0.8	No	12.7	B	12.6	B	-0.1	No
110	Alameda Street and Los Angeles Street WB	4.2	A	4.4	A	0.2	No	5.6	A	6.9	A	1.3	No
11	Alameda Street and Cesar Chavez Avenue	15.3	B	20.4	C	5.1	No	14.9	B	16.5	B	1.6	No
12	Alameda Street and Vignes Street/Alpine Street	11.8	B	13.3	B	1.5	No	14.1	B	18.0	B	3.9	No
13	Vignes Street and Cesar Chavez Avenue	19.0	B	19.6	B	0.6	No	20.4	C	24.8	C	4.4	No
14	Vignes Street and Ramirez Street	23.4	C	23.3	C	-0.1	No	25.9	C	24.6	C	-1.3	No
15	Vignes Street and Main Street	17.5	B	17.3	B	-0.2	No	41.9	D	45.6	D	3.7	No
16	Alameda Street/Spring Street and College Street	16.0	B	16.0	B	0	No	17.0	B	17.5	B	0.5	No
17	Alameda Street and Main Street/Ord Street ^a	0.6	A	0.6	A	0	No	0.7	A	0.7	A	0	No
18	Alameda Street and Main Street/Bauchet Street	5.7	A	5.7	A	0	No	8.8	A	9.6	A	0.8	No
19	Main Street and Cesar Chavez Avenue	7.6	A	7.6	A	0	No	19.0	B	19.3	B	0.3	No
20	Alameda Street and Northbound US-101 ^b												
21	Los Angeles Street and Arcadia Street	7.2	A	7.6	A	0.4	No	5.1	A	5.2	A	0.1	No
22	Los Angeles Street and Aliso Street	9.4	A	9.4	A	0	No	11.3	B	11.5	B	0.2	No
23	Los Angeles Street and Temple Street	15.0	B	14.9	B	-0.1	No	16.5	B	16.6	B	0.1	No
24	Los Angeles Street and First Street	14.8	B	14.9	B	0.1	No	19.4	B	19.3	B	-0.1	No
25	Judge John Aiso Street and Temple Street	8.2	A	8.3	A	0.1	No	7.9	A	7.5	A	-0.4	No
26	Judge John Aiso Street/San Pedro Street and First Street	15.6	B	15.5	B	-0.1	No	15.0	B	15.1	B	0.1	No
27	Mission Road and Cesar Chavez Avenue	46.4	D	46.3	D	-0.1	No	23.9	C	24.4	C	0.5	No
28	Mission Road and First Street	28.3	C	24.7	C	-3.6	No	31.1	C	30.2	C	-0.9	No
29	Central Avenue and First Street	8.9	A	8.7	A	-0.2	No	11.0	B	11.1	B	0.1	No
30	Vignes Street and Bauchet Street	10.7	B	11.0	B	0.3	No	19.1	B	19.6	B	0.5	No
31	Ramirez Street and Center Street	1.8	A	1.7	A	-0.1	No	0.6	A	0.6	A	0	No
32	Union Station North Driveway and Cesar Chavez Avenue	13.5	B	13.5	B	0	No	14.2	B	14.1	B	-0.1	No

Notes:

^a Non-signalized intersection

^b Freeway on-ramp, neither signalized nor STOP-sign controlled

LOS = level of service; Sec = Seconds; NA = Not Applicable

Appendix H: Construction Traffic, Project Access and Construction Staging

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2028 No Build AM Peak Hour Volumes

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	687	153	131	1,200	0	44	32	117	153	0	204
2	Garey Street & Commercial Street	13	38	7	185	68	191	241	61	14	10	153	99
3	Vignes Street & Commercial Street	57	0	56	0	0	0	0	230	23	92	204	0
4	Center Street & Commercial Street	72	361	7	9	365	221	198	4	84	3	4	7
5	Alameda Street & Temple Street	259	693	0	30	855	439	106	165	151	25	353	41
6	Vignes Street & Temple Street	361	91	11	6	47	62	49	25	64	7	104	3
7	Alameda Street & 1st Street	2	925	50	13	850	167	0	0	0	0	524	27
8	Vignes Street & 1st Street	4	18	27	27	33	19	31	116	10	183	528	403
9	Alameda Street & El Monte Busway/Arcadia Street	114	821	0	0	854	54	0	0	0	477	1,745	228
10	Alameda Street & Los Angeles Street EB	0	516	106	61	1,095	0	107	52	17	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	122	409	128	76	1,166	156	48	496	99	115	1,232	46
12	Alameda Street & Vignes Street/Alpine Street	57	262	12	144	962	242	55	115	63	49	748	146
13	Vignes Street & Cesar E Chavez Avenue	158	372	58	149	359	30	51	441	198	251	1,248	343
14	Vignes Street & Ramirez Street	35	178	101	427	149	233	114	68	70	106	127	334
109	Alameda Street & El Monte Busway (EB)	0	1,002	47	13	908	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	623	0	0	1,051	328	0	0	0	105	61	37
15	Vignes Street & Main Street	1	170	42	225	492	543	61	199	5	0	400	182
16	Alameda Street/Spring Street & College Street	189	262	12	11	1,153	153	80	69	166	29	152	10
17	Alameda Street & Main Street/Ord Street	56	366	234	0	1,336	228	0	0	64	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	456	48	37	1,363	0	190	37	15	19	0	11
19	Main Street & Cesar Chavez Avenue	119	160	94	0	0	0	63	548	0	0	1,490	19
20	Alameda Street & Northbound US-101	380	622	0	0	922	191	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	86	262	0	0	336	41	0	0	0	299	1,555	60
22	Los Angeles Street & Aliso Street	0	317	61	0	634	0	31	132	151	0	0	0
23	Los Angeles Street & Temple Street	70	325	51	168	911	93	33	383	171	100	739	121
24	Los Angeles Street & 1st Street	107	355	41	114	817	136	29	389	119	48	641	82
25	Judge John Aiso Street & Temple Street	185	0	106	0	0	0	0	344	221	203	804	0
26	Judge John Aiso Street/San Pedro Street & 1st Street	156	224	48	25	308	34	78	300	166	105	582	65
27	Mission Road & Cesar Chavez Avenue	212	500	90	26	1,019	736	289	229	130	291	894	8
28	Mission Road & 1st Street	39	166	2	108	168	507	89	71	9	12	568	155
29	Central Avenue & 1st Street	201	0	0	0	0	0	0	373	143	550	0	0
30	Vignes Street & Bauchet Street	19	588	168	62	418	12	4	4	6	100	4	24
31	Center Street & Ramirez Street/Keller Street	0	431	60	45	439	0	0	0	0	53	0	42

Construction Worker Trips

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street		18		61								
2	Garey Street & Commercial Street				92				61				
3	Vignes Street & Commercial Street												
4	Center Street & Commercial Street												
5	Alameda Street & Temple Street		18										
6	Vignes Street & Temple Street		61										
7	Alameda Street & 1st Street		18	43									
8	Vignes Street & 1st Street							61					
9	Alameda Street & El Monte Busway/Arcadia Street		18			61							
10	Alameda Street & Los Angeles Street EB		18			61		12					
11	Alameda Street & Cesar E Chavez Avenue		31			61							
12	Alameda Street & Vignes Street/Alpine Street					18							
13	Vignes Street & Cesar E Chavez Avenue		31										61
14	Vignes Street & Ramirez Street		31	214									
109	Alameda Street & El Monte Busway (EB)		18			61							
110	Alameda Street & Los Angeles Street WB		31			61							
15	Vignes Street & Main Street		61			43							92
16	Alameda Street/Spring Street & College Street				12	18							
17	Alameda Street & Main Street/Ord Street			61		61							
18	Alameda Street & Main Street/Bauchet Street		31			61		31					
19	Main Street & Cesar Chavez Avenue		18					12					
20	Alameda Street & Northbound US-101		18			61							
21	Los Angeles Street & Arcadia Street		12										
22	Los Angeles Street & Aliso Street		12										
23	Los Angeles Street & Temple Street		12										
24	Los Angeles Street & 1st Street		12	18									
25	Judge John Aiso Street & Temple Street												
26	Judge John Aiso Street/San Pedro Street & 1st Street								18				
27	Mission Road & Cesar Chavez Avenue											61	
28	Mission Road & 1st Street												
29	Central Avenue & 1st Street								18				
30	Vignes Street & Bauchet Street		92										
31	Center Street & Ramirez Street/Keller Street					214							

Total AM Peak Hour Accumulated Project Trips

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	7	0	1	4	0	0	0	0	0	0	0
2	Garey Street & Commercial Street	0	0	0	0	0	0	1	0	0	0	0	0
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	0	7	0	0	4	0	0	0	0	0	0	0
6	Vignes Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
7	Alameda Street & 1st Street	0	7	0	0	4	0	0	0	0	0	0	0
8	Vignes Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
9	Alameda Street & El Monte Busway/Arcadia Street	0	7	0	0	5	0	0	0	0	0	0	0
10	Alameda Street & Los Angeles Street EB	0	0	7	3	5	0	0	0	0	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	0	2	0	0	3	0	0	0	0	0	0	0
12	Alameda Street & Vignes Street/Alpine Street	0	2	0	0	3	0	0	0	0	0	0	0
13	Vignes Street & Cesar E Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
14	Vignes Street & Ramirez Street	0	0	0	0	0	0	0	0	0	0	0	0
109	Alameda Street & El Monte Busway (EB)	0	7	0	0	5	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	0	0	0	3	0	0	0	0	5	0	2
15	Vignes Street & Main Street	0	0	0	0	0	0	0	0	0	0	0	0
16	Alameda Street/Spring Street & College Street	0	2	0	0	3	0	0	0	0	0	0	0
17	Alameda Street & Main Street/Ord Street	0	2	0	0	3	0	0	0	0	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	2	0	0	3	0	0	0	0	0	0	0
19	Main Street & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
20	Alameda Street & Northbound US-101	0	7	0	0	5	0	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	0	0	0	0	0	0	0	0	0	0	0	0
22	Los Angeles Street & Aliso Street	0	0	0	0	0	0	0	0	0	0	0	0
23	Los Angeles Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
24	Los Angeles Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
25	Judge John Aliso Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
26	Judge John Aliso Street/San Pedro Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
27	Mission Road & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
28	Mission Road & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
29	Central Avenue & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
30	Vignes Street & Bauchet Street	0	0	0	0	0	0	0	0	0	0	0	0
31	Center Street & Ramirez Street/Keller Street	0	0	0	0	0	0	0	0	0	0	0	0

2028 AM Volumes Plus Construction Plus Accumulated Projects (At-Grade Concourse Alternative)

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	712	153	193	1,204	0	44	32	117	153	0	204
2	Garey Street & Commercial Street	166	136	0	92	252	191	242	61	75	0	0	2
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	259	718	0	30	859	439	106	165	151	25	353	41
6	Vignes Street & Temple Street	361	152	11	6	47	62	49	25	64	7	104	3
7	Alameda Street & 1st Street	2	950	93	13	854	167	0	0	0	0	524	27
8	Vignes Street & 1st Street	4	18	27	27	33	19	92	116	10	183	528	403
9	Alameda Street & El Monte Busway/Arcadia Street	114	846	0	0	920	54	0	0	0	477	1,745	228
10	Alameda Street & Los Angeles Street EB	0	534	113	64	1,161	0	119	52	17	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	122	442	128	76	1,240	156	48	496	99	121	1,232	46
12	Alameda Street & Vignes Street/Alpine Street	57	264	12	144	983	242	55	115	63	59	748	146
13	Vignes Street & Cesar E Chavez Avenue	158	409	58	149	361	30	51	441	198	251	1,254	410
14	Vignes Street & Ramirez Street	35	213	317	429	149	233	114	68	70	106	127	336
109	Alameda Street & El Monte Busway (EB)	0	1,027	47	13	974	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	654	0	0	1,115	344	0	0	0	110	61	39
15	Vignes Street & Main Street	1	231	42	227	535	545	61	199	5	0	408	276
16	Alameda Street/Spring Street & College Street	189	264	12	23	1,174	153	80	69	166	29	152	10
17	Alameda Street & Main Street/Ord Street	56	368	295	0	1,410	228	0	0	64	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	489	48	37	1,437	0	221	37	15	19	0	11
19	Main Street & Cesar Chavez Avenue	119	178	94	0	0	0	75	548	0	0	1,490	19
20	Alameda Street & Northbound US-101	380	647	0	0	988	191	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	86	274	0	0	352	41	0	0	0	299	1,555	60
22	Los Angeles Street & Aliso Street	0	329	61	16	634	0	31	132	151	0	0	0
23	Los Angeles Street & Temple Street	70	337	51	168	911	93	33	383	171	100	739	121
24	Los Angeles Street & 1st Street	107	367	59	114	817	136	29	389	119	48	641	82
25	Judge John Aliso Street & Temple Street	185	0	106	0	0	0	0	344	221	203	804	0
26	Judge John Aliso Street/San Pedro Street & 1st Street	156	224	48	25	308	34	78	318	166	105	582	65
27	Mission Road & Cesar Chavez Avenue	224	500	90	26	1,019	736	289	229	130	291	955	8
28	Mission Road & 1st Street	39	166	2	108	168	507	89	71	9	12	568	155
29	Central Avenue & 1st Street	201	0	0	0	0	0	0	18	373	143	550	0
30	Vignes Street & Bauchet Street	23	688	168	62	420	12	8	4	6	100	4	24
31	Center Street & Ramirez Street/Keller Street	0	433	60	45	657	0	0	0	0	53	0	42

Total PM Peak Hour Accumulated Project Trips

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	13	0	0	22	0	0	0	0	0	0	0
2	Garey Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	0	13	0	0	22	0	0	0	0	0	0	0
6	Vignes Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
7	Alameda Street & 1st Street	0	13	0	0	22	0	0	0	0	0	0	0
8	Vignes Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
9	Alameda Street & El Monte Busway/Arcadia Street	0	13	0	0	22	0	0	0	0	0	0	0
10	Alameda Street & Los Angeles Street EB	0	0	13	10	27	0	0	0	0	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	0	5	0	0	10	0	0	0	0	0	0	0
12	Alameda Street & Vignes Street/Alpine Street	0	5	0	0	10	0	0	14	0	0	0	0
13	Vignes Street & Cesar E Chavez Avenue	0	0	0	0	25	0	0	0	0	0	0	0
14	Vignes Street & Ramirez Street	8	0	0	0	0	25	0	5	9	0	25	0
109	Alameda Street & El Monte Busway (EB)	0	13	0	0	22	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	0	0	0	10	0	0	0	0	27	0	5
15	Vignes Street & Main Street	0	0	0	11	0	0	0	14	0	0	0	0
16	Alameda Street/Spring Street & College Street	0	5	0	0	10	0	0	0	0	0	0	0
17	Alameda Street & Main Street/Ord Street	0	5	0	0	10	0	0	0	0	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	5	0	0	10	0	0	0	0	0	0	0
19	Main Street & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
20	Alameda Street & Northbound US-101	0	13	0	0	22	5	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	0	0	0	0	0	0	0	0	0	0	0	0
22	Los Angeles Street & Aliso Street	0	0	0	0	0	0	0	0	0	0	0	0
23	Los Angeles Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
24	Los Angeles Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
25	Judge John Aiso Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
26	Judge John Aiso Street/San Pedro Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
27	Mission Road & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
28	Mission Road & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
29	Central Avenue & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
30	Vignes Street & Bauchet Street	0	0	0	0	25	0	0	0	0	0	0	0
31	Center Street & Ramirez Street/Keller Street	0	25	0	0	5	0	0	0	0	0	0	0

2028 PM Volumes Plus Construction Plus Accumulated Projects (At-Grade Concourse Alternative)

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	1,241	168	136	768	0	359	65	48	90	0	188
2	Garey Street & Commercial Street	65	742	0	0	132	168	349	0	62	0	12	86
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	89	993	0	75	761	309	250	447	195	30	158	93
6	Vignes Street & Temple Street	94	164	19	12	56	26	65	41	109	13	65	28
7	Alameda Street & 1st Street	68	748	146	41	821	123	320	481	115	17	279	14
8	Vignes Street & 1st Street	6	78	230	98	28	37	71	585	23	79	310	77
9	Alameda Street & El Monte Busway/Arcadia Street	19	1,769	0	0	637	25	0	0	0	268	564	179
10	Alameda Street & Los Angeles Street EB	0	632	79	59	964	0	241	56	83	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	97	722	119	97	674	133	90	963	192	115	931	117
12	Alameda Street & Vignes Street/Alpine Street	175	987	49	95	404	56	103	334	70	59	424	354
13	Vignes Street & Cesar E Chavez Avenue	286	698	149	281	336	48	47	946	264	117	866	303
14	Vignes Street & Ramirez Street	52	450	70	302	232	152	154	76	91	193	153	521
109	Alameda Street & El Monte Busway (EB)	0	922	1,026	154	661	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	873	0	0	859	122	0	0	0	165	54	66
15	Vignes Street & Main Street	5	673	35	237	274	187	228	250	1	24	645	362
16	Alameda Street/Spring Street & College Street	530	886	28	9	347	101	108	94	178	32	195	32
17	Alameda Street & Main Street/Ord Street	100	1,118	659	0	732	50	0	0	80	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	914	15	3	809	0	925	22	33	63	0	39
19	Main Street & Cesar Chavez Avenue	413	879	240	0	0	0	78	1,005	0	0	1,213	23
20	Alameda Street & Northbound US-101	211	710	0	0	815	232	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	189	1,076	0	0	164	39	0	0	0	96	492	21
22	Los Angeles Street & Aliso Street	0	1,183	185	6	254	0	81	287	21	0	0	0
23	Los Angeles Street & Temple Street	149	1,108	73	86	402	162	123	691	113	72	412	243
24	Los Angeles Street & 1st Street	136	1,030	84	85	464	174	111	823	126	100	481	235
25	Judge John Aiso Street & Temple Street	307	0	278	0	0	0	0	743	105	95	461	0
26	Judge John Aiso Street/San Pedro Street & 1st Street	183	423	140	32	189	64	85	805	128	69	578	80
27	Mission Road & Cesar Chavez Avenue	234	557	81	38	553	375	434	647	339	156	604	36
28	Mission Road & 1st Street	16	311	4	94	131	206	480	405	10	6	243	163
29	Central Avenue & 1st Street	253	0	272	0	0	0	0	720	208	106	476	0
30	Vignes Street & Bauchet Street	27	896	60	19	435	12	16	5	18	208	14	104
31	Center Street & Ramirez Street/Keller Street	0	879	14	12	400	0	0	0	0	19	0	16

2028 AM Peak Hour Volumes

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	687	153	131	1,200	0	44	32	117	153	0	204
2	Garey Street & Commercial Street	13	38	7	185	68	191	241	61	14	10	153	99
3	Vignes Street & Commercial Street	57	0	56	0	0	0	0	230	23	92	204	0
4	Center Street & Commercial Street	72	361	7	9	365	221	198	4	84	3	4	7
5	Alameda Street & Temple Street	259	693	0	30	855	439	106	165	151	25	353	41
6	Vignes Street & Temple Street	361	91	11	6	47	62	49	25	64	7	104	3
7	Alameda Street & 1st Street	2	925	50	13	850	167	0	0	0	0	524	27
8	Vignes Street & 1st Street	4	18	27	27	33	19	31	116	10	183	528	403
9	Alameda Street & El Monte Busway/Arcadia Street	114	821	0	0	854	54	0	0	0	477	1,745	228
10	Alameda Street & Los Angeles Street EB	0	516	106	61	1,095	0	107	52	17	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	122	409	128	76	1,166	156	48	496	99	115	1,232	46
12	Alameda Street & Vignes Street/Alpine Street	57	262	12	144	962	242	55	115	63	49	748	146
13	Vignes Street & Cesar E Chavez Avenue	158	372	58	149	359	30	51	441	198	251	1,248	343
14	Vignes Street & Ramirez Street	35	178	101	427	149	233	114	68	70	106	127	334
109	Alameda Street & El Monte Busway (EB)	0	1,002	47	13	908	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	623	0	0	1,051	328	0	0	0	105	61	37
15	Vignes Street & Main Street	1	170	42	225	492	543	61	199	5	0	400	182
16	Alameda Street/Spring Street & College Street	189	262	12	11	1,153	153	80	69	166	29	152	10
17	Alameda Street & Main Street/Ord Street	56	366	234	0	1,336	228	0	0	64	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	456	48	37	1,363	0	190	37	15	19	0	11
19	Main Street & Cesar Chavez Avenue	119	160	94	0	0	0	63	548	0	0	1,490	19
20	Alameda Street & Northbound US-101	380	622	0	0	922	191	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	86	262	0	0	336	41	0	0	0	299	1,555	60
22	Los Angeles Street & Aliso Street	0	317	61	0	634	0	31	132	151	0	0	0
23	Los Angeles Street & Temple Street	70	325	51	168	911	93	33	383	171	100	739	121
24	Los Angeles Street & 1st Street	107	355	41	114	817	136	29	389	119	48	641	82
25	Judge John Aiso Street & Temple Street	185	0	106	0	0	0	0	344	221	203	804	0
26	Judge John Aiso Street/San Pedro Street & 1st Street	156	224	48	25	308	34	78	300	166	105	582	65
27	Mission Road & Cesar Chavez Avenue	212	500	90	26	1,019	736	289	229	130	291	894	8
28	Mission Road & 1st Street	39	166	2	108	168	507	89	71	9	12	568	155
29	Central Avenue & 1st Street	201	0	0	0	0	0	0	373	143	550	0	0
30	Vignes Street & Bauchet Street	19	588	168	62	418	12	4	4	6	100	4	24
31	Center Street & Ramirez Street/Keller Street	0	431	60	45	439	0	0	0	0	53	0	42

Construction Worker Trips

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street		7		23								
2	Garey Street & Commercial Street				35				23				
3	Vignes Street & Commercial Street												
4	Center Street & Commercial Street												
5	Alameda Street & Temple Street		7										
6	Vignes Street & Temple Street		23										
7	Alameda Street & 1st Street		7	16									
8	Vignes Street & 1st Street							23					
9	Alameda Street & El Monte Busway/Arcadia Street		7			23							
10	Alameda Street & Los Angeles Street EB		7			23		5					
11	Alameda Street & Cesar E Chavez Avenue		12			23							
12	Alameda Street & Vignes Street/Alpine Street					7							
13	Vignes Street & Cesar E Chavez Avenue		12										23
14	Vignes Street & Ramirez Street		12	82									
109	Alameda Street & El Monte Busway (EB)		7			23							
110	Alameda Street & Los Angeles Street WB		12			23							
15	Vignes Street & Main Street		23			16							35
16	Alameda Street/Spring Street & College Street				5	7							
17	Alameda Street & Main Street/Ord Street			23		23							
18	Alameda Street & Main Street/Bauchet Street		12			23		12					
19	Main Street & Cesar Chavez Avenue		7					5					
20	Alameda Street & Northbound US-101		7			23							
21	Los Angeles Street & Arcadia Street		5										
22	Los Angeles Street & Aliso Street		5										
23	Los Angeles Street & Temple Street		5										
24	Los Angeles Street & 1st Street		5	7									
25	Judge John Aiso Street & Temple Street												
26	Judge John Aiso Street/San Pedro Street & 1st Street								7				
27	Mission Road & Cesar Chavez Avenue											23	
28	Mission Road & 1st Street												
29	Central Avenue & 1st Street								7				
30	Vignes Street & Bauchet Street		35										
31	Center Street & Ramirez Street/Keller Street					82							

Total AM Peak Hour Accumulated Project Trips

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	7	0	1	4	0	0	0	0	0	0	0
2	Garey Street & Commercial Street	0	0	0	0	0	0	1	0	0	0	0	0
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	0	7	0	0	4	0	0	0	0	0	0	0
6	Vignes Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
7	Alameda Street & 1st Street	0	7	0	0	4	0	0	0	0	0	0	0
8	Vignes Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
9	Alameda Street & El Monte Busway/Arcadia Street	0	7	0	0	5	0	0	0	0	0	0	0
10	Alameda Street & Los Angeles Street EB	0	0	7	3	5	0	0	0	0	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	0	2	0	0	3	0	0	0	0	0	0	0
12	Alameda Street & Vignes Street/Alpine Street	0	2	0	0	3	0	0	0	0	0	0	0
13	Vignes Street & Cesar E Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
14	Vignes Street & Ramirez Street	0	0	0	0	0	0	0	0	0	0	0	0
109	Alameda Street & El Monte Busway (EB)	0	7	0	0	5	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	0	0	0	3	0	0	0	0	5	0	2
15	Vignes Street & Main Street	0	0	0	0	0	0	0	0	0	0	0	0
16	Alameda Street/Spring Street & College Street	0	2	0	0	3	0	0	0	0	0	0	0
17	Alameda Street & Main Street/Ord Street	0	2	0	0	3	0	0	0	0	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	2	0	0	3	0	0	0	0	0	0	0
19	Main Street & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
20	Alameda Street & Northbound US-101	0	7	0	0	5	0	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	0	0	0	0	0	0	0	0	0	0	0	0
22	Los Angeles Street & Aliso Street	0	0	0	0	0	0	0	0	0	0	0	0
23	Los Angeles Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
24	Los Angeles Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
25	Judge John Aliso Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
26	Judge John Aliso Street/San Pedro Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
27	Mission Road & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
28	Mission Road & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
29	Central Avenue & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
30	Vignes Street & Bauchet Street	0	0	0	0	0	0	0	0	0	0	0	0
31	Center Street & Ramirez Street/Keller Street	0	0	0	0	0	0	0	0	0	0	0	0

2028 AM Volumes Plus Construction Plus Accumulated Projects (Above-Grade Concourse Alternative)

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	701	153	155	1,204	0	44	32	117	153	0	204
2	Garey Street & Commercial Street	166	136	0	35	252	191	242	23	75	0	0	1
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	259	707	0	30	859	439	106	165	151	25	353	41
6	Vignes Street & Temple Street	361	114	11	6	47	62	49	25	64	7	104	3
7	Alameda Street & 1st Street	2	939	66	13	854	167	0	0	0	0	524	27
8	Vignes Street & 1st Street	4	18	27	27	33	19	54	116	10	183	528	403
9	Alameda Street & El Monte Busway/Arcadia Street	114	835	0	0	882	54	0	0	0	477	1,745	228
10	Alameda Street & Los Angeles Street EB	0	523	113	64	1,123	0	112	52	17	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	122	423	128	76	1,198	156	48	496	99	118	1,232	46
12	Alameda Street & Vignes Street/Alpine Street	57	264	12	144	972	242	55	115	63	55	748	146
13	Vignes Street & Cesar E Chavez Avenue	158	387	58	149	360	30	51	441	198	251	1,251	369
14	Vignes Street & Ramirez Street	35	192	184	428	149	233	114	68	70	106	127	335
109	Alameda Street & El Monte Busway (EB)	0	1,016	47	13	936	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	635	0	0	1,077	337	0	0	0	110	61	39
15	Vignes Street & Main Street	1	193	42	226	508	544	61	199	5	0	404	218
16	Alameda Street/Spring Street & College Street	189	264	12	16	1,163	153	80	69	166	29	152	10
17	Alameda Street & Main Street/Ord Street	56	368	257	0	1,368	228	0	0	64	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	470	48	37	1,395	0	202	37	15	19	0	11
19	Main Street & Cesar Chavez Avenue	119	167	94	0	0	0	68	548	0	0	1,490	19
20	Alameda Street & Northbound US-101	380	636	0	0	950	191	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	86	267	0	0	345	41	0	0	0	299	1,555	60
22	Los Angeles Street & Aliso Street	0	322	61	9	634	0	31	132	151	0	0	0
23	Los Angeles Street & Temple Street	70	330	51	168	911	93	33	383	171	100	739	121
24	Los Angeles Street & 1st Street	107	360	48	114	817	136	29	389	119	48	641	82
25	Judge John Aliso Street & Temple Street	185	0	106	0	0	0	0	344	221	203	804	0
26	Judge John Aliso Street/San Pedro Street & 1st Street	156	224	48	25	308	34	78	307	166	105	582	65
27	Mission Road & Cesar Chavez Avenue	219	500	90	26	1,019	736	289	229	130	291	917	8
28	Mission Road & 1st Street	39	166	2	108	168	507	89	71	9	12	568	155
29	Central Avenue & 1st Street	201	0	0	0	0	0	0	7	373	143	550	0
30	Vignes Street & Bauchet Street	21	627	168	62	419	12	6	4	6	100	4	24
31	Center Street & Ramirez Street/Keller Street	0	432	60	45	523	0	0	0	0	53	0	42

Total PM Peak Hour Accumulated Project Trips

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	13	0	0	22	0	0	0	0	0	0	0
2	Garey Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	0	13	0	0	22	0	0	0	0	0	0	0
6	Vignes Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
7	Alameda Street & 1st Street	0	13	0	0	22	0	0	0	0	0	0	0
8	Vignes Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
9	Alameda Street & El Monte Busway/Arcadia Street	0	13	0	0	22	0	0	0	0	0	0	0
10	Alameda Street & Los Angeles Street EB	0	0	13	10	27	0	0	0	0	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	0	5	0	0	10	0	0	0	0	0	0	0
12	Alameda Street & Vignes Street/Alpine Street	0	5	0	0	10	0	0	14	0	0	0	0
13	Vignes Street & Cesar E Chavez Avenue	0	0	0	0	25	0	0	0	0	0	0	0
14	Vignes Street & Ramirez Street	8	0	0	0	0	25	0	5	9	0	25	0
109	Alameda Street & El Monte Busway (EB)	0	13	0	0	22	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	0	0	0	10	0	0	0	0	27	0	5
15	Vignes Street & Main Street	0	0	0	11	0	0	0	14	0	0	0	0
16	Alameda Street/Spring Street & College Street	0	5	0	0	10	0	0	0	0	0	0	0
17	Alameda Street & Main Street/Ord Street	0	5	0	0	10	0	0	0	0	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	5	0	0	10	0	0	0	0	0	0	0
19	Main Street & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
20	Alameda Street & Northbound US-101	0	13	0	0	22	5	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	0	0	0	0	0	0	0	0	0	0	0	0
22	Los Angeles Street & Aliso Street	0	0	0	0	0	0	0	0	0	0	0	0
23	Los Angeles Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
24	Los Angeles Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
25	Judge John Aiso Street & Temple Street	0	0	0	0	0	0	0	0	0	0	0	0
26	Judge John Aiso Street/San Pedro Street & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
27	Mission Road & Cesar Chavez Avenue	0	0	0	0	0	0	0	0	0	0	0	0
28	Mission Road & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
29	Central Avenue & 1st Street	0	0	0	0	0	0	0	0	0	0	0	0
30	Vignes Street & Bauchet Street	0	0	0	0	25	0	0	0	0	0	0	0
31	Center Street & Ramirez Street/Keller Street	0	25	0	0	5	0	0	0	0	0	0	0

2028 PM Volumes Plus Construction Plus Accumulated Projects (Above-Grade Concourse Alternative)

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street	0	1,241	168	136	764	0	359	65	48	90	0	173
2	Garey Street & Commercial Street	65	742	0	0	132	168	349	0	62	0	5	33
3	Vignes Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
4	Center Street & Commercial Street	0	0	0	0	0	0	0	0	0	0	0	0
5	Alameda Street & Temple Street	89	993	0	75	757	309	250	447	195	30	158	93
6	Vignes Street & Temple Street	94	164	19	12	41	26	65	41	109	13	65	28
7	Alameda Street & 1st Street	68	748	146	41	817	123	320	481	115	7	275	14
8	Vignes Street & 1st Street	6	78	230	88	28	33	71	585	23	79	310	77
9	Alameda Street & El Monte Busway/Arcadia Street	19	1,754	0	0	633	25	0	0	0	268	564	179
10	Alameda Street & Los Angeles Street EB	0	617	79	59	960	0	241	56	83	0	0	0
11	Alameda Street & Cesar E Chavez Avenue	97	707	119	97	665	126	90	963	192	114	931	117
12	Alameda Street & Vignes Street/Alpine Street	175	983	49	95	404	56	103	334	70	57	424	354
13	Vignes Street & Cesar E Chavez Avenue	286	696	149	258	335	48	47	946	264	117	865	302
14	Vignes Street & Ramirez Street	52	449	69	301	232	152	154	76	91	170	153	520
109	Alameda Street & El Monte Busway (EB)	0	907	1,026	154	657	0	0	0	0	0	0	0
110	Alameda Street & Los Angeles Street WB	0	858	0	0	855	116	0	0	0	165	54	66
15	Vignes Street & Main Street	5	663	35	213	274	186	228	250	1	9	644	361
16	Alameda Street/Spring Street & College Street	530	882	28	9	347	101	108	94	178	32	195	29
17	Alameda Street & Main Street/Ord Street	100	1,114	649	0	715	50	0	0	80	0	0	0
18	Alameda Street & Main Street/Bauchet Street	0	899	15	3	792	0	925	22	33	63	0	39
19	Main Street & Cesar Chavez Avenue	413	879	240	0	0	0	78	1,005	0	0	1,206	23
20	Alameda Street & Northbound US-101	211	695	0	0	811	232	0	0	0	0	0	0
21	Los Angeles Street & Arcadia Street	189	1,076	0	0	158	39	0	0	0	96	492	21
22	Los Angeles Street & Aliso Street	0	1,183	185	3	251	0	81	287	21	0	0	0
23	Los Angeles Street & Temple Street	149	1,108	73	86	399	162	123	691	113	72	412	243
24	Los Angeles Street & 1st Street	136	1,030	84	85	461	174	111	823	126	96	481	235
25	Judge John Aiso Street & Temple Street	307	0	278	0	0	0	0	743	105	95	461	0
26	Judge John Aiso Street/San Pedro Street & 1st Street	183	423	140	32	189	64	85	805	128	69	574	80
27	Mission Road & Cesar Chavez Avenue	231	557	81	38	553	375	434	647	316	156	604	36
28	Mission Road & 1st Street	16	311	4	94	131	206	480	405	10	6	243	163
29	Central Avenue & 1st Street	253	0	272	0	0	0	0	720	208	106	472	0
30	Vignes Street & Bauchet Street	26	894	60	19	411	12	15	5	18	208	14	104
31	Center Street & Ramirez Street/Keller Street	0	855	14	12	399	0	0	0	0	19	0	16

SCC #	Item Description	Unit	Total Quantity	Units Per Day	Units per Load	Loads per Day	Phase 1 Quantity	Phase 1 Days	Phase 1 Loads	Phase 2 Quantity	Phase 2 Days	Phase 2 Loads	Phase 3 Quantity	Phase 3 Days	Phase 3 Loads	Phase 4 Quantity	Phase 4 Days	Phase 4 Loads	
50	Systems								100			-			-			-	
50.01	Train Control and Signals											-			-			-	
	CP Terminal and Yard Control Points (CP's)	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	CP West Diamond	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	CP Mission	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	CP San Diego Junction	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	CP BNSF	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	CP West Bank Junction	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	Intermediate Signals1411-1414	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	CP Olympic	LS	-	0.10	0.20	1	-	-	-	-	-	-	-	-	-	-	-	-	-
	CP Ducommun	LS	1	0.10	0.20	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	Gold Line																		
	Signal System Allowance - Zone 1	LS	1	0.10	0	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	Signal System Allowance - Zone 2	LS	1	0.10	0	1	1	10	5	-	-	-	-	-	-	-	-	-	-
	New OCS	TF	2,388	250	100	3	2,388	10	24	-	-	-	-	-	-	-	-	-	-
	Temp OCS Allowance	TF	2,388	250	100	3	2,388	10	24	-	-	-	-	-	-	-	-	-	-
	HSR																		
	CP: HSR	LS	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	Approximate Total							566	35,700		464	22,800		512	28,000		130	1,600	
	Average Loads per Day								63			49			55			12	

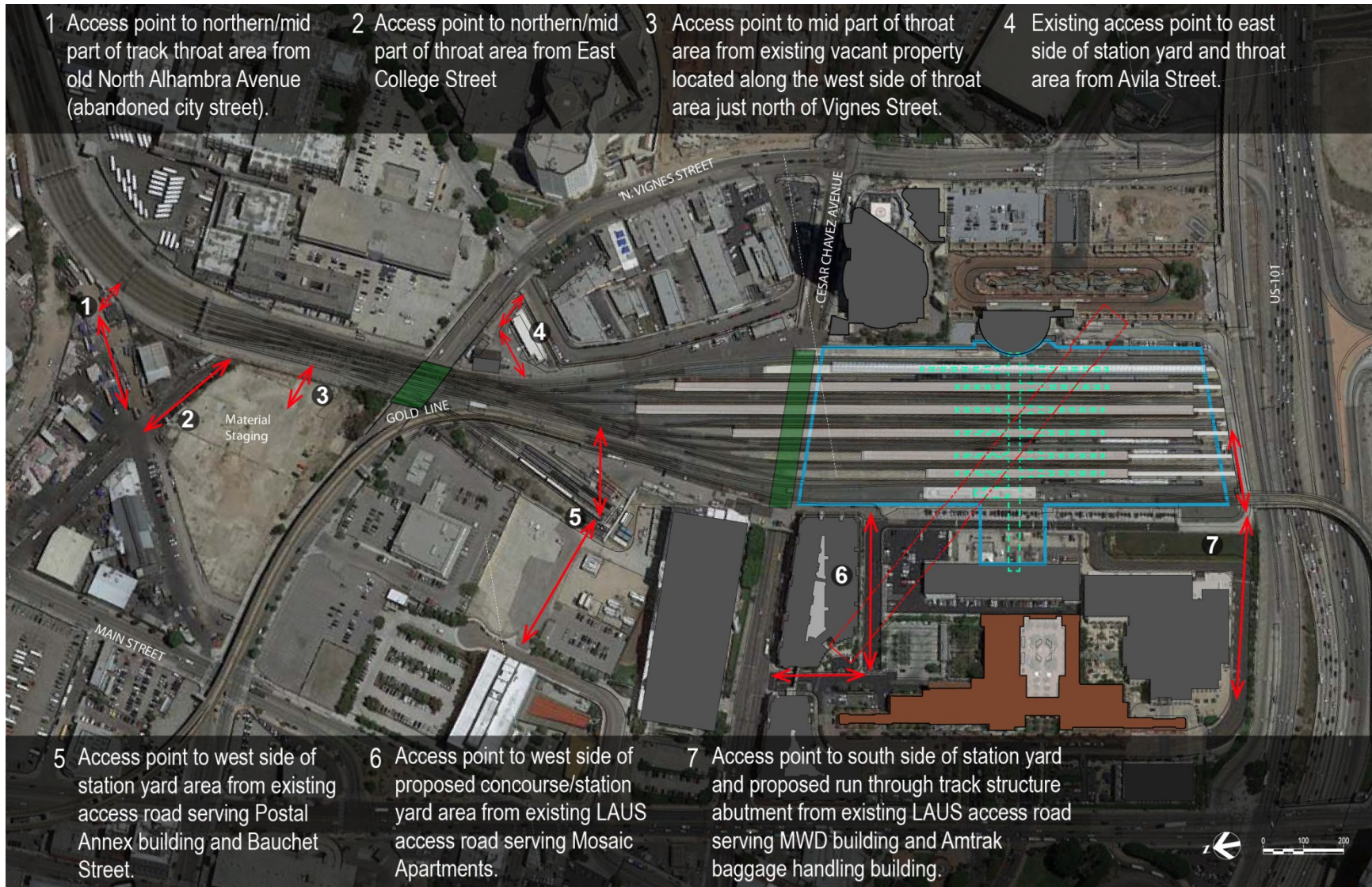
SCC #	Item Description	Unit	Total Quantity	Units Per Day	Units per Load	Loads per Day	Phase 1 Quantity	Phase 1 Days	Phase 1 Loads	Phase 2 Quantity	Phase 2 Days	Phase 2 Loads	Phase 3 Quantity	Phase 3 Days	Phase 3 Loads	Phase 4 Quantity	Phase 4 Days	Phase 4 Loads	
	Approximate Total							510	17,850		418	11,400		461	14,000		117	880	
	Average Loads per Day								35			27			30			8	

	Phase 1		Phase 2		Phase 3		Phase 4		Total Project		
Labor Cost	\$	434,550,000	\$	218,298,000	\$	258,711,000	\$	74,307,000	\$	985,866,000	37%
Equipment Cost	\$	280,834,000	\$	116,371,000	\$	145,200,000	\$	38,788,000	\$	581,193,000	22%
Material Cost	\$	495,704,000	\$	228,276,000	\$	285,001,000	\$	54,642,000	\$	1,063,623,000	40%
Total Cost	\$	1,211,088,000	\$	562,944,000	\$	688,912,000	\$	167,737,000	\$	2,630,682,000	
Labor Cost/Hour	\$	126	\$	126	\$	126	\$	126	\$	126	
Total Manhours		3,451,900		1,734,100		2,055,100		590,300		7,831,400	
Total Mandays		345,190		173,410		205,510		59,030		783,140	
Scheduled Workdays		566		464		512		130		1466	
Average Men/day		610		374		401		454		534	

Above-Grade Concourse Estimate

	Phase 1		Phase 2		Phase 3		Phase 4		Total Project		
Labor Cost	\$	149,865,195	\$	75,285,404	\$	89,222,815	\$	25,626,586	\$	340,000,000	34%
Equipment Cost	\$	159,456,876	\$	66,075,176	\$	82,444,214	\$	22,023,734	\$	330,000,000	33%
Material Cost	\$	153,797,276	\$	70,824,982	\$	88,424,498	\$	16,953,244	\$	330,000,000	33%
Total Cost	\$	463,119,000	\$	212,186,000	\$	260,092,000	\$	64,604,000	\$	1,000,000,000	
Labor Cost/Hour	\$	126	\$	126	\$	126	\$	126	\$	126	
Total Manhours		1,190,500		598,000		708,800		203,600		2,700,800	
Total Mandays		119,050		59,800		70,880		20,360		270,080	
Scheduled Workdays		510		418		461		117		1320	
Average Men/day		234		143		154		174		205	

Figure 6-5. Site Access and Material Storage for Throat and Rail Yard Construction

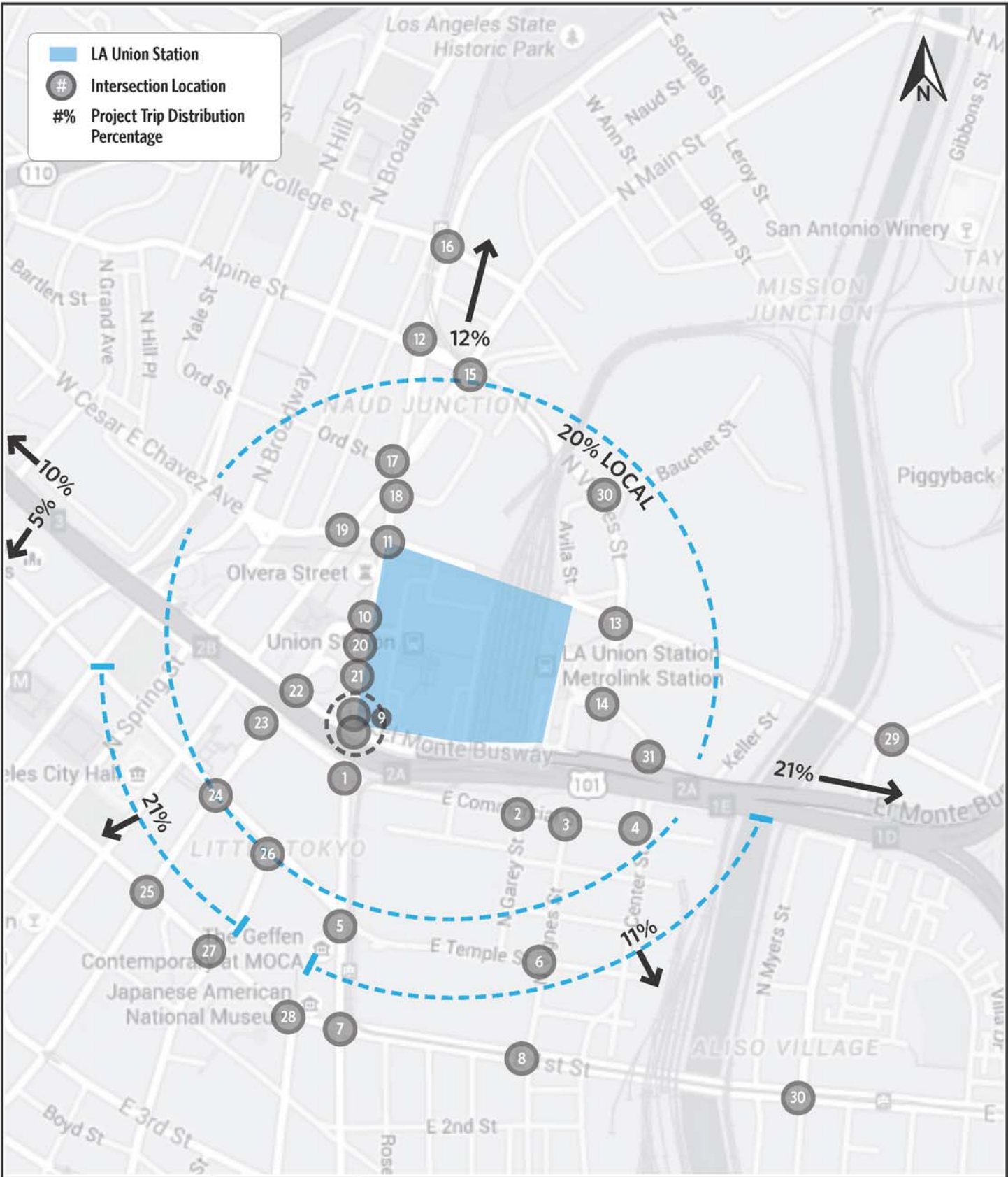


Source: HDR, 2016

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Appendix I: Project Trip Distribution

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Project-Related Trip Distribution
LINK UNION STATION (LINK US)



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Appendix J: Construction Traffic Distribution

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At-Grade Concourse

Construction Worker Trips - Along SB Spring Street

Assumptions	TRUE		
100% Total Labor Trips		Check	
610 Total # of AM Trips	610	611	Total AM Trips
244 Total # of PM Trips	244	244	Total PM Trips

INPUT DATA	
Labor Trip	In
AM	610
PM	0

AM TRIP PERCENTAGES

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street		3%		10%	3%							10%
2	Garey Street & Commercial Street				15%				10%			5%	35%
3	Vignes Street & Commercial Street												
4	Center Street & Commercial Street												
5	Alameda Street & Temple Street		3%			3%							
6	Vignes Street & Temple Street		10%			10%							
7	Alameda Street & 1st Street		3%	7%		3%					7%	3%	
8	Vignes Street & 1st Street				7%		3%	10%					
9	Alameda Street & El Monte Busway/Arcadia Street		13%			13%							
10	Alameda Street & Los Angeles Street EB		13%			13%		2%					
11	Alameda Street & Cesar E Chavez Avenue		15%			15%	5%						
12	Alameda Street & Vignes Street/Alpine Street		3%			3%							
13	Vignes Street & Cesar E Chavez Avenue		5%		15%								10%
14	Vignes Street & Ramirez Street		5%	35%							15%		
109	Alameda Street & El Monte Busway (EB)		13%			13%							
110	Alameda Street & Los Angeles Street WB		15%			13%	2%						
15	Vignes Street & Main Street		17%		15%	7%					10%		15%
16	Alameda Street/Spring Street & College Street		3%		2%	3%							2%
17	Alameda Street & Main Street/Ord Street		3%	17%		20%							
18	Alameda Street & Main Street/Bauchet Street		15%			20%		5%					
19	Main Street & Cesar Chavez Avenue		3%					2%				5%	
20	Alameda Street & Northbound US-101		13%			13%							
21	Los Angeles Street & Arcadia Street		2%			2%							
22	Los Angeles Street & Aliso Street		2%			2%							
23	Los Angeles Street & Temple Street		2%			2%							
24	Los Angeles Street & 1st Street		2%	3%		2%					3%		
25	Judge John Aiso Street & Temple Street												
26	Judge John Aiso Street/San Pedro Street & 1st Street							3%				3%	
27	Mission Road & Cesar Chavez Avenue								15%			10%	
28	Vignes Street & Bauchet Street												
29	Central Avenue & 1st Street							3%				3%	
30	Vignes Street & Bauchet Street			15%		15%							
31	Center Street & Ramirez Street/Keller Street			15%		35%							

PM TRIPS PERCENTAGES

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street		3%		10%	3%							10%
2	Garey Street & Commercial Street				15%				10%			5%	35%
3	Vignes Street & Commercial Street												
4	Center Street & Commercial Street												
5	Alameda Street & Temple Street		3%			3%							
6	Vignes Street & Temple Street		10%			10%							
7	Alameda Street & 1st Street		3%	7%		3%					7%	3%	
8	Vignes Street & 1st Street				7%		3%	10%					
9	Alameda Street & El Monte Busway/Arcadia Street		13%			13%							
10	Alameda Street & Los Angeles Street EB		13%			13%		2%					
11	Alameda Street & Cesar E Chavez Avenue		15%			15%	5%						
12	Alameda Street & Vignes Street/Alpine Street		3%			3%							
13	Vignes Street & Cesar E Chavez Avenue		5%		15%								10%
14	Vignes Street & Ramirez Street		5%	35%							15%		
109	Alameda Street & El Monte Busway (EB)		13%			13%							
110	Alameda Street & Los Angeles Street WB		15%			13%	2%						
15	Vignes Street & Main Street		17%		15%	7%					10%		15%
16	Alameda Street/Spring Street & College Street		3%		2%	3%							2%
17	Alameda Street & Main Street/Ord Street		3%	17%		20%							
18	Alameda Street & Main Street/Bauchet Street		15%			20%		5%					
19	Main Street & Cesar Chavez Avenue		3%					2%				5%	
20	Alameda Street & Northbound US-101		13%			13%							
21	Los Angeles Street & Arcadia Street		2%			2%							
22	Los Angeles Street & Aliso Street		2%			2%							
23	Los Angeles Street & Temple Street		2%			2%							
24	Los Angeles Street & 1st Street		2%	3%		2%					3%		
25	Judge John Aiso Street & Temple Street												
26	Judge John Aiso Street/San Pedro Street & 1st Street							3%				3%	
27	Mission Road & Cesar Chavez Avenue								15%			10%	
28	Mission Road & 1st Street												
29	Central Avenue & 1st Street							3%				3%	
30	Vignes Street & Bauchet Street			15%		15%							
31	Center Street & Ramirez Street/Keller Street			15%		35%							

AM LABOR TRIPS

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street		18		61	3							10
2	Garey Street & Commercial Street				92						61		
3	Vignes Street & Commercial Street												
4	Center Street & Commercial Street												
5	Alameda Street & Temple Street		18			3							
6	Vignes Street & Temple Street		61			10							
7	Alameda Street & 1st Street		18	43		3					7	3	
8	Vignes Street & 1st Street						3	10					
9	Alameda Street & El Monte Busway/Arcadia Street		18			13							
10	Alameda Street & Los Angeles Street EB		18			13		2					
11	Alameda Street & Cesar E Chavez Avenue		31			15	5						
12	Alameda Street & Vignes Street/Alpine Street					3							
13	Vignes Street & Cesar E Chavez Avenue		31			15							10
14	Vignes Street & Ramirez Street		31	214							15		
109	Alameda Street & El Monte Busway (EB)		18			13							
110	Alameda Street & Los Angeles Street WB		31			13	2						
15	Vignes Street & Main Street		61			7					10		15
16	Alameda Street/Spring Street & College Street				12	3							2
17	Alameda Street & Main Street/Ord Street					20							
18	Alameda Street & Main Street/Bauchet Street		31			20		5					
19	Main Street & Cesar Chavez Avenue		18					2				5	
20	Alameda Street & Northbound US-101		18			13							
21	Los Angeles Street & Arcadia Street		12			2							
22	Los Angeles Street & Aliso Street		12			2							
23	Los Angeles Street & Temple Street		12			2							
24	Los Angeles Street & 1st Street		12	18		2					3		
25	Judge John Aiso Street & Temple Street												
26	Judge John Aiso Street/San Pedro Street & 1st Street							3				3	
27	Mission Road & Cesar Chavez Avenue								15			10	
28	Vignes Street & Bauchet Street												
29	Central Avenue & 1st Street							3				3	
30	Vignes Street & Bauchet Street					15							
31	Center Street & Ramirez Street/Keller Street					15							

PM LABOR TRIPS

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
1	Alameda Street & Commercial Street					7							24
2	Garey Street & Commercial Street											12	85
3	Vignes Street & Commercial Street												
4	Center Street & Commercial Street												
5	Alameda Street & Temple Street					7							
6	Vignes Street & Temple Street					24							
7	Alameda Street & 1st Street					7					17	7	
8	Vignes Street & 1st Street						17	7					
9	Alameda Street & El Monte Busway/Arcadia Street		24			7							
10	Alameda Street & Los Angeles Street EB		24			7							
11	Alameda Street & Cesar E Chavez Avenue		24			12	12						
12	Alameda Street & Vignes Street/Alpine Street		7										
13	Vignes Street & Cesar E Chavez Avenue					37							
14	Vignes Street & Ramirez Street											37	
109	Alameda Street & El Monte Busway (EB)		24			7							
110	Alameda Street & Los Angeles Street WB		24			7	5						
15	Vignes Street & Main Street		17			37					24		
16	Alameda Street/Spring Street & College Street		7										5
17	Alameda Street & Main Street/Ord Street		7	17		24							
18	Alameda Street & Main Street/Bauchet Street		24			24							
19	Main Street & Cesar Chavez Avenue											12	
20	Alameda Street & Northbound US-101		24			7							
21	Los Angeles Street & Arcadia Street					5							
22	Los Angeles Street & Aliso Street					5							
23	Los Angeles Street & Temple Street					5							
24	Los Angeles Street & 1st Street					5					7		
25	Judge John Aiso Street & Temple Street												
26	Judge John Aiso Street/San Pedro Street & 1st Street											7	
27	Mission Road & Cesar Chavez Avenue									37			
28	Mission Road & 1st Street												
29	Central Avenue & 1st Street											7	
30	Vignes Street & Bauchet Street					37							
31	Center Street & Ramirez Street/Keller Street					37							

Appendix K: Allocation of Project Traffic at Study Intersections

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Appendix L: 2031 and 2040 Intersection Analysis Worksheets

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HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	32	118	154	0	205	0	691	154	132	1207	0
Future Volume (vph)	44	32	118	154	0	205	0	691	154	132	1207	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	35	128	167	0	223	0	751	167	143	1312	0
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	48	35	12	167	0	223	0	751	62	143	1312	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	8.5	8.5	8.5	21.5		21.5		28.5	28.5	13.5	46.5	
Effective Green, g (s)	8.5	8.5	8.5	21.5		21.5		28.5	28.5	13.5	46.5	
Actuated g/C Ratio	0.09	0.09	0.09	0.24		0.24		0.32	0.32	0.15	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	324	175	149	422		378		1120	501	265	2627	
v/s Ratio Prot	0.01	c0.02		0.09		c0.14		c0.21		0.08	c0.26	
v/s Ratio Perm			0.01						0.04			
v/c Ratio	0.15	0.20	0.08	0.40		0.59		0.67	0.12	0.54	0.50	
Uniform Delay, d1	37.4	37.6	37.2	28.8		30.3		26.7	21.9	35.4	14.2	
Progression Factor	0.81	0.82	0.62	0.89		0.90		1.61	3.86	1.38	0.60	
Incremental Delay, d2	0.9	2.5	1.0	2.7		6.5		3.0	0.5	6.5	0.6	
Delay (s)	31.2	33.2	24.1	28.4		33.8		45.9	84.9	55.4	9.1	
Level of Service	C	C	C	C		C		D	F	E	A	
Approach Delay (s)		27.2			31.5			52.9			13.7	
Approach LOS		C			C			D			B	
Intersection Summary												
HCM 2000 Control Delay			29.1		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			52.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/11/2018














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	61	14	10	154	99	13	38	7	186	68	192
Future Volume (vph)	243	61	14	10	154	99	13	38	7	186	68	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00		1.00	0.95			0.95			1.00	1.00
Frt	1.00	0.97		1.00	0.94			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.96	1.00
Satd. Flow (prot)	3433	1811		1770	3331			3434			1797	1583
Flt Permitted	0.95	1.00		0.70	1.00			0.99			0.96	1.00
Satd. Flow (perm)	3433	1811		1312	3331			3434			1797	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	66	15	11	167	108	14	41	8	202	74	209
RTOR Reduction (vph)	0	7	0	0	67	0	0	7	0	0	0	136
Lane Group Flow (vph)	264	74	0	11	208	0	0	56	0	0	276	73
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	12.2	50.8		34.1	34.1			6.5			19.2	31.4
Effective Green, g (s)	12.2	50.8		34.1	34.1			6.5			19.2	31.4
Actuated g/C Ratio	0.14	0.56		0.38	0.38			0.07			0.21	0.35
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	465	1022		497	1262			248			383	631
v/s Ratio Prot	c0.08	0.04			c0.06			c0.02			c0.15	0.02
v/s Ratio Perm				0.01								0.02
v/c Ratio	0.57	0.07		0.02	0.16			0.22			0.72	0.12
Uniform Delay, d1	36.4	8.9		17.5	18.5			39.4			32.9	19.9
Progression Factor	1.38	0.34		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.5	0.1		0.0	0.1			2.1			6.5	0.1
Delay (s)	51.9	3.2		17.5	18.6			41.5			39.5	20.0
Level of Service	D	A		B	B			D			D	B
Approach Delay (s)		40.4			18.5			41.5			31.1	
Approach LOS		D			B			D			C	

Intersection Summary		
HCM 2000 Control Delay	31.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.39	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	46.2%	ICU Level of Service A
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: N Vignes St & E Commercial St





















12/11/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	231	23	93	205	58	57
Future Volume (vph)	231	23	93	205	58	57
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	251	25	101	223	63	62
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total (vph)	276	101	223	63	62	
Volume Left (vph)	0	101	0	63	0	
Volume Right (vph)	25	0	0	0	62	
Hadj (s)	-0.02	0.53	0.03	0.53	-0.67	
Departure Headway (s)	5.0	5.7	5.2	6.5	5.3	
Degree Utilization, x	0.39	0.16	0.32	0.11	0.09	
Capacity (veh/h)	689	613	676	514	623	
Control Delay (s)	11.1	8.5	9.4	9.1	7.6	
Approach Delay (s)	11.1	9.1		8.4		
Approach LOS	B	A		A		
Intersection Summary						
Delay			9.8			
Level of Service			A			
Intersection Capacity Utilization			32.0%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: E Commercial St & Center St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	199	4	85	3	4	7	72	363	7	9	368	222
Future Volume (vph)	199	4	85	3	4	7	72	363	7	9	368	222
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	216	4	92	3	4	8	78	395	8	10	400	241
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total (vph)	312	15	78	395	8	10	400	241				
Volume Left (vph)	216	3	78	0	0	10	0	0				
Volume Right (vph)	92	8	0	0	8	0	0	241				
Hadj (s)	0.00	-0.25	0.53	0.03	-0.67	0.53	0.03	-0.67				
Departure Headway (s)	6.3	7.1	6.8	6.3	3.2	6.9	6.4	3.2				
Degree Utilization, x	0.55	0.03	0.15	0.70	0.01	0.02	0.71	0.21				
Capacity (veh/h)	534	407	506	548	1121	498	541	1122				
Control Delay (s)	16.6	10.3	9.8	21.3	5.0	8.9	22.6	5.9				
Approach Delay (s)	16.6	10.3	19.2					16.2				
Approach LOS	C	B	C					C				
Intersection Summary												
Delay			17.2									
Level of Service			C									
Intersection Capacity Utilization			56.5%	ICU Level of Service				B				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	166	152	25	355	41	260	697	0	30	860	442
Future Volume (vph)	106	166	152	25	355	41	260	697	0	30	860	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3285		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.24	1.00		0.54	1.00		0.23	1.00		0.95	1.00	1.00
Satd. Flow (perm)	441	3285		1014	3484		422	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	180	165	27	386	45	283	758	0	33	935	480
RTOR Reduction (vph)	0	118	0	0	0	0	0	0	0	0	0	186
Lane Group Flow (vph)	115	227	0	27	431	0	283	758	0	33	935	294
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	34.7	34.7
Effective Green, g (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	34.7	34.7
Actuated g/C Ratio	0.28	0.28		0.18	0.18		0.52	0.52		0.04	0.39	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	201	930		178	611		465	1856		74	1364	610
v/s Ratio Prot	c0.03	0.07			c0.12		c0.11	0.21		0.02	c0.26	
v/s Ratio Perm	0.13			0.03			0.21					0.19
v/c Ratio	0.57	0.24		0.15	0.71		0.61	0.41		0.45	0.69	0.48
Uniform Delay, d1	25.4	24.8		31.4	34.9		21.7	13.0		42.1	23.1	20.9
Progression Factor	0.78	0.65		1.00	1.00		0.51	0.31		1.40	0.44	0.16
Incremental Delay, d2	3.8	0.1		0.4	3.7		2.0	0.6		3.8	2.5	2.4
Delay (s)	23.8	16.3		31.8	38.6		13.1	4.6		62.7	12.7	5.7
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		18.2			38.2			6.9			11.5	
Approach LOS		B			D			A			B	


















Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	25	64	7	104	3	363	92	11	6	47	62
Future Volume (vph)	50	25	64	7	104	3	363	92	11	6	47	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	27	70	8	113	3	395	100	12	7	51	67
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	81	70	124	507	125							
Volume Left (vph)	54	0	8	395	7							
Volume Right (vph)	0	70	3	12	67							
Hadj (s)	0.37	-0.67	0.03	0.18	-0.28							
Departure Headway (s)	6.8	5.7	6.0	5.1	5.2							
Degree Utilization, x	0.15	0.11	0.21	0.72	0.18							
Capacity (veh/h)	481	563	532	687	631							
Control Delay (s)	9.8	8.2	10.6	19.9	9.4							
Approach Delay (s)	9.1		10.6	19.9	9.4							
Approach LOS	A		B	C	A							
Intersection Summary												
Delay			15.4									
Level of Service			C									
Intersection Capacity Utilization			50.4%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	0	0	0	0	528	27	2	930	51	13	855	168
Future Volume (vph)	0	0	0	0	528	27	2	930	51	13	855	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted					1.00	1.00	0.24	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)					3539	1583	451	3539	1583	396	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	29	2	1011	55	14	929	183
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	25	0	0	25
Lane Group Flow (vph)	0	0	0	0	574	29	2	1011	30	14	929	158
Turn Type	pm+pt				NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Effective Green, g (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Actuated g/C Ratio					0.23	0.23	0.55	0.55	0.55	0.55	0.55	0.62
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)					825	369	249	1954	874	218	1954	1055
v/s Ratio Prot					c0.16			c0.29			0.26	c0.01
v/s Ratio Perm						0.02	0.00		0.02	0.04		0.09
v/c Ratio					0.70	0.08	0.01	0.52	0.03	0.06	0.48	0.15
Uniform Delay, d1					31.6	26.9	9.1	12.6	9.2	9.4	12.2	7.3
Progression Factor					1.62	1.70	1.00	1.00	1.00	0.51	0.39	0.11
Incremental Delay, d2					1.6	0.1	0.1	1.0	0.1	0.5	0.7	0.1
Delay (s)					52.7	45.8	9.1	13.6	9.3	5.3	5.5	0.8
Level of Service					D	D	A	B	A	A	A	A
Approach Delay (s)		0.0			52.4			13.4			4.8	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗		↔↔			↕			↕	
Traffic Volume (vph)	31	117	10	184	531	406	4	19	27	27	33	20
Future Volume (vph)	31	117	10	184	531	406	4	19	27	27	33	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.95			0.93			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.98	
Satd. Flow (prot)		3502	1583		3320			1721			1770	
Flt Permitted		0.99	1.00		0.99			0.98			0.90	
Satd. Flow (perm)		3502	1583		3320			1701			1620	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	127	11	200	577	441	4	21	29	29	36	22
RTOR Reduction (vph)	0	0	8	0	95	0	0	23	0	0	14	0
Lane Group Flow (vph)	0	161	3	0	1123	0	0	31	0	0	73	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8			4	4
Permitted Phases			2				8			4		
Actuated Green, G (s)		22.3	22.3		36.1			18.1			18.1	
Effective Green, g (s)		22.3	22.3		36.1			18.1			18.1	
Actuated g/C Ratio		0.25	0.25		0.40			0.20			0.20	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		867	392		1331			342			325	
v/s Ratio Prot		c0.05			c0.34							
v/s Ratio Perm			0.00					0.02			c0.05	
v/c Ratio		0.19	0.01		0.84			0.09			0.23	
Uniform Delay, d1		26.7	25.5		24.4			29.3			30.1	
Progression Factor		1.06	1.00		0.61			1.00			1.00	
Incremental Delay, d2		0.5	0.0		2.8			0.5			1.6	
Delay (s)		28.8	25.5		17.8			29.8			31.7	
Level of Service		C	C		B			C			C	
Approach Delay (s)		28.6			17.8			29.8			31.7	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔	↗	↖	↔	↗		↔	↗
Traffic Volume (vph)	0	0	0	480	1755	229	115	826	0	0	859	55
Future Volume (vph)	0	0	0	480	1755	229	115	826	0	0	859	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91	
Fr _t				1.00	0.98		1.00	1.00			0.99	
Fl _t Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4719		1770	5085			5039	
Fl _t Permitted				0.95	1.00		0.21	1.00			1.00	
Satd. Flow (perm)				1522	4719		386	5085			5039	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	522	1908	249	125	898	0	0	934	60
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	470	2209	0	125	898	0	0	991	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				44.5	44.5		36.5	36.5			36.5	
Effective Green, g (s)				44.5	44.5		36.5	36.5			36.5	
Actuated g/C Ratio				0.49	0.49		0.41	0.41			0.41	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				752	2333		156	2062			2043	
v/s Ratio Prot				0.31	c0.47			0.18			0.20	
v/s Ratio Perm							c0.32					
v/c Ratio				0.62	0.95		0.80	0.44			0.49	
Uniform Delay, d ₁				16.6	21.6		23.6	19.3			19.8	
Progression Factor				1.00	1.00		0.67	0.54			0.22	
Incremental Delay, d ₂				3.9	9.8		27.6	0.5			0.8	
Delay (s)				20.5	31.4		43.5	10.9			5.1	
Level of Service				C	C		D	B			A	
Approach Delay (s)		0.0			29.5			14.8			5.1	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↔						↕		↖	↕	↗
Traffic Volume (vph)	107	53	18	0	0	0	0	519	106	61	1102	0
Future Volume (vph)	107	53	18	0	0	0	0	519	106	61	1102	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.98						0.97		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3247						4956		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.35	1.00	
Satd. Flow (perm)	1610	3247						4956		645	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	58	20	0	0	0	0	564	115	66	1198	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	34	0	0	0	0
Lane Group Flow (vph)	65	115	0	0	0	0	0	645	0	66	1198	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	25.5	25.5						37.5		55.5	55.5	
Effective Green, g (s)	25.5	25.5						37.5		55.5	55.5	
Actuated g/C Ratio	0.28	0.28						0.42		0.62	0.62	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	456	919						2065		566	3135	
v/s Ratio Prot	c0.04	0.04						0.13		0.02	c0.24	
v/s Ratio Perm										0.05		
v/c Ratio	0.14	0.12						0.31		0.12	0.38	
Uniform Delay, d1	24.1	24.0						17.6		9.0	8.7	
Progression Factor	1.00	1.00						1.46		0.26	0.27	
Incremental Delay, d2	0.7	0.3						0.3		0.4	0.3	
Delay (s)	24.7	24.2						26.1		2.7	2.7	
Level of Service	C	C						C		A	A	
Approach Delay (s)		24.4			0.0			26.1			2.7	
Approach LOS		C			A			C			A	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 11: N Alameda St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	49	499	99	116	1239	46	123	412	129	76	1173	157
Future Volume (vph)	49	499	99	116	1239	46	123	412	129	76	1173	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5058		1770	4904		1770	4995	
Flt Permitted	0.14	1.00	1.00	0.29	1.00		0.16	1.00		0.28	1.00	
Satd. Flow (perm)	263	3539	1583	544	5058		304	4904		530	4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	542	108	126	1347	50	134	448	140	83	1275	171
RTOR Reduction (vph)	0	0	65	0	5	0	0	63	0	0	19	0
Lane Group Flow (vph)	53	542	43	126	1392	0	134	525	0	83	1427	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.5	28.5	36.0	38.3	38.3		32.0	32.0		30.7	30.7	
Effective Green, g (s)	28.5	28.5	36.0	38.3	38.3		32.0	32.0		30.7	30.7	
Actuated g/C Ratio	0.32	0.32	0.40	0.43	0.43		0.36	0.36		0.34	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	83	1120	633	303	2152		230	1743		266	1703	
v/s Ratio Prot		0.15	0.01	0.02	c0.28		c0.05	0.11		0.02	c0.29	
v/s Ratio Perm	0.20		0.02	0.15			0.16			0.08		
v/c Ratio	0.64	0.48	0.07	0.42	0.65		0.58	0.30		0.31	0.84	
Uniform Delay, d1	26.3	24.8	16.7	16.9	20.5		31.4	20.9		20.9	27.4	
Progression Factor	0.86	0.84	0.70	1.00	1.00		0.62	0.22		0.56	0.70	
Incremental Delay, d2	31.5	1.5	0.2	4.2	1.5		10.3	0.4		2.9	4.8	
Delay (s)	54.2	22.2	11.9	21.0	22.0		29.6	5.1		14.6	24.1	
Level of Service	D	C	B	C	C		C	A		B	C	
Approach Delay (s)		23.1			21.9			9.7			23.6	
Approach LOS		C			C			A			C	

Intersection Summary			
HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↘		↘	↗↘	↗	↘	↗↘	↗	↘	↗↘↗	
Traffic Volume (vph)	56	116	63	50	753	147	58	263	12	145	967	244
Future Volume (vph)	56	116	63	50	753	147	58	263	12	145	967	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3353		1770	3539	1583	1770	3539	1583	1770	4932	
Flt Permitted	0.18	1.00		0.63	1.00	1.00	0.16	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	339	3353		1173	3539	1583	293	3539	1583	1074	4932	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	126	68	54	818	160	63	286	13	158	1051	265
RTOR Reduction (vph)	0	51	0	0	0	71	0	0	6	0	37	0
Lane Group Flow (vph)	61	143	0	54	818	89	63	286	7	158	1279	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	22.0	22.0		30.9	30.9	30.9	50.1	50.1	50.1	50.1	50.1	
Effective Green, g (s)	22.0	22.0		30.9	30.9	30.9	50.1	50.1	50.1	50.1	50.1	
Actuated g/C Ratio	0.24	0.24		0.34	0.34	0.34	0.56	0.56	0.56	0.56	0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	819		431	1215	543	163	1970	881	597	2745	
v/s Ratio Prot		0.04		0.01	c0.23			0.08			c0.26	
v/s Ratio Perm	c0.18			0.04		0.06	0.21		0.00	0.15		
v/c Ratio	0.74	0.17		0.13	0.67	0.16	0.39	0.15	0.01	0.26	0.47	
Uniform Delay, d1	31.4	26.8		20.3	25.2	20.6	11.3	9.6	8.9	10.4	11.9	
Progression Factor	1.00	1.00		0.72	0.74	0.76	0.71	0.52	1.00	0.27	0.24	
Incremental Delay, d2	30.1	0.1		0.1	1.1	0.1	6.7	0.2	0.0	1.0	0.5	
Delay (s)	61.5	26.9		14.8	19.9	15.8	14.7	5.2	8.9	3.8	3.4	
Level of Service	E	C		B	B	B	B	A	A	A	A	
Approach Delay (s)		35.2			19.0			7.0			3.4	
Approach LOS		D			B			A			A	

Intersection Summary

HCM 2000 Control Delay	11.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: N Vignes St & E Cesar E Chavez Ave

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	52	444	199	253	1256	345	159	374	59	150	361	30
Future Volume (vph)	52	444	199	253	1256	345	159	374	59	150	361	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3498	3498
Flt Permitted	0.11	1.00	1.00	0.37	1.00	1.00	0.56	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	207	3539	1583	693	3539	1583	1049	3539	1583	1049	3498	3498
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	483	216	275	1365	375	173	407	64	163	392	33
RTOR Reduction (vph)	0	0	130	0	0	177	0	0	53	0	7	0
Lane Group Flow (vph)	57	483	86	275	1365	198	173	407	11	163	418	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	40.3	36.0	36.0	52.1	43.3	43.3	15.9	15.9	15.9	15.6	15.6	15.6
Effective Green, g (s)	40.3	36.0	36.0	52.1	43.3	43.3	15.9	15.9	15.9	15.6	15.6	15.6
Actuated g/C Ratio	0.45	0.40	0.40	0.58	0.48	0.48	0.18	0.18	0.18	0.17	0.17	0.17
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1415	633	539	1702	761	255	625	279	249	606	606
v/s Ratio Prot	0.02	0.14		c0.07	c0.39		0.07	c0.11		0.06	c0.12	
v/s Ratio Perm	0.14		0.05	0.23		0.12	0.05		0.01	0.05		
v/c Ratio	0.34	0.34	0.14	0.51	0.80	0.26	0.68	0.65	0.04	0.65	0.69	0.69
Uniform Delay, d1	16.5	18.8	17.1	10.1	19.7	13.8	34.3	34.5	30.7	33.9	34.9	34.9
Progression Factor	1.00	1.00	1.00	0.70	0.68	0.16	0.91	0.91	1.00	0.65	0.66	0.66
Incremental Delay, d2	1.2	0.7	0.4	0.1	0.4	0.1	6.7	2.3	0.1	6.0	3.2	3.2
Delay (s)	17.8	19.4	17.6	7.1	13.8	2.3	38.1	33.9	30.8	28.2	26.4	26.4
Level of Service	B	B	B	A	B	A	D	C	C	C	C	C
Approach Delay (s)		18.8			10.7			34.7			26.9	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			18.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			73.6%	ICU Level of Service			D					
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	68	70	106	128	336	35	179	101	430	150	234
Future Volume (vph)	115	68	70	106	128	336	35	179	101	430	150	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3154		1770	1863	1583	3433	3539	1583	3433	3216	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1133	2739		1770	1863	1583	3433	3539	1583	3433	3216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	74	76	115	139	365	38	195	110	467	163	254
RTOR Reduction (vph)	0	66	0	0	0	260	0	0	72	0	120	0
Lane Group Flow (vph)	85	124	0	115	139	105	38	195	38	467	297	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.3	12.3		9.1	25.9	25.9	3.1	31.4	31.4	19.2	47.5	
Effective Green, g (s)	12.3	12.3		9.1	25.9	25.9	3.1	31.4	31.4	19.2	47.5	
Actuated g/C Ratio	0.14	0.14		0.10	0.29	0.29	0.03	0.35	0.35	0.21	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	154	374		178	536	455	118	1234	552	732	1697	
v/s Ratio Prot				c0.06	0.07		0.01	0.06		c0.14	c0.09	
v/s Ratio Perm	c0.08	0.05				0.07			0.02			
v/c Ratio	0.55	0.33		0.65	0.26	0.23	0.32	0.16	0.07	0.64	0.18	
Uniform Delay, d1	36.3	35.1		38.9	24.7	24.5	42.4	20.2	19.6	32.2	11.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.46	
Incremental Delay, d2	4.2	0.5		7.8	0.3	0.3	1.6	0.3	0.2	1.6	0.2	
Delay (s)	40.5	35.7		46.7	24.9	24.7	44.0	20.5	19.8	24.0	5.3	
Level of Service	D	D		D	C	C	D	C	B	C	A	
Approach Delay (s)		37.2			28.8			22.9			15.2	
Approach LOS		D			C			C			B	

Intersection Summary

























HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	43.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St
























12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	61	200	5	0	403	183	1	171	42	226	495	546
Future Volume (vph)	61	200	5	0	403	183	1	171	42	226	495	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3527			3373		1770	3434		1770	3261	
Flt Permitted	0.95	1.00			1.00		0.17	1.00		0.61	1.00	
Satd. Flow (perm)	1770	3527			3373		322	3434		1131	3261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	217	5	0	438	199	1	186	46	246	538	593
RTOR Reduction (vph)	0	3	0	0	60	0	0	18	0	0	169	0
Lane Group Flow (vph)	66	219	0	0	577	0	1	214	0	246	962	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.6	31.5			19.4		49.5	49.5		49.5	49.5	
Effective Green, g (s)	7.6	31.5			19.4		49.5	49.5		49.5	49.5	
Actuated g/C Ratio	0.08	0.35			0.22		0.55	0.55		0.55	0.55	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	1234			727		177	1888		622	1793	
v/s Ratio Prot	c0.04	0.06			c0.17			0.06			c0.29	
v/s Ratio Perm							0.00			0.22		
v/c Ratio	0.44	0.18			0.79		0.01	0.11		0.40	0.54	
Uniform Delay, d1	39.2	20.3			33.4		9.1	9.7		11.6	12.9	
Progression Factor	1.22	1.25			1.63		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.1			5.9		0.1	0.1		1.9	1.2	
Delay (s)	49.7	25.5			60.3		9.2	9.8		13.5	14.1	
Level of Service	D	C			E		A	A		B	B	
Approach Delay (s)		31.0			60.3			9.8			14.0	
Approach LOS		C			E			A			B	
Intersection Summary												
HCM 2000 Control Delay			27.2				HCM 2000 Level of Service				C	
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			71.6%				ICU Level of Service				C	
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/11/2018





















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	81	69	167	29	153	10	190	263	12	11	1159	154
Future Volume (vph)	81	69	167	29	153	10	190	263	12	11	1159	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1845		1770	3516		1770	4996	
Flt Permitted	0.47	1.00	1.00	0.71	1.00		0.13	1.00		0.57	1.00	
Satd. Flow (perm)	871	1863	1583	1319	1845		237	3516		1060	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	75	182	32	166	11	207	286	13	12	1260	167
RTOR Reduction (vph)	0	0	154	0	3	0	0	3	0	0	14	0
Lane Group Flow (vph)	88	75	28	32	174	0	207	296	0	12	1413	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Effective Green, g (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.75	0.75		0.58	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	285	242	202	282		357	2625		613	2892	
v/s Ratio Prot		0.04			0.09		c0.07	0.08			0.28	
v/s Ratio Perm	c0.10		0.02	0.02			c0.36			0.01		
v/c Ratio	0.66	0.26	0.12	0.16	0.62		0.58	0.11		0.02	0.49	
Uniform Delay, d1	35.9	33.6	32.8	33.1	35.6		6.9	3.2		8.1	11.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.70	0.54		1.00	1.00	
Incremental Delay, d2	11.7	0.5	0.2	0.4	4.0		2.3	0.1		0.1	0.6	
Delay (s)	47.6	34.1	33.1	33.4	39.6		14.0	1.8		8.1	11.7	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		37.0			38.7			6.8			11.7	
Approach LOS		D			D			A			B	
Intersection Summary												
HCM 2000 Control Delay			16.5			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			64.5%			ICU Level of Service			C			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			  	
Traffic Volume (veh/h)	0	0	64	0	0	0	57	369	235	0	1344	229
Future Volume (Veh/h)	0	0	64	0	0	0	57	369	235	0	1344	229
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	70	0	0	0	62	401	255	0	1461	249
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage (veh)												
Upstream signal (ft)												
								206			797	
pX, platoon unblocked	0.91	0.91	0.90	0.91	0.91	0.99	0.90			0.99		
vC, conflicting volume	1910	2110	612	1082	2235	200	1710			401		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1591	1812	196	680	1949	172	1412			375		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	100	86			100		
cM capacity (veh/h)	58	60	734	247	50	833	433			1169		
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	70	62	200	200	255	584	584	541				
Volume Left	0	62	0	0	0	0	0	0				
Volume Right	70	0	0	0	255	0	0	249				
cSH	734	433	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.10	0.14	0.12	0.12	0.15	0.34	0.34	0.32				
Queue Length 95th (ft)	8	12	0	0	0	0	0	0				
Control Delay (s)	10.4	14.7	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.4	1.3				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			41.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St
























12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	191	37	15	20	0	11	0	458	49	37	1371	0	
Future Volume (vph)	191	37	15	20	0	11	0	458	49	37	1371	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91		
Frt	1.00	0.96		1.00		0.85		0.99		1.00	1.00		
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00		
Satd. Flow (prot)	3433	1783		1770		1583		5012		1770	5085		
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.44	1.00		
Satd. Flow (perm)	3433	1783		1770		1583		5012		811	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	208	40	16	22	0	12	0	498	53	40	1490	0	
RTOR Reduction (vph)	0	14	0	0	0	12	0	9	0	0	0	0	
Lane Group Flow (vph)	208	42	0	22	0	0	0	542	0	40	1490	0	
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA		
Protected Phases	7	4		3				2			6		
Permitted Phases	4					8				6			
Actuated Green, G (s)	18.0	9.5		4.0		1.1		63.0		63.0	63.0		
Effective Green, g (s)	18.0	9.5		4.0		1.1		63.0		63.0	63.0		
Actuated g/C Ratio	0.20	0.11		0.04		0.01		0.70		0.70	0.70		
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)	686	188		78		19		3508		567	3559		
v/s Ratio Prot	c0.04	0.02		0.01				0.11			c0.29		
v/s Ratio Perm	0.02					0.00				0.05			
v/c Ratio	0.30	0.22		0.28		0.01		0.15		0.07	0.42		
Uniform Delay, d1	30.7	36.9		41.6		43.9		4.5		4.3	5.7		
Progression Factor	0.81	0.66		1.00		1.00		0.26		0.60	0.51		
Incremental Delay, d2	0.2	0.6		2.0		0.2		0.1		0.2	0.4		
Delay (s)	25.1	24.8		43.6		44.1		1.3		2.8	3.3		
Level of Service	C	C		D		D		A		A	A		
Approach Delay (s)		25.0			43.8			1.3			3.3		
Approach LOS		C			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			5.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			46.1%									ICU Level of Service	A
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave













12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			  			  					
Traffic Volume (vph)	63	551	0	0	1499	20	120	161	95	0	0	0	
Future Volume (vph)	63	551	0	0	1499	20	120	161	95	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5					
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86					
Frt	1.00	1.00			1.00		1.00	0.95					
Flt Protected	0.95	1.00			1.00		0.95	1.00					
Satd. Flow (prot)	1770	3539			5075		1522	4542					
Flt Permitted	0.12	1.00			1.00		0.95	1.00					
Satd. Flow (perm)	216	3539			5075		1522	4542					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	68	599	0	0	1629	22	130	175	103	0	0	0	
RTOR Reduction (vph)	0	0	0	0	2	0	0	81	0	0	0	0	
Lane Group Flow (vph)	68	599	0	0	1649	0	103	224	0	0	0	0	
Turn Type	Perm	NA			NA		pm+pt	NA					
Protected Phases		4			8		6	2					
Permitted Phases	4						2						
Actuated Green, G (s)	61.5	61.5			61.5		19.5	19.5					
Effective Green, g (s)	61.5	61.5			61.5		19.5	19.5					
Actuated g/C Ratio	0.68	0.68			0.68		0.22	0.22					
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5					
Lane Grp Cap (vph)	147	2418			3467		329	984					
v/s Ratio Prot		0.17			c0.32		c0.07	0.05					
v/s Ratio Perm	0.32												
v/c Ratio	0.46	0.25			0.48		0.31	0.23					
Uniform Delay, d1	6.6	5.4			6.7		29.6	29.0					
Progression Factor	1.00	1.00			0.32		1.00	1.00					
Incremental Delay, d2	10.1	0.2			0.3		2.5	0.5					
Delay (s)	16.7	5.7			2.5		32.1	29.6					
Level of Service	B	A			A		C	C					
Approach Delay (s)		6.8			2.5		30.2				0.0		
Approach LOS		A			A		C				A		
Intersection Summary													
HCM 2000 Control Delay			7.7				HCM 2000 Level of Service		A				
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0				
Intersection Capacity Utilization			50.6%				ICU Level of Service		A				
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St













12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	300	1564	60	87	263	0	0	338	41
Future Volume (vph)	0	0	0	300	1564	60	87	263	0	0	338	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Fr _t					1.00		1.00	1.00			0.98	
Fl _t Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3481	
Fl _t Permitted					0.99		0.44	1.00			1.00	
Satd. Flow (perm)					5022		810	3539			3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	1700	65	95	286	0	0	367	45
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	0	2087	0	95	286	0	0	402	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					53.5		27.5	27.5			27.5	
Effective Green, g (s)					53.5		27.5	27.5			27.5	
Actuated g/C Ratio					0.59		0.31	0.31			0.31	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					2985		247	1081			1063	
v/s Ratio Prot								0.08			0.12	
v/s Ratio Perm					0.42		c0.12					
v/c Ratio					0.70		0.38	0.26			0.38	
Uniform Delay, d ₁					12.7		24.6	23.6			24.5	
Progression Factor					0.17		0.60	0.61			1.00	
Incremental Delay, d ₂					0.5		4.4	0.6			1.0	
Delay (s)					2.7		19.2	15.0			25.6	
Level of Service					A		B	B			C	
Approach Delay (s)		0.0			2.7			16.0			25.6	
Approach LOS		A			A			B			C	
Intersection Summary												
HCM 2000 Control Delay			7.7		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0	
Intersection Capacity Utilization			74.3%		ICU Level of Service						D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	31	133	152	0	0	0	0	319	61	0	638	0
Future Volume (vph)	31	133	152	0	0	0	0	319	61	0	638	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.93						0.98			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		3268						3454			3539	
Flt Permitted		1.00						1.00			1.00	
Satd. Flow (perm)		3268						3454			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	145	165	0	0	0	0	347	66	0	693	0
RTOR Reduction (vph)	0	109	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	235	0	0	0	0	0	413	0	0	693	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		30.5						50.5			50.5	
Effective Green, g (s)		30.5						50.5			50.5	
Actuated g/C Ratio		0.34						0.56			0.56	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		1107						1938			1985	
v/s Ratio Prot								0.12			c0.20	
v/s Ratio Perm		0.07										
v/c Ratio		0.21						0.21			0.35	
Uniform Delay, d1		21.2						9.8			10.8	
Progression Factor		1.00						0.59			0.46	
Incremental Delay, d2		0.4						0.2			0.4	
Delay (s)		21.6						6.1			5.3	
Level of Service		C						A			A	
Approach Delay (s)		21.6			0.0			6.1			5.3	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.4					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			74.3%					ICU Level of Service		D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	33	385	172	100	743	122	70	327	52	169	917	94
Future Volume (vph)	33	385	172	100	743	122	70	327	52	169	917	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3464		1770	3466		1770	3539	1583
Flt Permitted	0.17	1.00		0.34	1.00		0.20	1.00		0.49	1.00	1.00
Satd. Flow (perm)	308	3375		628	3464		373	3466		917	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	418	187	109	808	133	76	355	57	184	997	102
RTOR Reduction (vph)	0	48	0	0	15	0	0	14	0	0	0	31
Lane Group Flow (vph)	36	557	0	109	926	0	76	398	0	184	997	71
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Effective Green, g (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.51	0.51		0.51	0.51	0.51
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	121	1331		247	1366		188	1752		463	1789	800
v/s Ratio Prot		0.17			c0.27			0.11			c0.28	
v/s Ratio Perm	0.12			0.17			0.20			0.20		0.04
v/c Ratio	0.30	0.42		0.44	0.68		0.40	0.23		0.40	0.56	0.09
Uniform Delay, d1	18.7	19.8		20.0	22.5		13.8	12.4		13.8	15.3	11.5
Progression Factor	1.00	1.00		0.74	0.74		0.75	0.66		0.69	0.67	0.49
Incremental Delay, d2	6.2	1.0		5.4	2.6		6.3	0.3		2.5	1.2	0.2
Delay (s)	24.9	20.7		20.1	19.2		16.7	8.4		12.0	11.5	5.9
Level of Service	C	C		C	B		B	A		B	B	A
Approach Delay (s)		21.0			19.3			9.7			11.1	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗	↗	↘	↗↗		↘	↗↗	
Traffic Volume (vph)	29	391	120	49	645	83	107	357	41	115	822	137
Future Volume (vph)	29	391	120	49	645	83	107	357	41	115	822	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3415		1770	3539	1583	1770	3484		1770	3463	
Flt Permitted	0.21	1.00		0.31	1.00	1.00	0.22	1.00		0.49	1.00	
Satd. Flow (perm)	396	3415		584	3539	1583	408	3484		921	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	425	130	53	701	90	116	388	45	125	893	149
RTOR Reduction (vph)	0	32	0	0	0	64	0	10	0	0	15	0
Lane Group Flow (vph)	32	523	0	53	701	27	116	423	0	125	1027	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Effective Green, g (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	116	1005		171	1042	466	247	2109		557	2097	
v/s Ratio Prot		0.15			c0.20			0.12			c0.30	
v/s Ratio Perm	0.08			0.09		0.02	0.28			0.14		
v/c Ratio	0.28	0.52		0.31	0.67	0.06	0.47	0.20		0.22	0.49	
Uniform Delay, d1	24.4	26.5		24.7	27.9	22.8	9.8	8.0		8.1	10.0	
Progression Factor	1.00	1.00		0.56	0.55	0.48	1.00	1.00		0.87	0.86	
Incremental Delay, d2	5.8	1.9		4.3	3.2	0.2	6.3	0.2		0.8	0.7	
Delay (s)	30.2	28.4		18.1	18.6	11.1	16.1	8.2		7.9	9.2	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		28.5			17.8			9.9			9.1	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	346	222	204	808	186	106
Future Volume (vph)	346	222	204	808	186	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3332		1770	3539	3433	1583
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3332		743	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	241	222	878	202	115
RTOR Reduction (vph)	87	0	0	0	0	85
Lane Group Flow (vph)	530	0	222	878	202	30
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	57.5		57.5	57.5	23.5	23.5
Effective Green, g (s)	57.5		57.5	57.5	23.5	23.5
Actuated g/C Ratio	0.64		0.64	0.64	0.26	0.26
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2128		474	2261	896	413
v/s Ratio Prot	0.16			0.25	c0.06	
v/s Ratio Perm			c0.30			0.02
v/c Ratio	0.25		0.47	0.39	0.23	0.07
Uniform Delay, d1	7.0		8.4	7.8	26.1	25.0
Progression Factor	0.28		0.78	0.81	0.88	0.95
Incremental Delay, d2	0.3		2.6	0.4	0.5	0.3
Delay (s)	2.2		9.2	6.7	23.5	24.2
Level of Service	A		A	A	C	C
Approach Delay (s)	2.2			7.2	23.8	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	78	301	167	105	585	65	157	225	49	25	310	34
Future Volume (vph)	78	301	167	105	585	65	157	225	49	25	310	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.98			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3349		1770	3486			3417			3479	
Flt Permitted	0.31	1.00		0.42	1.00			0.67			0.91	
Satd. Flow (perm)	573	3349		782	3486			2344			3160	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	327	182	114	636	71	171	245	53	27	337	37
RTOR Reduction (vph)	0	85	0	0	10	0	0	11	0	0	8	0
Lane Group Flow (vph)	85	424	0	114	697	0	0	458	0	0	393	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Effective Green, g (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.44			0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	264	1544		360	1607			1028			1386	
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.15			0.15				c0.20			0.12	
v/c Ratio	0.32	0.27		0.32	0.43			0.45			0.28	
Uniform Delay, d1	15.3	15.0		15.3	16.3			17.6			16.2	
Progression Factor	0.53	0.40		1.30	1.35			1.00			0.58	
Incremental Delay, d2	2.9	0.4		2.2	0.8			1.4			0.5	
Delay (s)	11.0	6.4		22.2	22.8			19.0			9.8	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		7.0			22.7			19.0			9.8	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↙↘		↘	↕		↘	↕	↘	↘	↕	↘
Traffic Volume (vph)	291	230	131	293	899	8	214	503	91	26	1025	740
Future Volume (vph)	291	230	131	293	899	8	214	503	91	26	1025	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3212		1770	3534		1770	3539	1583	1770	3539	1583
Flt Permitted	0.20	0.58		0.33	1.00		0.13	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	344	1881		614	3534		234	3539	1583	834	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	250	142	318	977	9	233	547	99	28	1114	804
RTOR Reduction (vph)	0	40	0	0	1	0	0	0	57	0	0	39
Lane Group Flow (vph)	183	485	0	318	985	0	233	547	42	28	1114	765
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	34.8	34.8		41.2	22.9		38.5	38.5	38.5	27.3	27.3	42.4
Effective Green, g (s)	34.8	34.8		41.2	22.9		38.5	38.5	38.5	27.3	27.3	42.4
Actuated g/C Ratio	0.39	0.39		0.46	0.25		0.43	0.43	0.43	0.30	0.30	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	345	950		516	899		214	1513	677	252	1073	745
v/s Ratio Prot	0.09	0.09		c0.13	c0.28		c0.08	0.15			0.31	c0.17
v/s Ratio Perm	0.12	0.11		0.16			c0.38		0.03	0.03		0.31
v/c Ratio	0.53	0.51		0.62	1.10		1.09	0.36	0.06	0.11	1.04	1.03
Uniform Delay, d1	30.5	21.1		22.9	33.5		22.6	17.4	15.1	22.6	31.4	23.8
Progression Factor	0.73	0.65		1.00	1.00		1.32	1.05	1.48	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.4		2.2	59.7		86.0	0.6	0.2	0.9	37.9	40.1
Delay (s)	23.7	14.2		25.0	93.3		115.8	18.9	22.6	23.5	69.2	63.9
Level of Service	C	B		C	F		F	B	C	C	E	E
Approach Delay (s)		16.7			76.6			45.0			66.4	
Approach LOS		B			E			D			E	

Intersection Summary			
HCM 2000 Control Delay	58.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.0%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Future Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1831		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.57	1.00		0.57	1.00	1.00
Satd. Flow (perm)	1770	1831		1770	1803		1056	1860		1056	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	77	10	13	621	170	42	182	2	117	184	554
RTOR Reduction (vph)	0	4	0	0	11	0	0	1	0	0	0	235
Lane Group Flow (vph)	98	83	0	13	780	0	42	183	0	117	184	319
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Effective Green, g (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Actuated g/C Ratio	0.11	0.56		0.01	0.46		0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	202	1027		19	825		293	516		293	517	439
v/s Ratio Prot	c0.06	0.05		0.01	c0.43			0.10			0.10	
v/s Ratio Perm							0.04			0.11		c0.20
v/c Ratio	0.49	0.08		0.68	0.94		0.14	0.36		0.40	0.36	0.73
Uniform Delay, d1	37.4	9.1		44.3	23.3		24.4	26.0		26.4	26.0	29.4
Progression Factor	0.71	0.83		1.00	1.00		1.00	1.00		0.49	0.49	0.13
Incremental Delay, d2	1.8	0.0		69.9	19.1		1.0	1.9		1.6	0.8	4.2
Delay (s)	28.3	7.6		114.2	42.4		25.5	28.0		14.5	13.7	8.2
Level of Service	C	A		F	D		C	C		B	B	A
Approach Delay (s)		18.6			43.6			27.5			10.2	
Approach LOS		B			D			C			B	

Intersection Summary

HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	0	375	144	553	202	0
Future Volume (vph)	0	375	144	553	202	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.85		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3008		1770	3539	1770	
Flt Permitted	1.00		0.50	1.00	0.95	
Satd. Flow (perm)	3008		932	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	408	157	601	220	0
RTOR Reduction (vph)	188	0	0	0	0	0
Lane Group Flow (vph)	220	0	157	601	220	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	48.5		48.5	48.5	32.5	
Effective Green, g (s)	48.5		48.5	48.5	32.5	
Actuated g/C Ratio	0.54		0.54	0.54	0.36	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1620		502	1907	639	
v/s Ratio Prot	0.07			c0.17	c0.12	
v/s Ratio Perm			0.17			
v/c Ratio	0.14		0.31	0.32	0.34	
Uniform Delay, d1	10.3		11.5	11.5	21.0	
Progression Factor	1.00		0.29	0.29	1.00	
Incremental Delay, d2	0.2		1.4	0.4	1.5	
Delay (s)	10.5		4.7	3.7	22.4	
Level of Service	B		A	A	C	
Approach Delay (s)	10.5			3.9	22.4	
Approach LOS	B			A	C	

Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	4	4	6	100	4	24	20	592	169	62	420	12
Future Volume (vph)	4	4	6	100	4	24	20	592	169	62	420	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.94		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1722		1770	1621		1770	3539	1583	1770	3525	
Flt Permitted		0.94		0.75	1.00		0.48	1.00	1.00	0.41	1.00	
Satd. Flow (perm)		1641		1393	1621		899	3539	1583	758	3525	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	4	7	109	4	26	22	643	184	67	457	13
RTOR Reduction (vph)	0	6	0	0	23	0	0	0	41	0	1	0
Lane Group Flow (vph)	0	9	0	109	7	0	22	643	143	67	469	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		11.0		11.0	11.0		70.0	70.0	70.0	70.0	70.0	
Effective Green, g (s)		11.0		11.0	11.0		70.0	70.0	70.0	70.0	70.0	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		200		170	198		699	2752	1231	589	2741	
v/s Ratio Prot					0.00			c0.18			0.13	
v/s Ratio Perm		0.01		c0.08			0.02		0.09	0.09		
v/c Ratio		0.04		0.64	0.04		0.03	0.23	0.12	0.11	0.17	
Uniform Delay, d1		34.9		37.6	34.8		2.3	2.7	2.4	2.4	2.6	
Progression Factor		1.00		1.00	1.00		2.46	2.76	8.69	1.49	1.40	
Incremental Delay, d2		0.1		8.0	0.1		0.1	0.2	0.2	0.4	0.1	
Delay (s)		35.0		45.6	34.9		5.7	7.7	21.4	4.0	3.7	
Level of Service		C		D	C		A	A	C	A	A	
Approach Delay (s)		35.0			43.3			10.6			3.8	
Approach LOS		C			D			B			A	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/11/2018

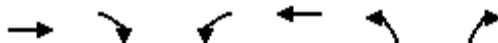


Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	54	42	434	135	45	542	
Future Volume (Veh/h)	54	42	434	135	45	542	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	59	46	472	147	49	589	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type			None		None		
Median storage (veh)							
Upstream signal (ft)						570	
pX, platoon unblocked							
vC, conflicting volume	938	310			619		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	938	310			619		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	76	93			95		
cM capacity (veh/h)	249	686			957		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	59	46	315	304	49	294	294
Volume Left	59	0	0	0	49	0	0
Volume Right	0	46	0	147	0	0	0
cSH	249	686	1700	1700	957	1700	1700
Volume to Capacity	0.24	0.07	0.19	0.18	0.05	0.17	0.17
Queue Length 95th (ft)	22	5	0	0	4	0	0
Control Delay (s)	23.8	10.6	0.0	0.0	9.0	0.0	0.0
Lane LOS	C	B			A		
Approach Delay (s)	18.1		0.0		0.7		
Approach LOS	C						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utilization			33.0%	ICU Level of Service	A		
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	639	57	81	1306	79	55
Future Volume (vph)	639	57	81	1306	79	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3496		1770	3539	1770	1583
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3496		586	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	695	62	88	1420	86	60
RTOR Reduction (vph)	12	0	0	0	0	39
Lane Group Flow (vph)	745	0	88	1420	86	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	26.4		26.4	26.4	19.6	19.6
Effective Green, g (s)	26.4		26.4	26.4	19.6	19.6
Actuated g/C Ratio	0.48		0.48	0.48	0.36	0.36
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1678		281	1698	630	564
v/s Ratio Prot	0.21			c0.40	c0.05	
v/s Ratio Perm			0.15			0.01
v/c Ratio	0.44		0.31	0.84	0.14	0.04
Uniform Delay, d1	9.4		8.8	12.4	12.0	11.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	3.8	0.5	0.1
Delay (s)	9.6		9.4	16.2	12.4	11.7
Level of Service	A		A	B	B	B
Approach Delay (s)	9.6			15.8	12.1	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	105	61	37	0	627	0	0	1057	330
Future Volume (vph)	0	0	0	105	61	37	0	627	0	0	1057	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.96	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6179	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6179	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	114	66	40	0	682	0	0	1149	359
RTOR Reduction (vph)	0	0	0	0	0	36	0	0	0	0	31	0
Lane Group Flow (vph)	0	0	0	114	66	4	0	682	0	0	1477	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				9.8	9.8	9.8		71.2			71.2	
Effective Green, g (s)				9.8	9.8	9.8		71.2			71.2	
Actuated g/C Ratio				0.11	0.11	0.11		0.79			0.79	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				192	202	172		4022			4888	
v/s Ratio Prot				c0.06	0.04			0.13			c0.24	
v/s Ratio Perm						0.00						
v/c Ratio				0.59	0.33	0.03		0.17			0.30	
Uniform Delay, d1				38.2	37.1	35.8		2.3			2.6	
Progression Factor				1.00	1.00	1.00		0.23			0.24	
Incremental Delay, d2				4.9	0.9	0.1		0.1			0.1	
Delay (s)				43.1	38.0	35.9		0.6			0.7	
Level of Service				D	D	D		A			A	
Approach Delay (s)		0.0			40.2			0.6			0.7	
Approach LOS		A			D			A			A	

Intersection Summary


























HCM 2000 Control Delay	4.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 							 			  		
Traffic Volume (vph)	361	65	49	91	0	165	0	1236	169	137	743	0	
Future Volume (vph)	361	65	49	91	0	165	0	1236	169	137	743	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5		
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91		
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085		
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	392	71	53	99	0	179	0	1343	184	149	808	0	
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	73	0	0	0	
Lane Group Flow (vph)	392	71	7	99	0	179	0	1343	111	149	808	0	
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA		
Protected Phases	3	3		4		4		6		5	2		
Permitted Phases			3						6				
Actuated Green, G (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5		
Effective Green, g (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5		
Actuated g/C Ratio	0.13	0.13	0.13	0.14		0.14		0.43	0.43	0.11	0.58		
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5		
Lane Grp Cap (vph)	438	238	202	245		219		1513	677	186	2966		
v/s Ratio Prot	c0.11	0.04		0.06		c0.11		c0.38		c0.08	0.16		
v/s Ratio Perm			0.00						0.07				
v/c Ratio	0.89	0.30	0.03	0.40		0.82		0.89	0.16	0.80	0.27		
Uniform Delay, d1	38.7	35.6	34.4	35.4		37.6		23.8	15.8	39.3	9.3		
Progression Factor	1.12	1.11	1.00	1.09		1.09		1.21	2.27	1.32	0.40		
Incremental Delay, d2	20.2	2.6	0.3	4.7		26.9		6.4	0.4	28.4	0.2		
Delay (s)	63.4	42.2	34.6	43.3		67.8		35.1	36.4	80.2	3.9		
Level of Service	E	D	C	D		E		D	D	F	A		
Approach Delay (s)		57.5			59.0			35.2			15.8		
Approach LOS		E			E			D			B		
Intersection Summary													
HCM 2000 Control Delay			35.1		HCM 2000 Level of Service					D			
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					18.0			
Intersection Capacity Utilization			66.0%		ICU Level of Service					C			
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/11/2018














Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	45	17	1	45	292	20	454	19	114	20	169
Future Volume (vph)	351	45	17	1	45	292	20	454	19	114	20	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00		1.00	0.95			0.95			1.00	1.00
Frt	1.00	0.96		1.00	0.87			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.96	1.00
Satd. Flow (prot)	3433	1788		1770	3079			3511			1787	1583
Flt Permitted	0.95	1.00		0.71	1.00			1.00			0.96	1.00
Satd. Flow (perm)	3433	1788		1329	3079			3511			1787	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	382	49	18	1	49	317	22	493	21	124	22	184
RTOR Reduction (vph)	0	9	0	0	230	0	0	3	0	0	0	129
Lane Group Flow (vph)	382	58	0	1	136	0	0	533	0	0	146	55
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	14.6	43.9		24.8	24.8			20.5			12.1	26.7
Effective Green, g (s)	14.6	43.9		24.8	24.8			20.5			12.1	26.7
Actuated g/C Ratio	0.16	0.49		0.28	0.28			0.23			0.13	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	556	872		366	848			799			240	548
v/s Ratio Prot	c0.11	0.03			c0.04			c0.15			c0.08	0.01
v/s Ratio Perm				0.00								0.02
v/c Ratio	0.69	0.07		0.00	0.16			0.67			0.61	0.10
Uniform Delay, d1	35.5	12.2		23.6	24.7			31.6			36.7	22.9
Progression Factor	1.25	0.48		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.3	0.1		0.0	0.1			4.4			4.3	0.1
Delay (s)	47.8	6.0		23.6	24.8			36.0			41.0	23.0
Level of Service	D	A		C	C			D			D	C
Approach Delay (s)		41.5			24.8			36.0			31.0	
Approach LOS		D			C			D			C	

Intersection Summary		
HCM 2000 Control Delay	34.1	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.49	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	56.8%	ICU Level of Service B
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 3: N Vignes St & E Commercial St





















12/11/2018

						
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	159	19	52	241	98	160
Future Volume (vph)	159	19	52	241	98	160
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	173	21	57	262	107	174
Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2	
Volume Total (vph)	194	57	262	107	174	
Volume Left (vph)	0	57	0	107	0	
Volume Right (vph)	21	0	0	0	174	
Hadj (s)	-0.03	0.53	0.03	0.53	-0.67	
Departure Headway (s)	5.5	6.0	5.5	6.4	5.2	
Degree Utilization, x	0.29	0.10	0.40	0.19	0.25	
Capacity (veh/h)	625	567	624	533	651	
Control Delay (s)	10.7	8.5	11.0	9.7	8.7	
Approach Delay (s)	10.7	10.6		9.1		
Approach LOS	B	B		A		
Intersection Summary						
Delay			10.1			
Level of Service			B			
Intersection Capacity Utilization			28.3%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis

4: Center St & E Commercial St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	252	5	62	6	6	13	51	612	7	7	254	235
Future Volume (vph)	252	5	62	6	6	13	51	612	7	7	254	235
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	5	67	7	7	14	55	665	8	8	276	255
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total (vph)	346	28	55	665	8	8	276	255				
Volume Left (vph)	274	7	55	0	0	8	0	0				
Volume Right (vph)	67	14	0	0	8	0	0	255				
Hadj (s)	0.08	-0.22	0.53	0.03	-0.67	0.53	0.03	-0.67				
Departure Headway (s)	6.5	7.3	6.9	6.4	3.2	7.3	6.8	3.2				
Degree Utilization, x	0.63	0.06	0.11	1.18	0.01	0.02	0.52	0.23				
Capacity (veh/h)	533	437	510	567	1121	473	501	1122				
Control Delay (s)	19.9	10.8	9.5	121.3	5.0	9.3	15.9	5.9				
Approach Delay (s)	19.9	10.8	111.6					11.1				
Approach LOS	C	B	F					B				
Intersection Summary												
Delay			57.5									
Level of Service			F									
Intersection Capacity Utilization			70.2%					ICU Level of Service			C	
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	450	196	30	159	94	90	986	0	75	736	311
Future Volume (vph)	252	450	196	30	159	94	90	986	0	75	736	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.35	1.00		0.38	1.00		0.35	1.00		0.95	1.00	1.00
Satd. Flow (perm)	659	3378		717	3342		651	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	489	213	33	173	102	98	1072	0	82	800	338
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	177
Lane Group Flow (vph)	274	642	0	33	275	0	98	1072	0	82	800	161
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Effective Green, g (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.45	0.45		0.08	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	350	1073		101	471		352	1584		149	1690	756
v/s Ratio Prot	c0.10	0.19			0.08		0.02	c0.30		0.05	c0.23	
v/s Ratio Perm	c0.15			0.05			0.11					0.10
v/c Ratio	0.78	0.60		0.33	0.58		0.28	0.68		0.55	0.47	0.21
Uniform Delay, d1	25.1	25.9		34.8	36.2		16.2	19.7		39.6	15.9	13.7
Progression Factor	0.67	0.53		1.00	1.00		0.65	0.72		1.35	0.52	0.31
Incremental Delay, d2	9.8	0.8		1.9	1.8		0.4	2.0		4.3	0.9	0.6
Delay (s)	26.6	14.5		36.7	38.0		10.9	16.3		57.5	9.2	4.9
Level of Service	C	B		D	D		B	B		E	A	A
Approach Delay (s)		17.9			37.9			15.8			11.3	
Approach LOS		B			D			B			B	


















Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	65	41	109	13	65	28	95	165	20	12	32	26
Future Volume (vph)	65	41	109	13	65	28	95	165	20	12	32	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	45	118	14	71	30	103	179	22	13	35	28
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	116	118	115	304	76							
Volume Left (vph)	71	0	14	103	13							
Volume Right (vph)	0	118	30	22	28							
Hadj (s)	0.34	-0.67	-0.10	0.06	-0.15							
Departure Headway (s)	6.0	5.0	5.2	5.0	5.1							
Degree Utilization, x	0.19	0.16	0.17	0.42	0.11							
Capacity (veh/h)	563	676	628	693	642							
Control Delay (s)	9.2	7.7	9.3	11.5	8.7							
Approach Delay (s)	8.5		9.3	11.5	8.7							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			41.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	322	484	116	0	274	14	68	739	147	41	797	124
Future Volume (vph)	322	484	116	0	274	14	68	739	147	41	797	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.33	1.00			1.00	1.00	0.25	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	622	3437			3539	1583	459	3539	1583	510	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	526	126	0	298	15	74	803	160	45	866	135
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	81	0	0	40
Lane Group Flow (vph)	350	626	0	0	298	15	74	803	79	45	866	95
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	36.6	36.6			13.2	13.2	44.4	44.4	44.4	44.4	44.4	63.3
Effective Green, g (s)	36.6	36.6			13.2	13.2	44.4	44.4	44.4	44.4	44.4	63.3
Actuated g/C Ratio	0.41	0.41			0.15	0.15	0.49	0.49	0.49	0.49	0.49	0.70
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	494	1397			519	232	226	1745	780	251	1745	1192
v/s Ratio Prot	c0.15	0.18			0.08			0.23			c0.24	0.02
v/s Ratio Perm	c0.14					0.01	0.16		0.05	0.09		0.04
v/c Ratio	0.71	0.45			0.57	0.06	0.33	0.46	0.10	0.18	0.50	0.08
Uniform Delay, d1	20.2	19.4			35.8	33.1	13.8	14.9	12.2	12.7	15.3	4.2
Progression Factor	0.60	0.52			1.39	1.51	1.00	1.00	1.00	0.97	0.98	0.19
Incremental Delay, d2	4.1	0.2			1.2	0.1	3.8	0.9	0.3	1.4	0.9	0.0
Delay (s)	16.2	10.3			51.0	49.9	17.6	15.8	12.4	13.7	15.9	0.8
Level of Service	B	B			D	D	B	B	B	B	B	A
Approach Delay (s)		12.4			50.9			15.4			13.9	
Approach LOS		B			D			B			B	

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	71	589	23	80	312	77	6	78	231	82	28	30
Future Volume (vph)	71	589	23	80	312	77	6	78	231	82	28	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.98			0.90			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.97	
Satd. Flow (prot)		3520	1583		3423			1677			1757	
Flt Permitted		0.99	1.00		0.99			0.99			0.52	
Satd. Flow (perm)		3520	1583		3423			1670			938	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	640	25	87	339	84	7	85	251	89	30	33
RTOR Reduction (vph)	0	0	16	0	19	0	0	109	0	0	11	0
Lane Group Flow (vph)	0	717	9	0	491	0	0	234	0	0	141	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8				4
Permitted Phases			2				8			4		
Actuated Green, G (s)		32.4	32.4		17.4			26.7				26.7
Effective Green, g (s)		32.4	32.4		17.4			26.7				26.7
Actuated g/C Ratio		0.36	0.36		0.19			0.30				0.30
Clearance Time (s)		4.5	4.5		4.5			4.5				4.5
Vehicle Extension (s)		3.0	3.0		3.0			3.0				3.0
Lane Grp Cap (vph)		1267	569		661			495				278
v/s Ratio Prot		c0.20			c0.14							
v/s Ratio Perm			0.01					0.14				c0.15
v/c Ratio		0.57	0.02		0.74			0.47				0.51
Uniform Delay, d1		23.1	18.5		34.2			25.9				26.2
Progression Factor		0.64	1.00		1.09			1.00				1.00
Incremental Delay, d2		1.8	0.0		3.5			3.2				6.5
Delay (s)		16.7	18.6		40.8			29.1				32.6
Level of Service		B	B		D			C				C
Approach Delay (s)		16.7			40.8			29.1				32.6
Approach LOS		B			D			C				C

Intersection Summary

HCM 2000 Control Delay	27.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶ ↷	↶ ↷ ↶ ↷		↶ ↷	↶ ↷ ↶ ↷			↶ ↷ ↶ ↷	
Traffic Volume (vph)	0	0	0	269	568	180	20	1743	0	0	611	25
Future Volume (vph)	0	0	0	269	568	180	20	1743	0	0	611	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91	
Fr _t				1.00	0.97		1.00	1.00			0.99	
Fl _t Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4630		1770	5085			5055	
Fl _t Permitted				0.95	1.00		0.36	1.00			1.00	
Satd. Flow (perm)				1522	4630		676	5085			5055	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	292	617	196	22	1895	0	0	664	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	5	0
Lane Group Flow (vph)	0	0	0	263	842	0	22	1895	0	0	686	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				30.5	30.5		50.5	50.5			50.5	
Effective Green, g (s)				30.5	30.5		50.5	50.5			50.5	
Actuated g/C Ratio				0.34	0.34		0.56	0.56			0.56	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				515	1569		379	2853			2836	
v/s Ratio Prot				0.17	c0.18			c0.37			0.14	
v/s Ratio Perm							0.03					
v/c Ratio				0.51	0.54		0.06	0.66			0.24	
Uniform Delay, d ₁				23.8	24.0		9.0	13.8			10.0	
Progression Factor				1.00	1.00		0.86	0.66			1.02	
Incremental Delay, d ₂				3.6	1.3		0.1	0.6			0.2	
Delay (s)				27.4	25.4		7.9	9.7			10.4	
Level of Service				C	C		A	A			B	
Approach Delay (s)		0.0			25.8			9.7			10.4	
Approach LOS		A			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↔↗						↖↗↘		↖	↖↗↘	
Traffic Volume (vph)	243	57	84	0	0	0	0	611	66	50	935	0
Future Volume (vph)	243	57	84	0	0	0	0	611	66	50	935	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.95						0.99		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3152						5011		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.31	1.00	
Satd. Flow (perm)	1610	3152						5011		586	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	62	91	0	0	0	0	664	72	54	1016	0
RTOR Reduction (vph)	0	61	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	143	214	0	0	0	0	0	721	0	54	1016	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	29.5	29.5						35.5		51.5	51.5	
Effective Green, g (s)	29.5	29.5						35.5		51.5	51.5	
Actuated g/C Ratio	0.33	0.33						0.39		0.57	0.57	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	527	1033						1976		486	2909	
v/s Ratio Prot	c0.09	0.07						0.14		0.01	c0.20	
v/s Ratio Perm										0.05		
v/c Ratio	0.27	0.21						0.37		0.11	0.35	
Uniform Delay, d1	22.3	21.8						19.3		11.5	10.3	
Progression Factor	1.00	1.00						0.92		0.40	0.41	
Incremental Delay, d2	1.3	0.5						0.4		0.5	0.3	
Delay (s)	23.6	22.3						18.1		5.1	4.5	
Level of Service	C	C						B		A	A	
Approach Delay (s)		22.7			0.0			18.1			4.6	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	91	968	193	114	936	118	98	697	120	98	651	122
Future Volume (vph)	91	968	193	114	936	118	98	697	120	98	651	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5000		1770	4974		1770	4965	
Flt Permitted	0.24	1.00	1.00	0.11	1.00		0.19	1.00		0.18	1.00	
Satd. Flow (perm)	439	3539	1583	200	5000		350	4974		331	4965	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	1052	210	124	1017	128	107	758	130	107	708	133
RTOR Reduction (vph)	0	0	43	0	17	0	0	27	0	0	31	0
Lane Group Flow (vph)	99	1052	167	124	1128	0	107	861	0	107	810	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	35.5	35.5	43.0	46.5	46.5		30.0	22.5		30.0	22.5	
Effective Green, g (s)	35.5	35.5	43.0	46.5	46.5		30.0	22.5		30.0	22.5	
Actuated g/C Ratio	0.39	0.39	0.48	0.52	0.52		0.33	0.25		0.33	0.25	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	173	1395	756	216	2583		235	1243		230	1241	
v/s Ratio Prot		c0.30	0.02	c0.04	0.23		0.04	c0.17		c0.04	0.16	
v/s Ratio Perm	0.23		0.09	0.25			0.11			0.12		
v/c Ratio	0.57	0.75	0.22	0.57	0.44		0.46	0.69		0.47	0.65	
Uniform Delay, d1	21.3	23.5	13.7	15.6	13.6		31.9	30.6		32.4	30.3	
Progression Factor	0.58	0.57	0.51	1.00	1.00		0.59	0.40		0.80	0.62	
Incremental Delay, d2	10.4	3.0	0.5	10.6	0.5		6.1	3.1		6.4	2.6	
Delay (s)	22.8	16.5	7.5	26.3	14.1		24.9	15.4		32.4	21.2	
Level of Service	C	B	A	C	B		C	B		C	C	
Approach Delay (s)		15.5			15.3			16.4			22.5	
Approach LOS		B			B			B			C	

Intersection Summary

HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	322	70	56	426	356	177	981	50	96	396	57
Future Volume (vph)	103	322	70	56	426	356	177	981	50	96	396	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3445		1770	3539	1583	1770	3539	1583	1770	4989	
Flt Permitted	0.35	1.00		0.38	1.00	1.00	0.46	1.00	1.00	0.21	1.00	
Satd. Flow (perm)	655	3445		714	3539	1583	861	3539	1583	386	4989	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	350	76	61	463	387	192	1066	54	104	430	62
RTOR Reduction (vph)	0	22	0	0	0	53	0	0	22	0	18	0
Lane Group Flow (vph)	112	404	0	61	463	334	192	1066	32	104	474	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Effective Green, g (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Actuated g/C Ratio	0.21	0.21		0.31	0.31	0.31	0.59	0.59	0.59	0.59	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	138	727		271	1093	488	508	2091	935	228	2949	
v/s Ratio Prot		0.12		0.01	0.13			c0.30			0.09	
v/s Ratio Perm	c0.17			0.06		c0.21	0.22		0.02	0.27		
v/c Ratio	0.81	0.56		0.23	0.42	0.69	0.38	0.51	0.03	0.46	0.16	
Uniform Delay, d1	33.8	31.7		27.3	24.7	27.3	9.7	10.8	7.7	10.3	8.3	
Progression Factor	1.00	1.00		0.38	0.52	0.36	0.73	0.76	1.19	0.56	0.40	
Incremental Delay, d2	29.1	0.9		0.1	0.1	1.0	1.8	0.8	0.1	6.2	0.1	
Delay (s)	62.9	32.7		10.5	12.9	10.9	8.9	8.9	9.2	11.9	3.5	
Level of Service	E	C		B	B	B	A	A	A	B	A	
Approach Delay (s)		38.9			11.9			8.9			4.9	
Approach LOS		D			B			A			A	

Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: N Vignes St & E Cesar E Chavez Ave

12/11/2018
























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	952	265	118	869	303	288	699	150	246	312	49
Future Volume (vph)	47	952	265	118	869	303	288	699	150	246	312	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3467	3467
Flt Permitted	0.14	1.00	1.00	0.15	1.00	1.00	0.38	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	263	3539	1583	270	3539	1583	708	3539	1583	363	3467	3467
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1035	288	128	945	329	313	760	163	267	339	53
RTOR Reduction (vph)	0	0	188	0	0	199	0	0	123	0	14	0
Lane Group Flow (vph)	51	1035	100	128	945	130	313	760	40	267	378	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	31.3	31.3	31.3	35.6	35.6	35.6	34.8	21.9	21.9	32.0	20.5	20.5
Effective Green, g (s)	31.3	31.3	31.3	35.6	35.6	35.6	34.8	21.9	21.9	32.0	20.5	20.5
Actuated g/C Ratio	0.35	0.35	0.35	0.40	0.40	0.40	0.39	0.24	0.24	0.36	0.23	0.23
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	1230	550	228	1399	626	425	861	385	308	789	789
v/s Ratio Prot	0.01	c0.29		0.05	c0.27		0.11	c0.21		c0.11	0.11	0.11
v/s Ratio Perm	0.11		0.06	0.18		0.08	0.18		0.03	0.20		
v/c Ratio	0.36	0.84	0.18	0.56	0.68	0.21	0.74	0.88	0.10	0.87	0.48	0.48
Uniform Delay, d1	22.2	27.1	20.4	31.5	22.4	17.9	20.9	32.8	26.4	23.4	30.1	30.1
Progression Factor	1.00	1.00	1.00	0.76	0.69	0.21	0.71	0.71	0.44	0.75	0.83	0.83
Incremental Delay, d2	1.6	7.1	0.7	2.2	1.9	0.5	5.9	9.6	0.1	21.3	0.5	0.5
Delay (s)	23.8	34.1	21.2	26.3	17.4	4.3	20.6	32.8	11.8	38.9	25.3	25.3
Level of Service	C	C	C	C	B	A	C	C	B	D	C	C
Approach Delay (s)		31.0			15.1			27.0			30.8	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			25.1			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			80.8%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

























12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	155	71	83	157	129	523	44	451	69	303	233	128	
Future Volume (vph)	155	71	83	157	129	523	44	451	69	303	233	128	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95		
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1610	3148		1770	1863	1583	3433	3539	1583	3433	3351		
Flt Permitted	0.67	0.83		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (perm)	1132	2644		1770	1863	1583	3433	3539	1583	3433	3351		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	168	77	90	171	140	568	48	490	75	329	253	139	
RTOR Reduction (vph)	0	77	0	0	0	348	0	0	51	0	69	0	
Lane Group Flow (vph)	104	154	0	171	140	220	48	490	24	329	323	0	
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA		
Protected Phases		4		3	8		5	2		1	6		
Permitted Phases	4					8			2				
Actuated Green, G (s)	13.2	13.2		13.4	31.1	31.1	3.8	29.1	29.1	16.3	41.6		
Effective Green, g (s)	13.2	13.2		13.4	31.1	31.1	3.8	29.1	29.1	16.3	41.6		
Actuated g/C Ratio	0.15	0.15		0.15	0.35	0.35	0.04	0.32	0.32	0.18	0.46		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	166	387		263	643	547	144	1144	511	621	1548		
v/s Ratio Prot				c0.10	0.08		0.01	c0.14		c0.10	0.10		
v/s Ratio Perm	c0.09	0.06				0.14			0.02				
v/c Ratio	0.63	0.40		0.65	0.22	0.40	0.33	0.43	0.05	0.53	0.21		
Uniform Delay, d1	36.1	34.8		36.1	20.8	22.4	41.9	23.9	20.9	33.4	14.4		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.68	0.52		
Incremental Delay, d2	7.2	0.7		5.6	0.2	0.5	1.4	1.2	0.2	0.7	0.3		
Delay (s)	43.3	35.5		41.7	21.0	22.9	43.2	25.1	21.1	23.4	7.8		
Level of Service	D	D		D	C	C	D	C	C	C	A		
Approach Delay (s)		37.9			26.3			26.0			14.9		
Approach LOS		D			C			C			B		
Intersection Summary													
HCM 2000 Control Delay			24.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.53										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	18.0
Intersection Capacity Utilization			62.2%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Main St & Alpine St/N Vignes St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	229	237	1	0	646	363	5	660	35	189	276	187
Future Volume (vph)	229	237	1	0	646	363	5	660	35	189	276	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3537			3348		1770	3512		1770	3325	
Flt Permitted	0.95	1.00			1.00		0.41	1.00		0.27	1.00	
Satd. Flow (perm)	1770	3537			3348		767	3512		495	3325	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	258	1	0	702	395	5	717	38	205	300	203
RTOR Reduction (vph)	0	1	0	0	87	0	0	4	0	0	118	0
Lane Group Flow (vph)	249	258	0	0	1010	0	5	751	0	205	385	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	16.2	43.2			22.5		37.8	37.8		37.8	37.8	
Effective Green, g (s)	16.2	43.2			22.5		37.8	37.8		37.8	37.8	
Actuated g/C Ratio	0.18	0.48			0.25		0.42	0.42		0.42	0.42	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	318	1697			837		322	1475		207	1396	
v/s Ratio Prot	c0.14	0.07			c0.30			0.21			0.12	
v/s Ratio Perm							0.01			c0.41		
v/c Ratio	0.78	0.15			1.21		0.02	0.51		0.99	0.28	
Uniform Delay, d1	35.2	13.1			33.8		15.2	19.3		25.9	17.1	
Progression Factor	0.83	0.59			1.66		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.1	0.0			103.6		0.1	1.3		60.1	0.5	
Delay (s)	40.3	7.8			159.6		15.3	20.5		86.0	17.6	
Level of Service	D	A			F		B	C		F	B	
Approach Delay (s)		23.7			159.6			20.5			37.4	
Approach LOS		C			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			74.6			HCM 2000 Level of Service		E				
HCM 2000 Volume to Capacity ratio			1.01									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)		13.5				
Intersection Capacity Utilization			87.0%			ICU Level of Service		E				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	108	95	179	32	196	27	533	880	28	9	339	101
Future Volume (vph)	108	95	179	32	196	27	533	880	28	9	339	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1829		1770	3523		1770	4910	
Flt Permitted	0.37	1.00	1.00	0.69	1.00		0.43	1.00		0.22	1.00	
Satd. Flow (perm)	695	1863	1583	1286	1829		805	3523		410	4910	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	103	195	35	213	29	579	957	30	10	368	110
RTOR Reduction (vph)	0	0	157	0	6	0	0	2	0	0	55	0
Lane Group Flow (vph)	117	103	38	35	236	0	579	985	0	10	423	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.5	17.5	17.5	17.5	17.5		63.5	63.5		25.9	25.9	
Effective Green, g (s)	17.5	17.5	17.5	17.5	17.5		63.5	63.5		25.9	25.9	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.71	0.71		0.29	0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	362	307	250	355		922	2485		117	1412	
v/s Ratio Prot		0.06			0.13		c0.23	0.28			0.09	
v/s Ratio Perm	c0.17		0.02	0.03			c0.21			0.02		
v/c Ratio	0.87	0.28	0.12	0.14	0.67		0.63	0.40		0.09	0.30	
Uniform Delay, d1	35.1	30.9	29.9	30.0	33.5		9.9	5.4		23.4	25.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.66	0.57		1.00	1.00	
Incremental Delay, d2	40.3	0.4	0.2	0.3	4.7		1.1	0.4		1.4	0.5	
Delay (s)	75.4	31.3	30.1	30.3	38.2		7.6	3.5		24.8	25.5	
Level of Service	E	C	C	C	D		A	A		C	C	
Approach Delay (s)		43.2			37.2			5.0			25.5	
Approach LOS		D			D			A			C	

Intersection Summary






















HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			  	
Traffic Volume (veh/h)	0	0	81	0	0	0	100	1113	646	0	698	51
Future Volume (Veh/h)	0	0	81	0	0	0	100	1113	646	0	698	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	88	0	0	0	109	1210	702	0	759	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage (veh)												
Upstream signal (ft)												
								206			797	
pX, platoon unblocked	0.68	0.68		0.68	0.68	0.68				0.68		
vC, conflicting volume	1610	2214	280	1769	2242	605	814			1210		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	941	1837	280	1177	1878	0	814			350		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	88	100	100	100	87			100		
cM capacity (veh/h)	132	44	717	78	41	732	809			814		
Direction, Lane #												
	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	88	109	605	605	702	304	304	207				
Volume Left	0	109	0	0	0	0	0	0				
Volume Right	88	0	0	0	702	0	0	55				
cSH	717	809	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.12	0.13	0.36	0.36	0.41	0.18	0.18	0.12				
Queue Length 95th (ft)	10	12	0	0	0	0	0	0				
Control Delay (s)	10.7	10.1	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.7	0.5				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			43.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔		↔		↔↔↔		↔	↔↔↔	
Traffic Volume (vph)	930	22	33	63	0	39	0	890	15	3	775	0
Future Volume (vph)	930	22	33	63	0	39	0	890	15	3	775	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1695		1770		1583		5073		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.24	1.00	
Satd. Flow (perm)	3433	1695		1770		1583		5073		450	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1011	24	36	68	0	42	0	967	16	3	842	0
RTOR Reduction (vph)	0	27	0	0	0	40	0	1	0	0	0	0
Lane Group Flow (vph)	1011	33	0	68	0	2	0	982	0	3	842	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	34.3	22.3		7.5		3.3		46.7		46.7	46.7	
Effective Green, g (s)	34.3	22.3		7.5		3.3		46.7		46.7	46.7	
Actuated g/C Ratio	0.38	0.25		0.08		0.04		0.52		0.52	0.52	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	1308	419		147		58		2632		233	2638	
v/s Ratio Prot	c0.23	0.02		0.04				c0.19			0.17	
v/s Ratio Perm	0.07					0.00				0.01		
v/c Ratio	0.77	0.08		0.46		0.03		0.37		0.01	0.32	
Uniform Delay, d1	24.4	26.0		39.3		41.8		12.9		10.5	12.5	
Progression Factor	0.35	0.24		1.00		1.00		0.41		0.75	0.70	
Incremental Delay, d2	2.1	0.1		2.3		0.2		0.3		0.1	0.3	
Delay (s)	10.7	6.4		41.6		42.0		5.6		8.0	9.0	
Level of Service	B	A		D		D		A		A	A	
Approach Delay (s)		10.4			41.8			5.6			9.0	
Approach LOS		B			D			A			A	
























Intersection Summary

HCM 2000 Control Delay	9.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave













12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			  			  					
Traffic Volume (vph)	78	1011	0	0	1208	23	415	884	242	0	0	0	
Future Volume (vph)	78	1011	0	0	1208	23	415	884	242	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5					
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86					
Frt	1.00	1.00			1.00		1.00	0.97					
Flt Protected	0.95	1.00			1.00		0.95	1.00					
Satd. Flow (prot)	1770	3539			5071		1522	4648					
Flt Permitted	0.15	1.00			1.00		0.95	1.00					
Satd. Flow (perm)	273	3539			5071		1522	4648					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	85	1099	0	0	1313	25	451	961	263	0	0	0	
RTOR Reduction (vph)	0	0	0	0	2	0	0	43	0	0	0	0	
Lane Group Flow (vph)	85	1099	0	0	1336	0	406	1226	0	0	0	0	
Turn Type	Perm	NA			NA		pm+pt	NA					
Protected Phases		4			8		6	2					
Permitted Phases	4						2						
Actuated Green, G (s)	47.5	47.5			47.5		33.5	33.5					
Effective Green, g (s)	47.5	47.5			47.5		33.5	33.5					
Actuated g/C Ratio	0.53	0.53			0.53		0.37	0.37					
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5					
Lane Grp Cap (vph)	144	1867			2676		566	1730					
v/s Ratio Prot		0.31			0.26		c0.27	0.26					
v/s Ratio Perm	c0.31												
v/c Ratio	0.59	0.59			0.50		0.72	0.71					
Uniform Delay, d1	14.6	14.6			13.6		24.2	24.1					
Progression Factor	1.00	1.00			0.85		1.00	1.00					
Incremental Delay, d2	16.5	1.4			0.6		7.6	2.5					
Delay (s)	31.1	15.9			12.2		31.8	26.6					
Level of Service	C	B			B		C	C					
Approach Delay (s)		17.0			12.2		27.8				0.0		
Approach LOS		B			B		C				A		
Intersection Summary													
HCM 2000 Control Delay			19.8				HCM 2000 Level of Service		B				
HCM 2000 Volume to Capacity ratio			0.64										
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0				
Intersection Capacity Utilization			62.6%				ICU Level of Service		B				
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St













12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	97	495	21	190	1082	0	0	154	39
Future Volume (vph)	0	0	0	97	495	21	190	1082	0	0	154	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5019		1770	3539			3433	
Flt Permitted					0.99		0.62	1.00			1.00	
Satd. Flow (perm)					5019		1156	3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	105	538	23	207	1176	0	0	167	42
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	0	662	0	207	1176	0	0	193	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					24.5		56.5	56.5			56.5	
Effective Green, g (s)					24.5		56.5	56.5			56.5	
Actuated g/C Ratio					0.27		0.63	0.63			0.63	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					1366		725	2221			2155	
v/s Ratio Prot								c0.33			0.06	
v/s Ratio Perm					0.13		0.18					
v/c Ratio					0.48		0.29	0.53			0.09	
Uniform Delay, d1					27.5		7.6	9.3			6.6	
Progression Factor					0.25		0.27	0.25			1.00	
Incremental Delay, d2					1.1		0.8	0.7			0.1	
Delay (s)					7.9		2.8	3.0			6.7	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			7.9			3.0			6.7	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			4.8		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0	
Intersection Capacity Utilization			57.4%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	82	289	21	0	0	0	0	1190	186	0	251	0
Future Volume (vph)	82	289	21	0	0	0	0	1190	186	0	251	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3474						3467			3539	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		3474						3467			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	314	23	0	0	0	0	1293	202	0	273	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	421	0	0	0	0	0	1495	0	0	273	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		20.5						60.5			60.5	
Effective Green, g (s)		20.5						60.5			60.5	
Actuated g/C Ratio		0.23						0.67			0.67	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		791						2330			2378	
v/s Ratio Prot								c0.43			0.08	
v/s Ratio Perm		0.12										
v/c Ratio		0.53						0.64			0.11	
Uniform Delay, d1		30.5						8.5			5.2	
Progression Factor		1.00						0.66			1.28	
Incremental Delay, d2		2.6						1.0			0.1	
Delay (s)		33.1						6.6			6.8	
Level of Service		C						A			A	
Approach Delay (s)		33.1			0.0			6.6			6.8	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.8					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			57.4%					ICU Level of Service		B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗		↘	↗↗		↘	↗↗	↘
Traffic Volume (vph)	124	695	114	72	414	245	150	1115	73	87	400	163
Future Volume (vph)	124	695	114	72	414	245	150	1115	73	87	400	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3507		1770	3539	1583
Flt Permitted	0.25	1.00		0.17	1.00		0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	474	3464		317	3342		900	3507		229	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	755	124	78	450	266	163	1212	79	95	435	177
RTOR Reduction (vph)	0	15	0	0	34	0	0	5	0	0	0	82
Lane Group Flow (vph)	135	864	0	78	682	0	163	1286	0	95	435	95
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	171	1250		114	1206		485	1889		123	1907	853
v/s Ratio Prot		0.25			0.20			0.37			0.12	
v/s Ratio Perm	c0.29			0.25			0.18			c0.41		0.06
v/c Ratio	0.79	0.69		0.68	0.57		0.34	0.68		0.77	0.23	0.11
Uniform Delay, d1	25.7	24.5		24.4	23.1		11.7	15.1		16.4	10.9	10.2
Progression Factor	1.00	1.00		0.76	0.72		0.50	0.43		0.84	0.80	0.40
Incremental Delay, d2	30.0	3.2		27.9	1.9		1.4	1.6		36.6	0.3	0.3
Delay (s)	55.7	27.6		46.4	18.5		7.2	8.1		50.3	9.0	4.4
Level of Service	E	C		D	B		A	A		D	A	A
Approach Delay (s)		31.4			21.3			8.0			13.4	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗	↗	↘	↗↗		↘	↗↗	
Traffic Volume (vph)	112	828	127	94	484	236	137	1037	85	86	462	176
Future Volume (vph)	112	828	127	94	484	236	137	1037	85	86	462	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3393	
Flt Permitted	0.40	1.00		0.14	1.00	1.00	0.32	1.00		0.12	1.00	
Satd. Flow (perm)	737	3469		262	3539	1583	601	3499		219	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	900	138	102	526	257	149	1127	92	93	502	191
RTOR Reduction (vph)	0	13	0	0	0	28	0	7	0	0	44	0
Lane Group Flow (vph)	122	1025	0	102	526	229	149	1212	0	93	649	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Effective Green, g (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	307	1445		109	1474	659	290	1691		105	1639	
v/s Ratio Prot		0.30			0.15			0.35			0.19	
v/s Ratio Perm	0.17			c0.39		0.14	0.25			c0.42		
v/c Ratio	0.40	0.71		0.94	0.36	0.35	0.51	0.72		0.89	0.40	
Uniform Delay, d1	18.4	21.7		25.1	18.0	17.9	16.0	18.4		21.0	14.9	
Progression Factor	1.00	1.00		0.46	0.39	0.27	1.00	1.00		0.83	0.82	
Incremental Delay, d2	3.8	3.0		65.6	0.6	1.3	6.4	2.6		59.6	0.7	
Delay (s)	22.2	24.7		77.3	7.5	6.2	22.4	21.0		77.1	12.8	
Level of Service	C	C		E	A	A	C	C		E	B	
Approach Delay (s)		24.4			15.2			21.2			20.4	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	748	105	96	464	309	280
Future Volume (vph)	748	105	96	464	309	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.25	1.00	0.95	1.00
Satd. Flow (perm)	3474		458	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	813	114	104	504	336	304
RTOR Reduction (vph)	12	0	0	0	0	108
Lane Group Flow (vph)	915	0	104	504	336	196
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	50.5		50.5	50.5	30.5	30.5
Effective Green, g (s)	50.5		50.5	50.5	30.5	30.5
Actuated g/C Ratio	0.56		0.56	0.56	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1949		256	1985	1163	536
v/s Ratio Prot	c0.26			0.14	0.10	
v/s Ratio Perm			0.23			c0.12
v/c Ratio	0.47		0.41	0.25	0.29	0.37
Uniform Delay, d1	11.8		11.2	10.1	21.8	22.5
Progression Factor	0.28		0.88	0.87	0.62	0.38
Incremental Delay, d2	0.6		4.5	0.3	0.5	1.5
Delay (s)	3.8		14.4	9.1	14.0	9.9
Level of Service	A		B	A	B	A
Approach Delay (s)	3.8			10.0	12.1	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

26: S San Pedro St/Judge John Aiso St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	86	809	129	69	574	81	184	425	140	32	190	64
Future Volume (vph)	86	809	129	69	574	81	184	425	140	32	190	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3466		1770	3474			3398			3401	
Flt Permitted	0.31	1.00		0.18	1.00			0.76			0.82	
Satd. Flow (perm)	582	3466		339	3474			2617			2817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	879	140	75	624	88	200	462	152	35	207	70
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	30	0
Lane Group Flow (vph)	93	1005	0	75	700	0	0	792	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	43.3	43.3		43.3	43.3			37.7			37.7	
Effective Green, g (s)	43.3	43.3		43.3	43.3			37.7			37.7	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.42			0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	280	1667		163	1671			1096			1180	
v/s Ratio Prot		c0.29			0.20							
v/s Ratio Perm	0.16			0.22				c0.30			0.10	
v/c Ratio	0.33	0.60		0.46	0.42			0.72			0.24	
Uniform Delay, d1	14.4	17.1		15.6	15.2			21.8			16.9	
Progression Factor	0.39	0.36		1.14	1.14			1.00			0.37	
Incremental Delay, d2	2.2	1.1		8.7	0.7			4.1			0.5	
Delay (s)	7.8	7.3		26.5	18.1			25.9			6.7	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.3			18.9			25.9			6.7	
Approach LOS		A			B			C			A	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	650	304	157	608	36	230	561	82	38	557	377
Future Volume (vph)	437	650	304	157	608	36	230	561	82	38	557	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3228		1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.63		0.24	1.00		0.27	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	277	2027		445	3510		499	3539	1583	540	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	707	330	171	661	39	250	610	89	41	605	410
RTOR Reduction (vph)	0	46	0	0	5	0	0	0	53	0	0	39
Lane Group Flow (vph)	380	1086	0	171	695	0	250	610	36	41	605	371
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.3	44.3		26.5	20.0		36.7	36.7	36.7	22.7	22.7	42.5
Effective Green, g (s)	44.3	44.3		26.5	20.0		36.7	36.7	36.7	22.7	22.7	42.5
Actuated g/C Ratio	0.49	0.49		0.29	0.22		0.41	0.41	0.41	0.25	0.25	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	1261		226	780		337	1443	645	136	892	747
v/s Ratio Prot	c0.19	c0.19		0.05	0.20		c0.08	0.17			0.17	0.11
v/s Ratio Perm	c0.24	0.23		0.17			c0.22		0.02	0.08		0.13
v/c Ratio	0.89	0.86		0.76	0.89		0.74	0.42	0.06	0.30	0.68	0.50
Uniform Delay, d1	22.4	20.1		24.8	33.9		29.0	19.1	16.2	27.2	30.4	16.4
Progression Factor	1.03	0.46		1.00	1.00		0.73	0.65	0.45	1.00	1.00	1.00
Incremental Delay, d2	13.8	4.3		13.5	12.4		4.7	0.5	0.1	5.6	4.1	0.5
Delay (s)	36.9	13.6		38.3	46.4		25.9	12.9	7.3	32.8	34.5	16.9
Level of Service	D	B		D	D		C	B	A	C	C	B
Approach Delay (s)		19.4			44.8			15.8			27.6	
Approach LOS		B			D			B			C	

Intersection Summary		
HCM 2000 Control Delay	25.6	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.89	C
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	88.0%	18.0
Analysis Period (min)	15	ICU Level of Service
		E

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Future Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1856		1770	1751		1770	1859		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1770	1856		1770	1751		1157	1859		464	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	443	11	7	266	178	18	340	4	103	143	226
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	173
Lane Group Flow (vph)	525	453	0	7	417	0	18	343	0	103	143	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Effective Green, g (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Actuated g/C Ratio	0.36	0.60		0.01	0.26		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	633	1117		19	447		273	439		109	440	374
v/s Ratio Prot	c0.30	0.24		0.00	c0.24			0.18			0.08	
v/s Ratio Perm							0.02			c0.22		0.03
v/c Ratio	0.83	0.41		0.37	0.93		0.07	0.78		0.94	0.33	0.14
Uniform Delay, d1	26.4	9.4		44.2	32.8		26.6	32.2		33.8	28.4	27.1
Progression Factor	0.76	0.29		1.00	1.00		1.00	1.00		0.71	0.75	0.80
Incremental Delay, d2	7.5	0.2		11.7	26.6		0.5	13.0		56.4	1.3	0.5
Delay (s)	27.6	2.9		55.9	59.3		27.1	45.2		80.3	22.5	22.3
Level of Service	C	A		E	E		C	D		F	C	C
Approach Delay (s)		16.1			59.3			44.3			35.0	
Approach LOS		B			E			D			D	

Intersection Summary

HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/11/2018
























Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	725	210	106	472	255	274
Future Volume (vph)	725	210	106	472	255	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.23	1.00	0.95	1.00
Satd. Flow (perm)	3420		430	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	788	228	115	513	277	298
RTOR Reduction (vph)	30	0	0	0	0	147
Lane Group Flow (vph)	986	0	115	513	277	151
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	55.5		55.5	55.5	25.5	25.5
Effective Green, g (s)	55.5		55.5	55.5	25.5	25.5
Actuated g/C Ratio	0.62		0.62	0.62	0.28	0.28
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2109		265	2182	501	448
v/s Ratio Prot	c0.29			0.14	c0.16	
v/s Ratio Perm			0.27			0.10
v/c Ratio	0.47		0.43	0.24	0.55	0.34
Uniform Delay, d1	9.3		9.0	7.7	27.4	25.6
Progression Factor	0.31		1.37	0.63	1.00	1.00
Incremental Delay, d2	0.6		5.0	0.2	4.3	2.0
Delay (s)	3.5		17.3	5.1	31.8	27.6
Level of Service	A		B	A	C	C
Approach Delay (s)	3.5			7.3	29.6	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 30: N Vignes St & Bauchet St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	5	19	210	14	104	25	898	60	20	374	12
Future Volume (vph)	14	5	19	210	14	104	25	898	60	20	374	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Fr _t		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1703		1770	1616		1770	3539	1583	1770	3523	
Fl _t Permitted		0.90		0.73	1.00		0.51	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1556		1360	1616		943	3539	1583	480	3523	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	5	21	228	15	113	27	976	65	22	407	13
RTOR Reduction (vph)	0	16	0	0	69	0	0	0	21	0	2	0
Lane Group Flow (vph)	0	25	0	228	59	0	27	976	44	22	418	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Effective Green, g (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Actuated g/C Ratio		0.23		0.23	0.23		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		356		311	369		632	2375	1062	322	2364	
v/s Ratio Prot					0.04			c0.28			0.12	
v/s Ratio Perm		0.02		c0.17			0.03		0.03	0.05		
v/c Ratio		0.07		0.73	0.16		0.04	0.41	0.04	0.07	0.18	
Uniform Delay, d ₁		27.2		32.2	27.8		5.0	6.7	5.0	5.1	5.5	
Progression Factor		1.00		1.00	1.00		2.56	2.91	5.66	0.89	0.98	
Incremental Delay, d ₂		0.1		8.6	0.2		0.1	0.4	0.1	0.4	0.1	
Delay (s)		27.3		40.8	28.0		12.9	20.0	28.4	4.9	5.5	
Level of Service		C		D	C		B	B	C	A	A	
Approach Delay (s)		27.3			36.2			20.3			5.5	
Approach LOS		C			D			C			A	
Intersection Summary												
HCM 2000 Control Delay			20.0			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.49									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			50.6%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/11/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	20	17	821	56	12	474	
Future Volume (Veh/h)	20	17	821	56	12	474	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	22	18	892	61	13	515	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	553						
pX, platoon unblocked							
vC, conflicting volume	1206	476			953		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1206	476			953		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	87	97			98		
cM capacity (veh/h)	173	535			717		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	18	595	358	13	258	258
Volume Left	22	0	0	0	13	0	0
Volume Right	0	18	0	61	0	0	0
cSH	173	535	1700	1700	717	1700	1700
Volume to Capacity	0.13	0.03	0.35	0.21	0.02	0.15	0.15
Queue Length 95th (ft)	11	3	0	0	1	0	0
Control Delay (s)	28.8	12.0	0.0	0.0	10.1	0.0	0.0
Lane LOS	D	B			B		
Approach Delay (s)	21.2	0.0		0.2			
Approach LOS	C						
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			34.5%	ICU Level of Service	A		
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1110	62	67	1038	116	109
Future Volume (vph)	1110	62	67	1038	116	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3511		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3511		260	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1207	67	73	1128	126	118
RTOR Reduction (vph)	8	0	0	0	0	35
Lane Group Flow (vph)	1266	0	73	1128	126	83
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	28.7		28.7	28.7	22.3	22.3
Effective Green, g (s)	28.7		28.7	28.7	22.3	22.3
Actuated g/C Ratio	0.48		0.48	0.48	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1679		124	1692	657	588
v/s Ratio Prot	c0.36			0.32	c0.07	
v/s Ratio Perm			0.28			0.05
v/c Ratio	0.75		0.59	0.67	0.19	0.14
Uniform Delay, d1	12.8		11.4	12.0	12.8	12.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0		7.0	1.0	0.6	0.5
Delay (s)	14.7		18.3	13.0	13.4	13.0
Level of Service	B		B	B	B	B
Approach Delay (s)	14.7			13.3	13.2	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	138	55	61	0	854	0	0	847	112
Future Volume (vph)	0	0	0	138	55	61	0	854	0	0	847	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.98	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6295	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6295	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	150	60	66	0	928	0	0	921	122
RTOR Reduction (vph)	0	0	0	0	0	56	0	0	0	0	14	0
Lane Group Flow (vph)	0	0	0	150	60	10	0	928	0	0	1029	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				13.0	13.0	13.0		68.0			68.0	
Effective Green, g (s)				13.0	13.0	13.0		68.0			68.0	
Actuated g/C Ratio				0.14	0.14	0.14		0.76			0.76	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				255	269	228		3842			4756	
v/s Ratio Prot				c0.08	0.03			c0.18			0.16	
v/s Ratio Perm						0.01						
v/c Ratio				0.59	0.22	0.04		0.24			0.22	
Uniform Delay, d1				36.0	34.0	33.1		3.3			3.2	
Progression Factor				1.00	1.00	1.00		0.49			0.26	
Incremental Delay, d2				3.4	0.4	0.1		0.1			0.1	
Delay (s)				39.4	34.5	33.2		1.8			0.9	
Level of Service				D	C	C		A			A	
Approach Delay (s)		0.0			36.9			1.8			0.9	
Approach LOS		A			D			A			A	

Intersection Summary



























HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	53.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 					 			  	
Traffic Volume (vph)	44	32	118	154	0	205	0	703	154	132	1213	0
Future Volume (vph)	44	32	118	154	0	205	0	703	154	132	1213	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	35	128	167	0	223	0	764	167	143	1318	0
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	103	0	0	0
Lane Group Flow (vph)	48	35	12	167	0	223	0	764	64	143	1318	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	8.5	8.5	8.5	21.5		21.5		28.5	28.5	13.5	46.5	
Effective Green, g (s)	8.5	8.5	8.5	21.5		21.5		28.5	28.5	13.5	46.5	
Actuated g/C Ratio	0.09	0.09	0.09	0.24		0.24		0.32	0.32	0.15	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	324	175	149	422		378		1120	501	265	2627	
v/s Ratio Prot	0.01	c0.02		0.09		c0.14		c0.22		0.08	c0.26	
v/s Ratio Perm			0.01						0.04			
v/c Ratio	0.15	0.20	0.08	0.40		0.59		0.68	0.13	0.54	0.50	
Uniform Delay, d1	37.4	37.6	37.2	28.8		30.3		26.8	21.9	35.4	14.2	
Progression Factor	0.81	0.82	0.63	1.00		1.00		1.61	3.78	1.38	0.59	
Incremental Delay, d2	0.9	2.5	1.0	2.8		6.6		3.1	0.5	6.5	0.6	
Delay (s)	31.3	33.4	24.3	31.6		37.0		46.2	83.3	55.4	9.0	
Level of Service	C	C	C	C		D		D	F	E	A	
Approach Delay (s)		27.4			34.6			52.8			13.6	
Approach LOS		C			C			D			B	
Intersection Summary												
HCM 2000 Control Delay			29.5		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			52.8%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	61	14	10	198	144	13	38	59	186	68	192
Future Volume (vph)	243	61	14	10	198	144	13	38	59	186	68	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.97			0.94			0.92			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.99			0.96	1.00
Satd. Flow (prot)	3433	1811			1757			3235			1797	1583
Flt Permitted	0.95	1.00			1.00			0.99			0.96	1.00
Satd. Flow (perm)	3433	1811			1757			3235			1797	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	66	15	11	215	157	14	41	64	202	74	209
RTOR Reduction (vph)	0	11	0	0	31	0	0	52	0	0	0	172
Lane Group Flow (vph)	264	70	0	0	352	0	0	67	0	0	276	37
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	custom
Protected Phases	2	2		1	1		3	3		4	4	4
Permitted Phases												5
Actuated Green, G (s)	19.5	19.5			13.9			14.5			14.1	14.1
Effective Green, g (s)	19.5	19.5			13.9			14.5			14.1	14.1
Actuated g/C Ratio	0.24	0.24			0.17			0.18			0.18	0.18
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	836	441			305			586			316	279
v/s Ratio Prot	c0.08	0.04			c0.20			c0.02			c0.15	0.02
v/s Ratio Perm												
v/c Ratio	0.32	0.16			1.15			0.11			0.87	0.13
Uniform Delay, d1	24.8	23.8			33.0			27.4			32.1	27.8
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	1.0	0.8			99.5			0.4			22.4	0.2
Delay (s)	25.8	24.6			132.6			27.8			54.4	28.0
Level of Service	C	C			F			C			D	C
Approach Delay (s)		25.5			132.6			27.8			43.0	
Approach LOS		C			F			C			D	

Intersection Summary

HCM 2000 Control Delay	62.9	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	58.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: E Commercial St & Center St

12/13/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	199	107	130	427	469	222
Future Volume (vph)	199	107	130	427	469	222
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	216	116	141	464	510	241
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total (vph)	332	141	464	751		
Volume Left (vph)	216	141	0	0		
Volume Right (vph)	116	0	0	241		
Hadj (s)	-0.05	0.53	0.03	-0.16		
Departure Headway (s)	6.8	7.2	6.7	6.1		
Degree Utilization, x	0.63	0.28	0.86	1.27		
Capacity (veh/h)	513	495	534	600		
Control Delay (s)	20.5	11.7	36.5	152.7		
Approach Delay (s)	20.5	30.7		152.7		
Approach LOS	C	D		F		
Intersection Summary						
Delay			83.0			
Level of Service			F			
Intersection Capacity Utilization			73.0%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	166	152	25	355	41	260	709	0	30	866	442
Future Volume (vph)	106	166	152	25	355	41	260	709	0	30	866	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3285		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.24	1.00		0.54	1.00		0.22	1.00		0.95	1.00	1.00
Satd. Flow (perm)	441	3285		1014	3484		416	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	180	165	27	386	45	283	771	0	33	941	480
RTOR Reduction (vph)	0	118	0	0	0	0	0	0	0	0	0	186
Lane Group Flow (vph)	115	227	0	27	431	0	283	771	0	33	941	294
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	34.7	34.7
Effective Green, g (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	34.7	34.7
Actuated g/C Ratio	0.28	0.28		0.18	0.18		0.52	0.52		0.04	0.39	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	201	930		178	611		463	1856		74	1364	610
v/s Ratio Prot	c0.03	0.07			c0.12		c0.11	0.22		0.02	c0.27	
v/s Ratio Perm	0.13			0.03			0.21					0.19
v/c Ratio	0.57	0.24		0.15	0.71		0.61	0.42		0.45	0.69	0.48
Uniform Delay, d1	25.4	24.8		31.4	34.9		21.8	13.0		42.1	23.1	20.9
Progression Factor	0.78	0.65		1.00	1.00		0.51	0.31		1.40	0.45	0.18
Incremental Delay, d2	3.8	0.1		0.4	3.7		2.1	0.6		3.8	2.6	2.4
Delay (s)	23.8	16.3		31.8	38.6		13.3	4.6		62.6	13.1	6.1
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		18.1			38.2			6.9			11.9	
Approach LOS		B			D			A			B	


















Intersection Summary

HCM 2000 Control Delay	14.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	25	64	7	104	3	363	92	11	6	47	62
Future Volume (vph)	50	25	64	7	104	3	363	92	11	6	47	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	27	70	8	113	3	395	100	12	7	51	67
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	81	70	124	507	125							
Volume Left (vph)	54	0	8	395	7							
Volume Right (vph)	0	70	3	12	67							
Hadj (s)	0.37	-0.67	0.03	0.18	-0.28							
Departure Headway (s)	6.8	5.7	6.0	5.1	5.2							
Degree Utilization, x	0.15	0.11	0.21	0.72	0.18							
Capacity (veh/h)	481	563	532	687	631							
Control Delay (s)	9.8	8.2	10.6	19.9	9.4							
Approach Delay (s)	9.1		10.6	19.9	9.4							
Approach LOS	A		B	C	A							
Intersection Summary												
Delay			15.4									
Level of Service			C									
Intersection Capacity Utilization			50.4%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗			↖	↗	↘	↖	↗	↘	↖	↗
Traffic Volume (vph)	0	0	0	0	528	27	2	942	51	13	861	168
Future Volume (vph)	0	0	0	0	528	27	2	942	51	13	861	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted					1.00	1.00	0.24	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)					3539	1583	447	3539	1583	388	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	29	2	1024	55	14	936	183
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	25	0	0	25
Lane Group Flow (vph)	0	0	0	0	574	29	2	1024	30	14	936	158
Turn Type	pm+pt				NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Effective Green, g (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Actuated g/C Ratio					0.23	0.23	0.55	0.55	0.55	0.55	0.55	0.62
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)					825	369	246	1954	874	214	1954	1055
v/s Ratio Prot					c0.16			c0.29			0.26	c0.01
v/s Ratio Perm						0.02	0.00		0.02	0.04		0.09
v/c Ratio					0.70	0.08	0.01	0.52	0.03	0.07	0.48	0.15
Uniform Delay, d1					31.6	26.9	9.1	12.7	9.2	9.4	12.3	7.3
Progression Factor					1.62	1.70	1.00	1.00	1.00	0.51	0.40	0.10
Incremental Delay, d2					1.6	0.1	0.1	1.0	0.1	0.5	0.7	0.1
Delay (s)					52.7	45.8	9.1	13.7	9.3	5.2	5.6	0.8
Level of Service					D	D	A	B	A	A	A	A
Approach Delay (s)		0.0			52.4			13.5			4.8	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔	↗		↔↔			↕			↕	
Traffic Volume (vph)	31	117	10	184	531	406	4	19	27	27	33	20
Future Volume (vph)	31	117	10	184	531	406	4	19	27	27	33	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.95			0.93			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.98	
Satd. Flow (prot)		3502	1583		3320			1721			1770	
Flt Permitted		0.99	1.00		0.99			0.98			0.90	
Satd. Flow (perm)		3502	1583		3320			1701			1620	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	127	11	200	577	441	4	21	29	29	36	22
RTOR Reduction (vph)	0	0	8	0	95	0	0	23	0	0	14	0
Lane Group Flow (vph)	0	161	3	0	1123	0	0	31	0	0	73	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8			4	4
Permitted Phases			2				8			4		
Actuated Green, G (s)		22.3	22.3		36.1			18.1			18.1	
Effective Green, g (s)		22.3	22.3		36.1			18.1			18.1	
Actuated g/C Ratio		0.25	0.25		0.40			0.20			0.20	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		867	392		1331			342			325	
v/s Ratio Prot		c0.05			c0.34							
v/s Ratio Perm			0.00					0.02			c0.05	
v/c Ratio		0.19	0.01		0.84			0.09			0.23	
Uniform Delay, d1		26.7	25.5		24.4			29.3			30.1	
Progression Factor		1.06	1.00		0.61			1.00			1.00	
Incremental Delay, d2		0.5	0.0		2.8			0.5			1.6	
Delay (s)		28.8	25.5		17.8			29.8			31.7	
Level of Service		C	C		B			C			C	
Approach Delay (s)		28.6			17.8			29.8			31.7	
Approach LOS		C			B			C			C	

Intersection Summary		
HCM 2000 Control Delay	20.2	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.51	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 13.5
Intersection Capacity Utilization	55.0%	ICU Level of Service A
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↶ ↷ ↸	↶ ↷ ↸		↶ ↷ ↸	↶ ↷ ↸			↶ ↷ ↸		
Traffic Volume (vph)	0	0	0	480	1755	229	115	838	0	0	865	55	
Future Volume (vph)	0	0	0	480	1755	229	115	838	0	0	865	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91		
Frt				1.00	0.98		1.00	1.00			0.99		
Flt Protected				0.95	1.00		0.95	1.00			1.00		
Satd. Flow (prot)				1522	4719		1770	5085			5040		
Flt Permitted				0.95	1.00		0.21	1.00			1.00		
Satd. Flow (perm)				1522	4719		383	5085			5040		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	522	1908	249	125	911	0	0	940	60	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0	
Lane Group Flow (vph)	0	0	0	470	2209	0	125	911	0	0	997	0	
Turn Type				Prot	NA		Perm	NA			NA		
Protected Phases				3	8			2			6		
Permitted Phases							2						
Actuated Green, G (s)				44.5	44.5		36.5	36.5			36.5		
Effective Green, g (s)				44.5	44.5		36.5	36.5			36.5		
Actuated g/C Ratio				0.49	0.49		0.41	0.41			0.41		
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)				752	2333		155	2062			2044		
v/s Ratio Prot				0.31	c0.47			0.18			0.20		
v/s Ratio Perm							c0.33						
v/c Ratio				0.62	0.95		0.81	0.44			0.49		
Uniform Delay, d1				16.6	21.6		23.6	19.4			19.8		
Progression Factor				1.00	1.00		0.67	0.54			0.24		
Incremental Delay, d2				3.9	9.8		28.1	0.5			0.8		
Delay (s)				20.5	31.4		44.0	11.0			5.5		
Level of Service				C	C		D	B			A		
Approach Delay (s)		0.0			29.5			15.0			5.5		
Approach LOS		A			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			21.2		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.88										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			72.1%		ICU Level of Service						C		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↔						↑↑↑		↖	↑↑↑	
Traffic Volume (vph)	107	57	18	0	0	0	0	519	118	64	1110	0
Future Volume (vph)	107	57	18	0	0	0	0	519	118	64	1110	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.98						0.97		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3252						4944		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.34	1.00	
Satd. Flow (perm)	1610	3252						4944		634	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	116	62	20	0	0	0	0	564	128	70	1207	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	41	0	0	0	0
Lane Group Flow (vph)	66	118	0	0	0	0	0	651	0	70	1207	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	25.5	25.5						37.5		55.5	55.5	
Effective Green, g (s)	25.5	25.5						37.5		55.5	55.5	
Actuated g/C Ratio	0.28	0.28						0.42		0.62	0.62	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	456	921						2060		561	3135	
v/s Ratio Prot	c0.04	0.04						0.13		0.02	c0.24	
v/s Ratio Perm										0.06		
v/c Ratio	0.14	0.13						0.32		0.12	0.39	
Uniform Delay, d1	24.1	24.0						17.6		9.2	8.7	
Progression Factor	1.00	1.00						1.40		0.23	0.24	
Incremental Delay, d2	0.7	0.3						0.3		0.4	0.3	
Delay (s)	24.8	24.3						25.0		2.6	2.4	
Level of Service	C	C						C		A	A	
Approach Delay (s)		24.4			0.0			25.0			2.5	
Approach LOS		C			A			C			A	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	499	99	116	1239	47	123	413	129	78	1176	157
Future Volume (vph)	49	499	99	116	1239	47	123	413	129	78	1176	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5057		1770	4904		1770	4995	
Flt Permitted	0.14	1.00	1.00	0.29	1.00		0.16	1.00		0.28	1.00	
Satd. Flow (perm)	263	3539	1583	544	5057		305	4904		527	4995	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	542	108	126	1347	51	134	449	140	85	1278	171
RTOR Reduction (vph)	0	0	65	0	5	0	0	63	0	0	19	0
Lane Group Flow (vph)	53	542	43	126	1393	0	134	526	0	85	1430	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.5	28.5	36.0	38.3	38.3		31.9	31.9		30.7	30.7	
Effective Green, g (s)	28.5	28.5	36.0	38.3	38.3		31.9	31.9		30.7	30.7	
Actuated g/C Ratio	0.32	0.32	0.40	0.43	0.43		0.35	0.35		0.34	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	83	1120	633	303	2152		230	1738		266	1703	
v/s Ratio Prot		0.15	0.01	0.02	c0.28		c0.05	0.11		0.02	c0.29	
v/s Ratio Perm	0.20		0.02	0.15			0.16			0.09		
v/c Ratio	0.64	0.48	0.07	0.42	0.65		0.58	0.30		0.32	0.84	
Uniform Delay, d1	26.3	24.8	16.7	16.9	20.5		31.4	21.0		20.9	27.4	
Progression Factor	0.86	0.84	0.69	1.00	1.00		0.64	0.27		0.57	0.71	
Incremental Delay, d2	31.5	1.5	0.2	4.2	1.5		10.3	0.4		3.0	4.9	
Delay (s)	54.2	22.2	11.7	21.0	22.0		30.4	6.1		14.8	24.2	
Level of Service	D	C	B	C	C		C	A		B	C	
Approach Delay (s)		23.0			21.9			10.6			23.7	
Approach LOS		C			C			B			C	

Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	116	63	51	753	147	58	265	12	145	970	244
Future Volume (vph)	56	116	63	51	753	147	58	265	12	145	970	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3353		1770	3539	1583	1770	3539	1583	1770	4932	
Flt Permitted	0.18	1.00		0.63	1.00	1.00	0.16	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	339	3353		1173	3539	1583	292	3539	1583	1072	4932	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	126	68	55	818	160	63	288	13	158	1054	265
RTOR Reduction (vph)	0	51	0	0	0	71	0	0	6	0	37	0
Lane Group Flow (vph)	61	143	0	55	818	89	63	288	7	158	1282	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	22.0	22.0		30.9	30.9	30.9	50.1	50.1	50.1	50.1	50.1	
Effective Green, g (s)	22.0	22.0		30.9	30.9	30.9	50.1	50.1	50.1	50.1	50.1	
Actuated g/C Ratio	0.24	0.24		0.34	0.34	0.34	0.56	0.56	0.56	0.56	0.56	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	819		431	1215	543	162	1970	881	596	2745	
v/s Ratio Prot		0.04		0.01	c0.23			0.08			c0.26	
v/s Ratio Perm	c0.18			0.04		0.06	0.22		0.00	0.15		
v/c Ratio	0.74	0.17		0.13	0.67	0.16	0.39	0.15	0.01	0.27	0.47	
Uniform Delay, d1	31.4	26.8		20.4	25.2	20.6	11.3	9.6	8.9	10.4	12.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.72	0.52	1.00	0.27	0.24	
Incremental Delay, d2	30.1	0.1		0.1	1.5	0.1	6.8	0.2	0.0	1.0	0.5	
Delay (s)	61.5	26.9		20.5	26.7	20.7	15.0	5.2	8.9	3.8	3.4	
Level of Service	E	C		C	C	C	B	A	A	A	A	
Approach Delay (s)		35.2			25.5			7.0			3.4	
Approach LOS		D			C			A			A	






























Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: N Vignes St & E Cesar E Chavez Ave

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	 
Traffic Volume (vph)	52	444	199	253	1256	345	159	374	60	150	361	30
Future Volume (vph)	52	444	199	253	1256	345	159	374	60	150	361	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3498	3498
Flt Permitted	0.11	1.00	1.00	0.37	1.00	1.00	0.56	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	207	3539	1583	693	3539	1583	1049	3539	1583	1049	3498	3498
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	483	216	275	1365	375	173	407	65	163	392	33
RTOR Reduction (vph)	0	0	130	0	0	177	0	0	54	0	7	0
Lane Group Flow (vph)	57	483	86	275	1365	198	173	407	11	163	418	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	40.3	36.0	36.0	52.1	43.3	43.3	15.9	15.9	15.9	15.6	15.6	15.6
Effective Green, g (s)	40.3	36.0	36.0	52.1	43.3	43.3	15.9	15.9	15.9	15.6	15.6	15.6
Actuated g/C Ratio	0.45	0.40	0.40	0.58	0.48	0.48	0.18	0.18	0.18	0.17	0.17	0.17
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1415	633	539	1702	761	255	625	279	249	606	606
v/s Ratio Prot	0.02	0.14		c0.07	c0.39		0.07	c0.11		0.06	c0.12	
v/s Ratio Perm	0.14		0.05	0.23		0.12	0.05		0.01	0.05		
v/c Ratio	0.34	0.34	0.14	0.51	0.80	0.26	0.68	0.65	0.04	0.65	0.69	0.69
Uniform Delay, d1	16.5	18.8	17.1	10.1	19.7	13.8	34.3	34.5	30.7	33.9	34.9	34.9
Progression Factor	1.00	1.00	1.00	0.70	0.68	0.16	0.91	0.91	1.00	0.94	0.95	0.95
Incremental Delay, d2	1.2	0.7	0.4	0.1	0.4	0.1	6.7	2.3	0.1	6.0	3.2	3.2
Delay (s)	17.8	19.4	17.6	7.1	13.8	2.3	38.1	33.9	30.8	37.9	36.3	36.3
Level of Service	B	B	B	A	B	A	D	C	C	D	D	D
Approach Delay (s)		18.8			10.7			34.7			36.7	
Approach LOS		B			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			19.9			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.78									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)					18.0			
Intersection Capacity Utilization			73.6%	ICU Level of Service			D					
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	116	68	72	106	128	336	40	179	101	430	150	235
Future Volume (vph)	116	68	72	106	128	336	40	179	101	430	150	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3150		1770	1863	1583	3433	3539	1583	3433	3215	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1133	2746		1770	1863	1583	3433	3539	1583	3433	3215	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	126	74	78	115	139	365	43	195	110	467	163	255
RTOR Reduction (vph)	0	67	0	0	0	260	0	0	72	0	121	0
Lane Group Flow (vph)	87	124	0	115	139	105	43	195	38	467	297	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.4	12.4		9.1	26.0	26.0	3.3	31.3	31.3	19.2	47.2	
Effective Green, g (s)	12.4	12.4		9.1	26.0	26.0	3.3	31.3	31.3	19.2	47.2	
Actuated g/C Ratio	0.14	0.14		0.10	0.29	0.29	0.04	0.35	0.35	0.21	0.52	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	156	378		178	538	457	125	1230	550	732	1686	
v/s Ratio Prot				c0.06	0.07		0.01	0.06		c0.14	c0.09	
v/s Ratio Perm	c0.08	0.05				0.07			0.02			
v/c Ratio	0.56	0.33		0.65	0.26	0.23	0.34	0.16	0.07	0.64	0.18	
Uniform Delay, d1	36.2	35.0		38.9	24.6	24.4	42.3	20.3	19.6	32.2	11.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.48	
Incremental Delay, d2	4.3	0.5		7.8	0.3	0.3	1.7	0.3	0.2	1.6	0.2	
Delay (s)	40.5	35.5		46.7	24.8	24.6	43.9	20.5	19.9	24.0	5.6	
Level of Service	D	D		D	C	C	D	C	B	C	A	
Approach Delay (s)		37.1			28.8			23.2			15.3	
Approach LOS		D			C			C			B	

























Intersection Summary

HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Main St & Alpine St/N Vignes St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	61	200	5	0	403	183	1	171	42	226	495	546
Future Volume (vph)	61	200	5	0	403	183	1	171	42	226	495	546
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3527			3373		1770	3434		1770	3261	
Flt Permitted	0.95	1.00			1.00		0.16	1.00		0.61	1.00	
Satd. Flow (perm)	1770	3527			3373		297	3434		1131	3261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	217	5	0	438	199	1	186	46	246	538	593
RTOR Reduction (vph)	0	3	0	0	78	0	0	22	0	0	202	0
Lane Group Flow (vph)	66	219	0	0	559	0	1	210	0	246	930	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.6	26.0			15.9		35.0	35.0		35.0	35.0	
Effective Green, g (s)	5.6	26.0			15.9		35.0	35.0		35.0	35.0	
Actuated g/C Ratio	0.08	0.37			0.23		0.50	0.50		0.50	0.50	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	141	1310			766		148	1717		565	1630	
v/s Ratio Prot	c0.04	0.06			c0.17			0.06			c0.29	
v/s Ratio Perm							0.00			0.22		
v/c Ratio	0.47	0.17			0.73		0.01	0.12		0.44	0.57	
Uniform Delay, d1	30.8	14.7			25.1		8.8	9.3		11.2	12.2	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.1			3.5		0.1	0.1		2.4	1.5	
Delay (s)	33.2	14.8			28.6		8.9	9.5		13.6	13.7	
Level of Service	C	B			C		A	A		B	B	
Approach Delay (s)		19.0			28.6			9.5			13.7	
Approach LOS		B			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			17.6				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.60									
Actuated Cycle Length (s)			70.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			71.6%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	81	69	167	29	153	10	190	265	12	11	1162	154
Future Volume (vph)	81	69	167	29	153	10	190	265	12	11	1162	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1845		1770	3516		1770	4996	
Flt Permitted	0.47	1.00	1.00	0.71	1.00		0.13	1.00		0.57	1.00	
Satd. Flow (perm)	871	1863	1583	1319	1845		236	3516		1058	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	75	182	32	166	11	207	288	13	12	1263	167
RTOR Reduction (vph)	0	0	154	0	3	0	0	3	0	0	14	0
Lane Group Flow (vph)	88	75	28	32	174	0	207	298	0	12	1416	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Effective Green, g (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.75	0.75		0.58	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	285	242	202	282		356	2625		612	2892	
v/s Ratio Prot		0.04			0.09		c0.07	0.08			0.28	
v/s Ratio Perm	c0.10		0.02	0.02			c0.36			0.01		
v/c Ratio	0.66	0.26	0.12	0.16	0.62		0.58	0.11		0.02	0.49	
Uniform Delay, d1	35.9	33.6	32.8	33.1	35.6		7.0	3.2		8.1	11.1	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.79	0.47		1.00	1.00	
Incremental Delay, d2	11.7	0.5	0.2	0.4	4.0		2.4	0.1		0.1	0.6	
Delay (s)	47.6	34.1	33.1	33.4	39.6		14.8	1.6		8.1	11.7	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		37.0			38.7			7.0			11.7	
Approach LOS		D			D			A			B	

Intersection Summary





















HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St




















12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			  	
Traffic Volume (veh/h)	0	0	64	0	0	0	57	371	235	0	1349	229
Future Volume (Veh/h)	0	0	64	0	0	0	57	371	235	0	1349	229
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	70	0	0	0	62	403	255	0	1466	249
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								206			797	
pX, platoon unblocked	0.91	0.91	0.90	0.91	0.91	0.99	0.90			0.99		
vC, conflicting volume	1916	2118	613	1086	2242	202	1715			403		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1594	1816	194	679	1953	172	1415			376		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	100	86			100		
cM capacity (veh/h)	58	60	735	247	49	833	431			1167		
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	70	62	202	202	255	586	586	542				
Volume Left	0	62	0	0	0	0	0	0				
Volume Right	70	0	0	0	255	0	0	249				
cSH	735	431	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.10	0.14	0.12	0.12	0.15	0.34	0.34	0.32				
Queue Length 95th (ft)	8	12	0	0	0	0	0	0				
Control Delay (s)	10.4	14.7	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.4	1.3				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			41.8%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St























12/13/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	191	37	15	20	0	11	0	460	49	37	1376	0	
Future Volume (vph)	191	37	15	20	0	11	0	460	49	37	1376	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91		
Frt	1.00	0.96		1.00		0.85		0.99		1.00	1.00		
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00		
Satd. Flow (prot)	3433	1783		1770		1583		5012		1770	5085		
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.43	1.00		
Satd. Flow (perm)	3433	1783		1770		1583		5012		810	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	208	40	16	22	0	12	0	500	53	40	1496	0	
RTOR Reduction (vph)	0	14	0	0	0	12	0	9	0	0	0	0	
Lane Group Flow (vph)	208	42	0	22	0	0	0	544	0	40	1496	0	
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA		
Protected Phases	7	4		3				2			6		
Permitted Phases	4					8				6			
Actuated Green, G (s)	18.0	9.5		4.0		1.1		63.0		63.0	63.0		
Effective Green, g (s)	18.0	9.5		4.0		1.1		63.0		63.0	63.0		
Actuated g/C Ratio	0.20	0.11		0.04		0.01		0.70		0.70	0.70		
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)	686	188		78		19		3508		567	3559		
v/s Ratio Prot	c0.04	0.02		0.01				0.11			c0.29		
v/s Ratio Perm	0.02					0.00				0.05			
v/c Ratio	0.30	0.22		0.28		0.01		0.15		0.07	0.42		
Uniform Delay, d1	30.7	36.9		41.6		43.9		4.5		4.3	5.7		
Progression Factor	0.79	0.63		1.00		1.00		0.26		0.61	0.52		
Incremental Delay, d2	0.2	0.6		2.0		0.2		0.1		0.2	0.4		
Delay (s)	24.4	23.9		43.6		44.1		1.3		2.8	3.3		
Level of Service	C	C		D		D		A		A	A		
Approach Delay (s)		24.3			43.8			1.3			3.3		
Approach LOS		C			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			5.7									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.42										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			46.2%									ICU Level of Service	A
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave













12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			  				
Traffic Volume (vph)	63	551	0	0	1499	20	120	161	95	0	0	0
Future Volume (vph)	63	551	0	0	1499	20	120	161	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5075		1522	4542				
Flt Permitted	0.12	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	216	3539			5075		1522	4542				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	68	599	0	0	1629	22	130	175	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	81	0	0	0	0
Lane Group Flow (vph)	68	599	0	0	1649	0	103	224	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	61.5	61.5			61.5		19.5	19.5				
Effective Green, g (s)	61.5	61.5			61.5		19.5	19.5				
Actuated g/C Ratio	0.68	0.68			0.68		0.22	0.22				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	147	2418			3467		329	984				
v/s Ratio Prot		0.17			c0.32		c0.07	0.05				
v/s Ratio Perm	0.32											
v/c Ratio	0.46	0.25			0.48		0.31	0.23				
Uniform Delay, d1	6.6	5.4			6.7		29.6	29.0				
Progression Factor	1.00	1.00			0.32		1.00	1.00				
Incremental Delay, d2	10.1	0.2			0.3		2.5	0.5				
Delay (s)	16.7	5.7			2.5		32.1	29.6				
Level of Service	B	A			A		C	C				
Approach Delay (s)		6.8			2.5		30.2				0.0	
Approach LOS		A			A		C				A	
Intersection Summary												
HCM 2000 Control Delay			7.7				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.44									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			50.6%				ICU Level of Service		A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St













12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	300	1564	60	87	267	0	0	338	41
Future Volume (vph)	0	0	0	300	1564	60	87	267	0	0	338	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Flt					1.00		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3481	
Flt Permitted					0.99		0.44	1.00			1.00	
Satd. Flow (perm)					5022		810	3539			3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	1700	65	95	290	0	0	367	45
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	0	2087	0	95	290	0	0	402	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					53.5		27.5	27.5			27.5	
Effective Green, g (s)					53.5		27.5	27.5			27.5	
Actuated g/C Ratio					0.59		0.31	0.31			0.31	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					2985		247	1081			1063	
v/s Ratio Prot								0.08			0.12	
v/s Ratio Perm					0.42		c0.12					
v/c Ratio					0.70		0.38	0.27			0.38	
Uniform Delay, d1					12.7		24.6	23.6			24.5	
Progression Factor					0.17		0.61	0.62			1.00	
Incremental Delay, d2					0.5		4.4	0.6			1.0	
Delay (s)					2.7		19.5	15.3			25.6	
Level of Service					A		B	B			C	
Approach Delay (s)		0.0			2.7			16.3			25.6	
Approach LOS		A			A			B			C	
Intersection Summary												
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0	
Intersection Capacity Utilization			74.5%		ICU Level of Service						D	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	35	133	152	0	0	0	0	319	61	0	638	0
Future Volume (vph)	35	133	152	0	0	0	0	319	61	0	638	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.93						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3270						3454			3539	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		3270						3454			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	38	145	165	0	0	0	0	347	66	0	693	0
RTOR Reduction (vph)	0	109	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	239	0	0	0	0	0	413	0	0	693	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		30.5						50.5			50.5	
Effective Green, g (s)		30.5						50.5			50.5	
Actuated g/C Ratio		0.34						0.56			0.56	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		1108						1938			1985	
v/s Ratio Prot								0.12			c0.20	
v/s Ratio Perm		0.07										
v/c Ratio		0.22						0.21			0.35	
Uniform Delay, d1		21.2						9.8			10.8	
Progression Factor		1.00						0.59			0.46	
Incremental Delay, d2		0.4						0.2			0.4	
Delay (s)		21.7						6.1			5.3	
Level of Service		C						A			A	
Approach Delay (s)		21.7			0.0			6.1			5.3	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.5					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.30									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			74.5%					ICU Level of Service		D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	33	385	172	100	743	122	70	327	52	169	917	94
Future Volume (vph)	33	385	172	100	743	122	70	327	52	169	917	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3464		1770	3466		1770	3539	1583
Flt Permitted	0.17	1.00		0.34	1.00		0.20	1.00		0.49	1.00	1.00
Satd. Flow (perm)	308	3375		628	3464		373	3466		917	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	418	187	109	808	133	76	355	57	184	997	102
RTOR Reduction (vph)	0	48	0	0	15	0	0	14	0	0	0	31
Lane Group Flow (vph)	36	557	0	109	926	0	76	398	0	184	997	71
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Effective Green, g (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.51	0.51		0.51	0.51	0.51
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	121	1331		247	1366		188	1752		463	1789	800
v/s Ratio Prot		0.17			c0.27			0.11			c0.28	
v/s Ratio Perm	0.12			0.17			0.20			0.20		0.04
v/c Ratio	0.30	0.42		0.44	0.68		0.40	0.23		0.40	0.56	0.09
Uniform Delay, d1	18.7	19.8		20.0	22.5		13.8	12.4		13.8	15.3	11.5
Progression Factor	1.00	1.00		0.74	0.74		0.75	0.66		0.69	0.67	0.49
Incremental Delay, d2	6.2	1.0		5.4	2.6		6.3	0.3		2.5	1.2	0.2
Delay (s)	24.9	20.7		20.1	19.2		16.7	8.4		12.0	11.5	5.9
Level of Service	C	C		C	B		B	A		B	B	A
Approach Delay (s)		21.0			19.3			9.7			11.1	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↗↗		↙	↗↗	↗	↙	↗↗		↙	↗↗	
Traffic Volume (vph)	29	391	120	49	645	83	107	357	41	115	822	137
Future Volume (vph)	29	391	120	49	645	83	107	357	41	115	822	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3415		1770	3539	1583	1770	3484		1770	3463	
Flt Permitted	0.21	1.00		0.31	1.00	1.00	0.22	1.00		0.49	1.00	
Satd. Flow (perm)	396	3415		584	3539	1583	408	3484		921	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	425	130	53	701	90	116	388	45	125	893	149
RTOR Reduction (vph)	0	32	0	0	0	64	0	10	0	0	15	0
Lane Group Flow (vph)	32	523	0	53	701	27	116	423	0	125	1027	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Effective Green, g (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	116	1005		171	1042	466	247	2109		557	2097	
v/s Ratio Prot		0.15			c0.20			0.12			c0.30	
v/s Ratio Perm	0.08			0.09		0.02	0.28			0.14		
v/c Ratio	0.28	0.52		0.31	0.67	0.06	0.47	0.20		0.22	0.49	
Uniform Delay, d1	24.4	26.5		24.7	27.9	22.8	9.8	8.0		8.1	10.0	
Progression Factor	1.00	1.00		0.56	0.55	0.48	1.00	1.00		0.87	0.86	
Incremental Delay, d2	5.8	1.9		4.3	3.2	0.2	6.3	0.2		0.8	0.7	
Delay (s)	30.2	28.4		18.1	18.6	11.1	16.1	8.2		7.9	9.2	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		28.5			17.8			9.9			9.1	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

12/13/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	346	222	204	808	186	106
Future Volume (vph)	346	222	204	808	186	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3332		1770	3539	3433	1583
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3332		743	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	241	222	878	202	115
RTOR Reduction (vph)	87	0	0	0	0	85
Lane Group Flow (vph)	530	0	222	878	202	30
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	57.5		57.5	57.5	23.5	23.5
Effective Green, g (s)	57.5		57.5	57.5	23.5	23.5
Actuated g/C Ratio	0.64		0.64	0.64	0.26	0.26
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2128		474	2261	896	413
v/s Ratio Prot	0.16			0.25	c0.06	
v/s Ratio Perm			c0.30			0.02
v/c Ratio	0.25		0.47	0.39	0.23	0.07
Uniform Delay, d1	7.0		8.4	7.8	26.1	25.0
Progression Factor	0.28		0.77	0.80	0.88	0.95
Incremental Delay, d2	0.3		2.6	0.4	0.5	0.3
Delay (s)	2.2		9.1	6.6	23.5	24.2
Level of Service	A		A	A	C	C
Approach Delay (s)	2.2			7.1	23.8	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	78	301	167	105	585	65	157	225	49	25	310	34
Future Volume (vph)	78	301	167	105	585	65	157	225	49	25	310	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.98			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3349		1770	3486			3417			3479	
Flt Permitted	0.31	1.00		0.42	1.00			0.67			0.91	
Satd. Flow (perm)	573	3349		782	3486			2344			3160	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	327	182	114	636	71	171	245	53	27	337	37
RTOR Reduction (vph)	0	85	0	0	10	0	0	11	0	0	8	0
Lane Group Flow (vph)	85	424	0	114	697	0	0	458	0	0	393	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Effective Green, g (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.44			0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	264	1544		360	1607			1028			1386	
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.15			0.15				c0.20			0.12	
v/c Ratio	0.32	0.27		0.32	0.43			0.45			0.28	
Uniform Delay, d1	15.3	15.0		15.3	16.3			17.6			16.2	
Progression Factor	0.53	0.40		1.31	1.35			1.00			0.58	
Incremental Delay, d2	2.9	0.4		2.2	0.8			1.4			0.5	
Delay (s)	11.0	6.4		22.2	22.8			19.0			9.8	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		7.0			22.7			19.0			9.8	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	231	131	293	900	8	214	503	91	26	1025	740
Future Volume (vph)	291	231	131	293	900	8	214	503	91	26	1025	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3212		1770	3534		1770	3539	1583	1770	3539	1583
Flt Permitted	0.20	0.58		0.33	1.00		0.13	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	344	1881		612	3534		234	3539	1583	834	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	251	142	318	978	9	233	547	99	28	1114	804
RTOR Reduction (vph)	0	40	0	0	1	0	0	0	57	0	0	39
Lane Group Flow (vph)	183	486	0	318	986	0	233	547	42	28	1114	765
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	34.8	34.8		41.2	22.9		38.5	38.5	38.5	27.3	27.3	42.4
Effective Green, g (s)	34.8	34.8		41.2	22.9		38.5	38.5	38.5	27.3	27.3	42.4
Actuated g/C Ratio	0.39	0.39		0.46	0.25		0.43	0.43	0.43	0.30	0.30	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	345	950		515	899		214	1513	677	252	1073	745
v/s Ratio Prot	0.09	0.09		c0.13	c0.28		c0.08	0.15			0.31	c0.17
v/s Ratio Perm	0.12	0.11		0.16			c0.38		0.03	0.03		0.31
v/c Ratio	0.53	0.51		0.62	1.10		1.09	0.36	0.06	0.11	1.04	1.03
Uniform Delay, d1	30.5	21.1		22.9	33.5		22.6	17.4	15.1	22.6	31.4	23.8
Progression Factor	0.73	0.66		1.00	1.00		1.32	1.05	1.48	1.00	1.00	1.00
Incremental Delay, d2	1.5	0.4		2.2	60.1		86.0	0.6	0.2	0.9	37.9	40.1
Delay (s)	23.7	14.3		25.1	93.7		115.8	18.9	22.6	23.5	69.2	63.9
Level of Service	C	B		C	F		F	B	C	C	E	E
Approach Delay (s)		16.7			77.0			45.0			66.4	
Approach LOS		B			E			D			E	

Intersection Summary

HCM 2000 Control Delay	58.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Future Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1831		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.57	1.00		0.57	1.00	1.00
Satd. Flow (perm)	1770	1831		1770	1803		1056	1860		1056	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	77	10	13	621	170	42	182	2	117	184	554
RTOR Reduction (vph)	0	4	0	0	11	0	0	1	0	0	0	235
Lane Group Flow (vph)	98	83	0	13	780	0	42	183	0	117	184	319
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Effective Green, g (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Actuated g/C Ratio	0.11	0.56		0.01	0.46		0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	202	1027		19	825		293	516		293	517	439
v/s Ratio Prot	c0.06	0.05		0.01	c0.43			0.10			0.10	
v/s Ratio Perm							0.04			0.11		c0.20
v/c Ratio	0.49	0.08		0.68	0.94		0.14	0.36		0.40	0.36	0.73
Uniform Delay, d1	37.4	9.1		44.3	23.3		24.4	26.0		26.4	26.0	29.4
Progression Factor	0.71	0.83		1.00	1.00		1.00	1.00		0.49	0.49	0.13
Incremental Delay, d2	1.8	0.0		69.9	19.1		1.0	1.9		1.6	0.8	4.2
Delay (s)	28.3	7.5		114.2	42.4		25.5	28.0		14.5	13.7	8.2
Level of Service	C	A		F	D		C	C		B	B	A
Approach Delay (s)		18.6			43.6			27.5			10.2	
Approach LOS		B			D			C			B	

Intersection Summary

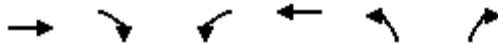
HCM 2000 Control Delay	25.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/13/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	0	375	144	553	202	0
Future Volume (vph)	0	375	144	553	202	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.85		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3008		1770	3539	1770	
Flt Permitted	1.00		0.50	1.00	0.95	
Satd. Flow (perm)	3008		932	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	408	157	601	220	0
RTOR Reduction (vph)	188	0	0	0	0	0
Lane Group Flow (vph)	220	0	157	601	220	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	48.5		48.5	48.5	32.5	
Effective Green, g (s)	48.5		48.5	48.5	32.5	
Actuated g/C Ratio	0.54		0.54	0.54	0.36	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1620		502	1907	639	
v/s Ratio Prot	0.07			c0.17	c0.12	
v/s Ratio Perm			0.17			
v/c Ratio	0.14		0.31	0.32	0.34	
Uniform Delay, d1	10.3		11.5	11.5	21.0	
Progression Factor	1.00		0.29	0.29	1.00	
Incremental Delay, d2	0.2		1.4	0.4	1.5	
Delay (s)	10.5		4.7	3.7	22.4	
Level of Service	B		A	A	C	
Approach Delay (s)	10.5			3.9	22.4	
Approach LOS	B			A	C	

Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	4	4	6	100	4	24	20	592	169	62	420	12
Future Volume (vph)	4	4	6	100	4	24	20	592	169	62	420	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Fr _t		0.94		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1722		1770	1621		1770	3539	1583	1770	3525	
Fl _t Permitted		0.94		0.75	1.00		0.48	1.00	1.00	0.41	1.00	
Satd. Flow (perm)		1641		1393	1621		899	3539	1583	758	3525	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	4	7	109	4	26	22	643	184	67	457	13
RTOR Reduction (vph)	0	6	0	0	23	0	0	0	41	0	1	0
Lane Group Flow (vph)	0	9	0	109	7	0	22	643	143	67	469	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		11.0		11.0	11.0		70.0	70.0	70.0	70.0	70.0	
Effective Green, g (s)		11.0		11.0	11.0		70.0	70.0	70.0	70.0	70.0	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		200		170	198		699	2752	1231	589	2741	
v/s Ratio Prot					0.00			c0.18			0.13	
v/s Ratio Perm		0.01		c0.08			0.02		0.09	0.09		
v/c Ratio		0.04		0.64	0.04		0.03	0.23	0.12	0.11	0.17	
Uniform Delay, d ₁		34.9		37.6	34.8		2.3	2.7	2.4	2.4	2.6	
Progression Factor		1.00		1.00	1.00		2.51	2.81	8.88	1.00	1.00	
Incremental Delay, d ₂		0.1		8.0	0.1		0.1	0.2	0.2	0.4	0.1	
Delay (s)		35.0		45.6	34.9		5.8	7.8	21.9	2.8	2.7	
Level of Service		C		D	C		A	A	C	A	A	
Approach Delay (s)		35.0			43.3			10.8			2.7	
Approach LOS		C			D			B			A	

Intersection Summary

HCM 2000 Control Delay	11.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/13/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	54	42	434	192	45	635	
Future Volume (Veh/h)	54	42	434	192	45	635	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	59	46	472	209	49	690	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	596						
pX, platoon unblocked							
vC, conflicting volume	1020	340			681		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1020	340			681		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	73	93			95		
cM capacity (veh/h)	220	655			907		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	59	46	315	366	49	345	345
Volume Left	59	0	0	0	49	0	0
Volume Right	0	46	0	209	0	0	0
cSH	220	655	1700	1700	907	1700	1700
Volume to Capacity	0.27	0.07	0.19	0.22	0.05	0.20	0.20
Queue Length 95th (ft)	26	6	0	0	4	0	0
Control Delay (s)	27.2	10.9	0.0	0.0	9.2	0.0	0.0
Lane LOS	D	B			A		
Approach Delay (s)	20.1	0.0		0.6			
Approach LOS	C						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utilization			34.8%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/13/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	639	59	81	1306	80	55
Future Volume (vph)	639	59	81	1306	80	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3494		1770	3539	1770	1583
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3494		584	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	695	64	88	1420	87	60
RTOR Reduction (vph)	13	0	0	0	0	39
Lane Group Flow (vph)	746	0	88	1420	87	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	26.4		26.4	26.4	19.6	19.6
Effective Green, g (s)	26.4		26.4	26.4	19.6	19.6
Actuated g/C Ratio	0.48		0.48	0.48	0.36	0.36
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1677		280	1698	630	564
v/s Ratio Prot	0.21			c0.40	c0.05	
v/s Ratio Perm			0.15			0.01
v/c Ratio	0.44		0.31	0.84	0.14	0.04
Uniform Delay, d1	9.5		8.8	12.4	12.0	11.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	3.8	0.5	0.1
Delay (s)	9.6		9.4	16.2	12.4	11.7
Level of Service	A		A	B	B	B
Approach Delay (s)	9.6			15.8	12.1	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	113	61	38	0	627	0	0	1060	330
Future Volume (vph)	0	0	0	113	61	38	0	627	0	0	1060	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.96	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6179	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6179	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	123	66	41	0	682	0	0	1152	359
RTOR Reduction (vph)	0	0	0	0	0	36	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	123	66	5	0	682	0	0	1477	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				11.6	11.6	11.6		69.4			69.4	
Effective Green, g (s)				11.6	11.6	11.6		69.4			69.4	
Actuated g/C Ratio				0.13	0.13	0.13		0.77			0.77	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				228	240	204		3921			4764	
v/s Ratio Prot				c0.07	0.04			0.13			c0.24	
v/s Ratio Perm						0.00						
v/c Ratio				0.54	0.28	0.03		0.17			0.31	
Uniform Delay, d1				36.7	35.4	34.3		2.7			3.1	
Progression Factor				1.00	1.00	1.00		0.36			0.23	
Incremental Delay, d2				2.4	0.6	0.1		0.1			0.1	
Delay (s)				39.1	36.0	34.3		1.1			0.8	
Level of Service				D	D	C		A			A	
Approach Delay (s)		0.0			37.4			1.1			0.8	
Approach LOS		A			D			A			A	

Intersection Summary

HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: N Alameda St & E Aliso St/E Commercial St

12/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	361	65	49	91	0	165	0	1263	169	137	775	0
Future Volume (vph)	361	65	49	91	0	165	0	1263	169	137	775	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	71	53	99	0	179	0	1373	184	149	842	0
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	392	71	7	99	0	179	0	1373	111	149	842	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Effective Green, g (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.14		0.14		0.43	0.43	0.11	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	438	238	202	245		219		1513	677	186	2966	
v/s Ratio Prot	c0.11	0.04		0.06		c0.11		c0.39		c0.08	0.17	
v/s Ratio Perm			0.00						0.07			
v/c Ratio	0.89	0.30	0.03	0.40		0.82		0.91	0.16	0.80	0.28	
Uniform Delay, d1	38.7	35.6	34.4	35.4		37.6		24.1	15.8	39.3	9.4	
Progression Factor	1.12	1.11	1.00	1.00		1.00		1.21	2.30	1.35	0.43	
Incremental Delay, d2	20.1	2.6	0.3	4.9		27.5		7.5	0.4	28.4	0.2	
Delay (s)	63.4	42.2	34.6	40.2		65.2		36.7	36.8	81.5	4.3	
Level of Service	E	D	C	D		E		D	D	F	A	
Approach Delay (s)		57.5			56.3			36.7			15.9	
Approach LOS		E			E			D			B	
Intersection Summary												
HCM 2000 Control Delay			35.4								HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.87									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	18.0
Intersection Capacity Utilization			66.7%								ICU Level of Service	C
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	148	17	47	45	292	20	454	71	114	20	169
Future Volume (vph)	351	148	17	47	45	292	20	454	71	114	20	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.98			0.90			0.98			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			0.96	1.00
Satd. Flow (prot)	3433	1835			1661			3464			1787	1583
Flt Permitted	0.95	1.00			0.99			1.00			0.96	1.00
Satd. Flow (perm)	3433	1835			1661			3464			1787	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	382	161	18	51	49	317	22	493	77	124	22	184
RTOR Reduction (vph)	0	5	0	0	142	0	0	13	0	0	0	165
Lane Group Flow (vph)	382	174	0	0	275	0	0	579	0	0	146	19
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	custom
Protected Phases	2	2		1	1		3	3		4	4	4
Permitted Phases												5
Actuated Green, G (s)	20.0	20.0			10.6			23.0			8.4	8.4
Effective Green, g (s)	20.0	20.0			10.6			23.0			8.4	8.4
Actuated g/C Ratio	0.25	0.25			0.13			0.29			0.11	0.11
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	858	458			220			995			187	166
v/s Ratio Prot	c0.11	0.09			c0.17			c0.17			c0.08	0.01
v/s Ratio Perm												
v/c Ratio	0.45	0.38			1.25			0.58			0.78	0.12
Uniform Delay, d1	25.3	24.9			34.7			24.4			34.9	32.4
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	1.7	2.4			143.9			2.5			18.8	0.3
Delay (s)	27.0	27.2			178.6			26.9			53.7	32.8
Level of Service	C	C			F			C			D	C
Approach Delay (s)		27.1			178.6			26.9			42.0	
Approach LOS		C			F			C			D	

Intersection Summary		
HCM 2000 Control Delay	62.9	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	0.73	
Actuated Cycle Length (s)	80.0	Sum of lost time (s) 22.5
Intersection Capacity Utilization	70.7%	ICU Level of Service C
Analysis Period (min)	15	

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 4: Center St & E Commercial St

12/13/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	252	81	149	779	313	235
Future Volume (vph)	252	81	149	779	313	235
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	274	88	162	847	340	255
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total (vph)	362	162	847	595		
Volume Left (vph)	274	162	0	0		
Volume Right (vph)	88	0	0	255		
Hadj (s)	0.04	0.53	0.03	-0.22		
Departure Headway (s)	7.0	7.4	6.9	6.2		
Degree Utilization, x	0.70	0.33	1.62	1.03		
Capacity (veh/h)	504	483	527	583		
Control Delay (s)	25.0	12.8	303.7	69.2		
Approach Delay (s)	25.0	257.0		69.2		
Approach LOS	D	F		F		
Intersection Summary						
Delay			157.4			
Level of Service			F			
Intersection Capacity Utilization			68.0%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St


















12/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	450	196	30	159	94	90	1013	0	75	768	311
Future Volume (vph)	252	450	196	30	159	94	90	1013	0	75	768	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.35	1.00		0.38	1.00		0.34	1.00		0.95	1.00	1.00
Satd. Flow (perm)	659	3378		717	3342		629	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	489	213	33	173	102	98	1101	0	82	835	338
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	177
Lane Group Flow (vph)	274	642	0	33	275	0	98	1101	0	82	835	161
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Effective Green, g (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.45	0.45		0.08	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	350	1073		101	471		343	1584		149	1690	756
v/s Ratio Prot	c0.10	0.19			0.08		0.02	c0.31		0.05	c0.24	
v/s Ratio Perm	c0.15			0.05			0.11					0.10
v/c Ratio	0.78	0.60		0.33	0.58		0.29	0.70		0.55	0.49	0.21
Uniform Delay, d1	25.1	25.9		34.8	36.2		16.3	19.9		39.6	16.1	13.7
Progression Factor	0.60	0.48		1.00	1.00		0.64	0.71		1.37	0.45	0.12
Incremental Delay, d2	9.8	0.8		1.9	1.8		0.4	2.2		4.3	1.0	0.6
Delay (s)	25.0	13.1		36.7	38.0		10.9	16.4		58.6	8.2	2.3
Level of Service	C	B		D	D		B	B		E	A	A
Approach Delay (s)		16.5			37.9			15.9			9.9	
Approach LOS		B			D			B			A	
Intersection Summary												
HCM 2000 Control Delay			15.8				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			70.0%				ICU Level of Service			C		
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	65	41	109	13	65	28	95	165	20	12	32	26
Future Volume (vph)	65	41	109	13	65	28	95	165	20	12	32	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	45	118	14	71	30	103	179	22	13	35	28
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	116	118	115	304	76							
Volume Left (vph)	71	0	14	103	13							
Volume Right (vph)	0	118	30	22	28							
Hadj (s)	0.34	-0.67	-0.10	0.06	-0.15							
Departure Headway (s)	6.0	5.0	5.2	5.0	5.1							
Degree Utilization, x	0.19	0.16	0.17	0.42	0.11							
Capacity (veh/h)	563	676	628	693	642							
Control Delay (s)	9.2	7.7	9.3	11.5	8.7							
Approach Delay (s)	8.5		9.3	11.5	8.7							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			41.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗			↖	↗	↘	↖	↗	↘	↖	↗
Traffic Volume (vph)	322	484	116	0	274	14	68	766	147	41	829	124
Future Volume (vph)	322	484	116	0	274	14	68	766	147	41	829	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.33	1.00			1.00	1.00	0.23	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	622	3437			3539	1583	433	3539	1583	486	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	526	126	0	298	15	74	833	160	45	901	135
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	81	0	0	40
Lane Group Flow (vph)	350	626	0	0	298	15	74	833	79	45	901	95
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	36.5	36.5			13.2	13.2	44.5	44.5	44.5	44.5	44.5	63.3
Effective Green, g (s)	36.5	36.5			13.2	13.2	44.5	44.5	44.5	44.5	44.5	63.3
Actuated g/C Ratio	0.41	0.41			0.15	0.15	0.49	0.49	0.49	0.49	0.49	0.70
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	492	1393			519	232	214	1749	782	240	1749	1192
v/s Ratio Prot	c0.15	0.18			0.08			0.24			c0.25	0.02
v/s Ratio Perm	c0.14					0.01	0.17		0.05	0.09		0.04
v/c Ratio	0.71	0.45			0.57	0.06	0.35	0.48	0.10	0.19	0.52	0.08
Uniform Delay, d1	20.3	19.4			35.8	33.1	13.9	15.0	12.1	12.7	15.4	4.2
Progression Factor	0.60	0.53			1.40	1.51	1.00	1.00	1.00	1.09	1.09	0.15
Incremental Delay, d2	4.3	0.2			1.2	0.1	4.4	0.9	0.3	1.5	1.0	0.0
Delay (s)	16.5	10.5			51.2	50.1	18.3	16.0	12.4	15.4	17.7	0.6
Level of Service	B	B			D	D	B	B	B	B	B	A
Approach Delay (s)		12.6			51.1			15.6			15.5	
Approach LOS		B			D			B			B	

Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	71	589	23	80	312	77	6	78	231	82	28	30
Future Volume (vph)	71	589	23	80	312	77	6	78	231	82	28	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.98			0.90			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.97	
Satd. Flow (prot)		3520	1583		3423			1677			1757	
Flt Permitted		0.99	1.00		0.99			0.99			0.52	
Satd. Flow (perm)		3520	1583		3423			1670			938	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	640	25	87	339	84	7	85	251	89	30	33
RTOR Reduction (vph)	0	0	16	0	19	0	0	109	0	0	11	0
Lane Group Flow (vph)	0	717	9	0	491	0	0	234	0	0	141	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8				4
Permitted Phases			2				8			4		
Actuated Green, G (s)		32.4	32.4		17.4			26.7			26.7	
Effective Green, g (s)		32.4	32.4		17.4			26.7			26.7	
Actuated g/C Ratio		0.36	0.36		0.19			0.30			0.30	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		1267	569		661			495			278	
v/s Ratio Prot		c0.20			c0.14							
v/s Ratio Perm			0.01					0.14			c0.15	
v/c Ratio		0.57	0.02		0.74			0.47			0.51	
Uniform Delay, d1		23.1	18.5		34.2			25.9			26.2	
Progression Factor		0.64	1.00		1.09			1.00			1.00	
Incremental Delay, d2		1.8	0.0		3.5			3.2			6.5	
Delay (s)		16.5	18.6		40.8			29.1			32.6	
Level of Service		B	B		D			C			C	
Approach Delay (s)		16.6			40.8			29.1			32.6	
Approach LOS		B			D			C			C	

Intersection Summary

HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↔	↗	↖	↔	↗		↕	↗
Traffic Volume (vph)	0	0	0	269	568	180	20	1770	0	0	643	25
Future Volume (vph)	0	0	0	269	568	180	20	1770	0	0	643	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91	
Frt				1.00	0.97		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4630		1770	5085			5057	
Flt Permitted				0.95	1.00		0.35	1.00			1.00	
Satd. Flow (perm)				1522	4630		647	5085			5057	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	292	617	196	22	1924	0	0	699	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	4	0
Lane Group Flow (vph)	0	0	0	263	842	0	22	1924	0	0	722	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				30.5	30.5		50.5	50.5			50.5	
Effective Green, g (s)				30.5	30.5		50.5	50.5			50.5	
Actuated g/C Ratio				0.34	0.34		0.56	0.56			0.56	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				515	1569		363	2853			2837	
v/s Ratio Prot				0.17	c0.18			c0.38			0.14	
v/s Ratio Perm							0.03					
v/c Ratio				0.51	0.54		0.06	0.67			0.25	
Uniform Delay, d1				23.8	24.0		9.0	13.9			10.1	
Progression Factor				1.00	1.00		0.86	0.66			0.96	
Incremental Delay, d2				3.6	1.3		0.1	0.6			0.2	
Delay (s)				27.4	25.4		7.9	9.8			9.9	
Level of Service				C	C		A	A			A	
Approach Delay (s)		0.0			25.8			9.8			9.9	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	14.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔						↑↑↑		↔	↑↑↑	
Traffic Volume (vph)	243	66	84	0	0	0	0	611	93	56	977	0
Future Volume (vph)	243	66	84	0	0	0	0	611	93	56	977	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.95						0.98		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3159						4985		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.30	1.00	
Satd. Flow (perm)	1610	3159						4985		561	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	72	91	0	0	0	0	664	101	61	1062	0
RTOR Reduction (vph)	0	57	0	0	0	0	0	22	0	0	0	0
Lane Group Flow (vph)	145	225	0	0	0	0	0	743	0	61	1062	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	29.5	29.5						35.5		51.5	51.5	
Effective Green, g (s)	29.5	29.5						35.5		51.5	51.5	
Actuated g/C Ratio	0.33	0.33						0.39		0.57	0.57	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	527	1035						1966		475	2909	
v/s Ratio Prot	c0.09	0.07						0.15		0.02	c0.21	
v/s Ratio Perm										0.06		
v/c Ratio	0.28	0.22						0.38		0.13	0.37	
Uniform Delay, d1	22.4	21.9						19.4		11.9	10.4	
Progression Factor	1.00	1.00						0.95		0.37	0.40	
Incremental Delay, d2	1.3	0.5						0.4		0.5	0.3	
Delay (s)	23.6	22.4						18.9		5.0	4.5	
Level of Service	C	C						B		A	A	
Approach Delay (s)		22.8			0.0			18.9			4.5	
Approach LOS		C			A			B			A	

Intersection Summary

HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	91	968	193	114	936	124	98	704	120	103	657	122
Future Volume (vph)	91	968	193	114	936	124	98	704	120	103	657	122
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	4996		1770	4974		1770	4966	
Flt Permitted	0.23	1.00	1.00	0.11	1.00		0.19	1.00		0.18	1.00	
Satd. Flow (perm)	436	3539	1583	200	4996		355	4974		331	4966	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	1052	210	124	1017	135	107	765	130	112	714	133
RTOR Reduction (vph)	0	0	43	0	19	0	0	27	0	0	30	0
Lane Group Flow (vph)	99	1052	167	124	1133	0	107	868	0	112	817	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	35.5	35.5	43.0	46.5	46.5		31.0	23.5		29.0	22.5	
Effective Green, g (s)	35.5	35.5	43.0	46.5	46.5		31.0	23.5		29.0	22.5	
Actuated g/C Ratio	0.39	0.39	0.48	0.52	0.52		0.34	0.26		0.32	0.25	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	171	1395	756	216	2581		240	1298		210	1241	
v/s Ratio Prot		c0.30	0.02	c0.04	0.23		0.04	c0.17		c0.04	0.16	
v/s Ratio Perm	0.23		0.09	0.25			0.12			0.13		
v/c Ratio	0.58	0.75	0.22	0.57	0.44		0.45	0.67		0.53	0.66	
Uniform Delay, d1	21.4	23.5	13.7	15.6	13.6		31.5	29.8		33.3	30.3	
Progression Factor	0.58	0.57	0.51	1.00	1.00		0.56	0.38		0.80	0.61	
Incremental Delay, d2	10.8	3.0	0.5	10.6	0.5		5.8	2.7		9.1	2.7	
Delay (s)	23.2	16.5	7.5	26.3	14.1		23.4	14.1		35.8	21.1	
Level of Service	C	B	A	C	B		C	B		D	C	
Approach Delay (s)		15.6			15.3			15.1			22.8	
Approach LOS		B			B			B			C	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	322	70	58	426	356	177	993	50	96	403	57
Future Volume (vph)	103	322	70	58	426	356	177	993	50	96	403	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3445		1770	3539	1583	1770	3539	1583	1770	4991	
Flt Permitted	0.35	1.00		0.38	1.00	1.00	0.46	1.00	1.00	0.20	1.00	
Satd. Flow (perm)	655	3445		714	3539	1583	854	3539	1583	378	4991	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	350	76	63	463	387	192	1079	54	104	438	62
RTOR Reduction (vph)	0	22	0	0	0	50	0	0	22	0	18	0
Lane Group Flow (vph)	112	404	0	63	463	337	192	1079	32	104	482	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Effective Green, g (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Actuated g/C Ratio	0.21	0.21		0.31	0.31	0.31	0.59	0.59	0.59	0.59	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	138	727		271	1093	488	504	2091	935	223	2950	
v/s Ratio Prot		0.12		0.01	0.13			c0.30			0.10	
v/s Ratio Perm	c0.17			0.06		c0.21	0.22		0.02	0.28		
v/c Ratio	0.81	0.56		0.23	0.42	0.69	0.38	0.52	0.03	0.47	0.16	
Uniform Delay, d1	33.8	31.7		27.4	24.7	27.3	9.7	10.8	7.7	10.4	8.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.73	0.75	1.17	0.55	0.39	
Incremental Delay, d2	29.1	0.9		0.4	0.3	4.0	1.9	0.8	0.1	6.6	0.1	
Delay (s)	62.9	32.7		27.8	25.0	31.4	8.9	8.9	9.1	12.3	3.4	
Level of Service	E	C		C	C	C	A	A	A	B	A	
Approach Delay (s)		38.9			27.9			8.9			4.9	
Approach LOS		D			C			A			A	

























Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: N Vignes St & E Cesar E Chavez Ave

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	952	265	118	869	303	288	699	153	246	312	49
Future Volume (vph)	47	952	265	118	869	303	288	699	153	246	312	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3467	3467
Flt Permitted	0.14	1.00	1.00	0.15	1.00	1.00	0.37	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	263	3539	1583	270	3539	1583	698	3539	1583	367	3467	3467
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1035	288	128	945	329	313	760	166	267	339	53
RTOR Reduction (vph)	0	0	188	0	0	199	0	0	126	0	14	0
Lane Group Flow (vph)	51	1035	100	128	945	130	313	760	40	267	378	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	31.3	31.3	31.3	35.6	35.6	35.6	35.0	21.9	21.9	31.8	20.3	20.3
Effective Green, g (s)	31.3	31.3	31.3	35.6	35.6	35.6	35.0	21.9	21.9	31.8	20.3	20.3
Actuated g/C Ratio	0.35	0.35	0.35	0.40	0.40	0.40	0.39	0.24	0.24	0.35	0.23	0.23
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	1230	550	228	1399	626	427	861	385	308	782	782
v/s Ratio Prot	0.01	c0.29		0.05	c0.27		0.11	c0.21		c0.11	0.11	0.11
v/s Ratio Perm	0.11		0.06	0.18		0.08	0.18		0.03	0.19		
v/c Ratio	0.36	0.84	0.18	0.56	0.68	0.21	0.73	0.88	0.10	0.87	0.48	0.48
Uniform Delay, d1	22.2	27.1	20.4	31.5	22.4	17.9	20.7	32.8	26.4	23.5	30.3	30.3
Progression Factor	1.00	1.00	1.00	0.76	0.69	0.21	0.72	0.70	0.42	0.95	1.04	1.04
Incremental Delay, d2	1.6	7.1	0.7	2.2	1.9	0.5	5.7	9.6	0.1	21.3	0.5	0.5
Delay (s)	23.8	34.1	21.2	26.3	17.3	4.2	20.6	32.7	11.3	43.7	32.0	32.0
Level of Service	C	C	C	C	B	A	C	C	B	D	C	C
Approach Delay (s)		31.0			15.1			26.8			36.7	
Approach LOS		C			B			C			D	
Intersection Summary												
HCM 2000 Control Delay			25.9			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.86									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			80.8%			ICU Level of Service			D			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 14: N Vignes St & Gateway Plaza/Ramirez St

























12/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	71	95	157	129	523	54	451	69	303	233	130
Future Volume (vph)	158	71	95	157	129	523	54	451	69	303	233	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3134		1770	1863	1583	3433	3539	1583	3433	3349	
Flt Permitted	0.67	0.84		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1132	2651		1770	1863	1583	3433	3539	1583	3433	3349	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	77	103	171	140	568	59	490	75	329	253	141
RTOR Reduction (vph)	0	87	0	0	0	345	0	0	50	0	74	0
Lane Group Flow (vph)	110	155	0	171	140	223	59	490	25	329	320	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	13.6	13.6		13.4	31.5	31.5	5.1	29.7	29.7	15.3	39.9	
Effective Green, g (s)	13.6	13.6		13.4	31.5	31.5	5.1	29.7	29.7	15.3	39.9	
Actuated g/C Ratio	0.15	0.15		0.15	0.35	0.35	0.06	0.33	0.33	0.17	0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	171	400		263	652	554	194	1167	522	583	1484	
v/s Ratio Prot				c0.10	0.08		0.02	c0.14		c0.10	0.10	
v/s Ratio Perm	c0.10	0.06				0.14			0.02			
v/c Ratio	0.64	0.39		0.65	0.21	0.40	0.30	0.42	0.05	0.56	0.22	
Uniform Delay, d1	35.9	34.4		36.1	20.6	22.1	40.7	23.4	20.5	34.3	15.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.54	
Incremental Delay, d2	8.0	0.6		5.6	0.2	0.5	0.9	1.1	0.2	1.1	0.3	
Delay (s)	43.9	35.1		41.7	20.7	22.6	41.6	24.6	20.7	24.8	8.7	
Level of Service	D	D		D	C	C	D	C	C	C	A	
Approach Delay (s)		37.8			26.0			25.7			16.0	
Approach LOS		D			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			24.8									HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio			0.54									
Actuated Cycle Length (s)			90.0								18.0	Sum of lost time (s)
Intersection Capacity Utilization			62.5%									ICU Level of Service B
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Main St & Alpine St/N Vignes St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	229	237	1	0	646	363	5	660	35	189	276	187
Future Volume (vph)	229	237	1	0	646	363	5	660	35	189	276	187
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3537			3348		1770	3512		1770	3325	
Flt Permitted	0.95	1.00			1.00		0.40	1.00		0.26	1.00	
Satd. Flow (perm)	1770	3537			3348		750	3512		484	3325	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	249	258	1	0	702	395	5	717	38	205	300	203
RTOR Reduction (vph)	0	0	0	0	71	0	0	3	0	0	106	0
Lane Group Flow (vph)	249	259	0	0	1026	0	5	752	0	205	397	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	17.4	54.4			32.5		46.6	46.6		46.6	46.6	
Effective Green, g (s)	17.4	54.4			32.5		46.6	46.6		46.6	46.6	
Actuated g/C Ratio	0.16	0.49			0.30		0.42	0.42		0.42	0.42	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	279	1749			989		317	1487		205	1408	
v/s Ratio Prot	c0.14	0.07			c0.31			0.21			0.12	
v/s Ratio Perm							0.01			c0.42		
v/c Ratio	0.89	0.15			1.04		0.02	0.51		1.00	0.28	
Uniform Delay, d1	45.4	15.2			38.8		18.4	23.2		31.7	20.7	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	28.0	0.0			38.7		0.1	1.2		62.9	0.5	
Delay (s)	73.3	15.2			77.5		18.5	24.5		94.6	21.2	
Level of Service	E	B			E		B	C		F	C	
Approach Delay (s)		43.7			77.5			24.4			42.5	
Approach LOS		D			E			C			D	
Intersection Summary												
HCM 2000 Control Delay			50.7				HCM 2000 Level of Service				D	
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			110.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			87.0%				ICU Level of Service			E		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	108	95	179	32	196	27	533	892	28	9	346	101
Future Volume (vph)	108	95	179	32	196	27	533	892	28	9	346	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1829		1770	3523		1770	4913	
Flt Permitted	0.37	1.00	1.00	0.69	1.00		0.43	1.00		0.21	1.00	
Satd. Flow (perm)	695	1863	1583	1286	1829		792	3523		399	4913	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	103	195	35	213	29	579	970	30	10	376	110
RTOR Reduction (vph)	0	0	157	0	6	0	0	2	0	0	53	0
Lane Group Flow (vph)	117	103	38	35	236	0	579	998	0	10	433	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.5	17.5	17.5	17.5	17.5		63.5	63.5		25.5	25.5	
Effective Green, g (s)	17.5	17.5	17.5	17.5	17.5		63.5	63.5		25.5	25.5	
Actuated g/C Ratio	0.19	0.19	0.19	0.19	0.19		0.71	0.71		0.28	0.28	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	362	307	250	355		922	2485		113	1392	
v/s Ratio Prot		0.06			0.13		c0.23	0.28			0.09	
v/s Ratio Perm	c0.17		0.02	0.03			c0.21			0.03		
v/c Ratio	0.87	0.28	0.12	0.14	0.67		0.63	0.40		0.09	0.31	
Uniform Delay, d1	35.1	30.9	29.9	30.0	33.5		9.9	5.4		23.7	25.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.69	0.64		1.00	1.00	
Incremental Delay, d2	40.3	0.4	0.2	0.3	4.7		1.1	0.4		1.5	0.6	
Delay (s)	75.4	31.3	30.1	30.3	38.2		8.0	3.9		25.2	25.9	
Level of Service	E	C	C	C	D		A	A		C	C	
Approach Delay (s)		43.2			37.2			5.4			25.9	
Approach LOS		D			D			A			C	

Intersection Summary





















HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			  	
Traffic Volume (veh/h)	0	0	81	0	0	0	100	1125	646	0	708	51
Future Volume (Veh/h)	0	0	81	0	0	0	100	1125	646	0	708	51
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	88	0	0	0	109	1223	702	0	770	55
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage veh)												
Upstream signal (ft)												
								206			797	
pX, platoon unblocked	0.67	0.67		0.67	0.67	0.67					0.67	
vC, conflicting volume	1627	2238	284	1786	2266	612	825			1223		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	959	1868	284	1195	1909	0	825				358	
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1	
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2	
p0 queue free %	100	100	88	100	100	100	86				100	
cM capacity (veh/h)	127	42	713	75	39	729	801				805	
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	88	109	612	612	702	308	308	209				
Volume Left	0	109	0	0	0	0	0	0				
Volume Right	88	0	0	0	702	0	0	55				
cSH	713	801	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.12	0.14	0.36	0.36	0.41	0.18	0.18	0.12				
Queue Length 95th (ft)	11	12	0	0	0	0	0	0				
Control Delay (s)	10.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.8	0.5				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			43.3%	ICU Level of Service	A							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

12/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	930	22	33	63	0	39	0	902	15	3	785	0	
Future Volume (vph)	930	22	33	63	0	39	0	902	15	3	785	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91		
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00		
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00		
Satd. Flow (prot)	3433	1695		1770		1583		5073		1770	5085		
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.24	1.00		
Satd. Flow (perm)	3433	1695		1770		1583		5073		442	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	1011	24	36	68	0	42	0	980	16	3	853	0	
RTOR Reduction (vph)	0	27	0	0	0	40	0	1	0	0	0	0	
Lane Group Flow (vph)	1011	33	0	68	0	2	0	995	0	3	853	0	
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA		
Protected Phases	7	4		3				2			6		
Permitted Phases	4					8				6			
Actuated Green, G (s)	34.3	22.3		7.5		3.3		46.7		46.7	46.7		
Effective Green, g (s)	34.3	22.3		7.5		3.3		46.7		46.7	46.7		
Actuated g/C Ratio	0.38	0.25		0.08		0.04		0.52		0.52	0.52		
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)	1308	419		147		58		2632		229	2638		
v/s Ratio Prot	c0.23	0.02		0.04				c0.20			0.17		
v/s Ratio Perm	0.07					0.00				0.01			
v/c Ratio	0.77	0.08		0.46		0.03		0.38		0.01	0.32		
Uniform Delay, d1	24.4	26.0		39.3		41.8		13.0		10.5	12.5		
Progression Factor	0.35	0.24		1.00		1.00		0.45		0.76	0.71		
Incremental Delay, d2	2.1	0.1		2.3		0.2		0.3		0.1	0.3		
Delay (s)	10.7	6.4		41.6		42.0		6.1		8.1	9.2		
Level of Service	B	A		D		D		A		A	A		
Approach Delay (s)		10.4			41.8			6.1			9.2		
Approach LOS		B			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			9.8									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.58										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			59.7%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave













12/13/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	1011	0	0	1208	23	415	884	242	0	0	0
Future Volume (vph)	78	1011	0	0	1208	23	415	884	242	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5071		1522	4648				
Flt Permitted	0.15	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	273	3539			5071		1522	4648				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	1099	0	0	1313	25	451	961	263	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	43	0	0	0	0
Lane Group Flow (vph)	85	1099	0	0	1336	0	406	1226	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	47.5	47.5			47.5		33.5	33.5				
Effective Green, g (s)	47.5	47.5			47.5		33.5	33.5				
Actuated g/C Ratio	0.53	0.53			0.53		0.37	0.37				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	144	1867			2676		566	1730				
v/s Ratio Prot		0.31			0.26		c0.27	0.26				
v/s Ratio Perm	c0.31											
v/c Ratio	0.59	0.59			0.50		0.72	0.71				
Uniform Delay, d1	14.6	14.6			13.6		24.2	24.1				
Progression Factor	1.00	1.00			0.85		1.00	1.00				
Incremental Delay, d2	16.5	1.4			0.6		7.6	2.5				
Delay (s)	31.1	15.9			12.2		31.8	26.6				
Level of Service	C	B			B		C	C				
Approach Delay (s)		17.0			12.2		27.8				0.0	
Approach LOS		B			B		C				A	
Intersection Summary												
HCM 2000 Control Delay			19.8				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			62.6%				ICU Level of Service		B			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

12/13/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	97	495	21	190	1091	0	0	154	39
Future Volume (vph)	0	0	0	97	495	21	190	1091	0	0	154	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Flt					0.99		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5019		1770	3539			3433	
Flt Permitted					0.99		0.62	1.00			1.00	
Satd. Flow (perm)					5019		1156	3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	105	538	23	207	1186	0	0	167	42
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	0	662	0	207	1186	0	0	193	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					24.5		56.5	56.5			56.5	
Effective Green, g (s)					24.5		56.5	56.5			56.5	
Actuated g/C Ratio					0.27		0.63	0.63			0.63	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					1366		725	2221			2155	
v/s Ratio Prot								c0.34			0.06	
v/s Ratio Perm					0.13		0.18					
v/c Ratio					0.48		0.29	0.53			0.09	
Uniform Delay, d1					27.5		7.6	9.4			6.6	
Progression Factor					0.25		0.35	0.32			1.00	
Incremental Delay, d2					1.1		0.8	0.7			0.1	
Delay (s)					7.8		3.4	3.7			6.7	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			7.8			3.6			6.7	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			5.1		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0	
Intersection Capacity Utilization			57.6%		ICU Level of Service						B	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	91	289	21	0	0	0	0	1190	186	0	251	0
Future Volume (vph)	91	289	21	0	0	0	0	1190	186	0	251	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3472						3467			3539	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		3472						3467			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	314	23	0	0	0	0	1293	202	0	273	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	431	0	0	0	0	0	1495	0	0	273	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		20.5						60.5			60.5	
Effective Green, g (s)		20.5						60.5			60.5	
Actuated g/C Ratio		0.23						0.67			0.67	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		790						2330			2378	
v/s Ratio Prot								c0.43			0.08	
v/s Ratio Perm		0.12										
v/c Ratio		0.55						0.64			0.11	
Uniform Delay, d1		30.6						8.5			5.2	
Progression Factor		1.00						0.62			1.36	
Incremental Delay, d2		2.7						1.0			0.1	
Delay (s)		33.4						6.3			7.2	
Level of Service		C						A			A	
Approach Delay (s)		33.4			0.0			6.3			7.2	
Approach LOS		C			A			A			A	

Intersection Summary

HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗		↘	↗↗		↘	↗↗	↘
Traffic Volume (vph)	124	695	114	72	414	245	150	1115	73	87	400	163
Future Volume (vph)	124	695	114	72	414	245	150	1115	73	87	400	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3507		1770	3539	1583
Flt Permitted	0.25	1.00		0.17	1.00		0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	474	3464		317	3342		900	3507		229	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	755	124	78	450	266	163	1212	79	95	435	177
RTOR Reduction (vph)	0	15	0	0	34	0	0	5	0	0	0	82
Lane Group Flow (vph)	135	864	0	78	682	0	163	1286	0	95	435	95
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	171	1250		114	1206		485	1889		123	1907	853
v/s Ratio Prot		0.25			0.20			0.37			0.12	
v/s Ratio Perm	c0.29			0.25			0.18			c0.41		0.06
v/c Ratio	0.79	0.69		0.68	0.57		0.34	0.68		0.77	0.23	0.11
Uniform Delay, d1	25.7	24.5		24.4	23.1		11.7	15.1		16.4	10.9	10.2
Progression Factor	1.00	1.00		0.74	0.70		0.52	0.45		0.89	0.80	0.40
Incremental Delay, d2	30.0	3.2		27.9	1.9		1.4	1.6		36.6	0.3	0.3
Delay (s)	55.7	27.6		46.0	18.1		7.5	8.4		51.2	9.0	4.4
Level of Service	E	C		D	B		A	A		D	A	A
Approach Delay (s)		31.4			20.8			8.3			13.5	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↗	↘	↑↑		↘	↑↑	
Traffic Volume (vph)	112	828	127	94	484	236	137	1037	85	86	462	176
Future Volume (vph)	112	828	127	94	484	236	137	1037	85	86	462	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3393	
Flt Permitted	0.40	1.00		0.14	1.00	1.00	0.32	1.00		0.12	1.00	
Satd. Flow (perm)	737	3469		262	3539	1583	601	3499		219	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	900	138	102	526	257	149	1127	92	93	502	191
RTOR Reduction (vph)	0	13	0	0	0	28	0	7	0	0	44	0
Lane Group Flow (vph)	122	1025	0	102	526	229	149	1212	0	93	649	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Effective Green, g (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	307	1445		109	1474	659	290	1691		105	1639	
v/s Ratio Prot		0.30			0.15			0.35			0.19	
v/s Ratio Perm	0.17			c0.39		0.14	0.25			c0.42		
v/c Ratio	0.40	0.71		0.94	0.36	0.35	0.51	0.72		0.89	0.40	
Uniform Delay, d1	18.4	21.7		25.1	18.0	17.9	16.0	18.4		21.0	14.9	
Progression Factor	1.00	1.00		0.47	0.39	0.28	1.00	1.00		0.85	0.84	
Incremental Delay, d2	3.8	3.0		65.6	0.6	1.3	6.4	2.6		59.6	0.7	
Delay (s)	22.2	24.7		77.4	7.6	6.2	22.4	21.0		77.5	13.1	
Level of Service	C	C		E	A	A	C	C		E	B	
Approach Delay (s)		24.4			15.3			21.2			20.7	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	20.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

12/13/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘↘	↘
Traffic Volume (vph)	748	105	96	464	309	280
Future Volume (vph)	748	105	96	464	309	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.25	1.00	0.95	1.00
Satd. Flow (perm)	3474		458	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	813	114	104	504	336	304
RTOR Reduction (vph)	12	0	0	0	0	108
Lane Group Flow (vph)	915	0	104	504	336	196
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	50.5		50.5	50.5	30.5	30.5
Effective Green, g (s)	50.5		50.5	50.5	30.5	30.5
Actuated g/C Ratio	0.56		0.56	0.56	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1949		256	1985	1163	536
v/s Ratio Prot	c0.26			0.14	0.10	
v/s Ratio Perm			0.23			c0.12
v/c Ratio	0.47		0.41	0.25	0.29	0.37
Uniform Delay, d1	11.8		11.2	10.1	21.8	22.5
Progression Factor	0.27		0.84	0.81	0.62	0.34
Incremental Delay, d2	0.6		4.5	0.3	0.5	1.5
Delay (s)	3.8		13.9	8.5	13.9	9.1
Level of Service	A		B	A	B	A
Approach Delay (s)	3.8			9.5	11.6	
Approach LOS	A			A	B	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	86	809	129	69	574	81	184	425	140	32	190	64
Future Volume (vph)	86	809	129	69	574	81	184	425	140	32	190	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3466		1770	3474			3398			3401	
Flt Permitted	0.31	1.00		0.18	1.00			0.76			0.82	
Satd. Flow (perm)	582	3466		339	3474			2617			2817	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	879	140	75	624	88	200	462	152	35	207	70
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	30	0
Lane Group Flow (vph)	93	1005	0	75	700	0	0	792	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	43.3	43.3		43.3	43.3			37.7			37.7	
Effective Green, g (s)	43.3	43.3		43.3	43.3			37.7			37.7	
Actuated g/C Ratio	0.48	0.48		0.48	0.48			0.42			0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	280	1667		163	1671			1096			1180	
v/s Ratio Prot		c0.29			0.20							
v/s Ratio Perm	0.16			0.22				c0.30			0.10	
v/c Ratio	0.33	0.60		0.46	0.42			0.72			0.24	
Uniform Delay, d1	14.4	17.1		15.6	15.2			21.8			16.9	
Progression Factor	0.39	0.36		1.14	1.14			1.00			0.42	
Incremental Delay, d2	2.2	1.1		8.7	0.7			4.1			0.5	
Delay (s)	7.8	7.2		26.3	18.0			25.9			7.5	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.3			18.8			25.9			7.5	
Approach LOS		A			B			C			A	

Intersection Summary

HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	653	304	157	610	36	230	561	82	38	557	377
Future Volume (vph)	437	653	304	157	610	36	230	561	82	38	557	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3229		1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.63		0.24	1.00		0.27	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	276	2028		444	3510		498	3539	1583	538	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	710	330	171	663	39	250	610	89	41	605	410
RTOR Reduction (vph)	0	46	0	0	5	0	0	0	53	0	0	39
Lane Group Flow (vph)	380	1089	0	171	697	0	250	610	36	41	605	371
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.4	44.4		26.6	20.1		36.6	36.6	36.6	22.6	22.6	42.4
Effective Green, g (s)	44.4	44.4		26.6	20.1		36.6	36.6	36.6	22.6	22.6	42.4
Actuated g/C Ratio	0.49	0.49		0.30	0.22		0.41	0.41	0.41	0.25	0.25	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	429	1264		226	783		336	1439	643	135	888	745
v/s Ratio Prot	c0.19	c0.19		0.05	0.20		c0.08	0.17			0.17	0.11
v/s Ratio Perm	c0.24	0.24		0.17			c0.22		0.02	0.08		0.12
v/c Ratio	0.89	0.86		0.76	0.89		0.74	0.42	0.06	0.30	0.68	0.50
Uniform Delay, d1	22.4	20.1		24.7	33.9		29.1	19.1	16.2	27.3	30.4	16.4
Progression Factor	1.04	0.47		1.00	1.00		0.73	0.65	0.45	1.00	1.00	1.00
Incremental Delay, d2	13.8	4.3		13.5	12.3		4.7	0.5	0.1	5.7	4.2	0.5
Delay (s)	37.1	13.8		38.2	46.2		26.0	12.9	7.4	33.0	34.7	17.0
Level of Service	D	B		D	D		C	B	A	C	C	B
Approach Delay (s)		19.6			44.6			15.8			27.7	
Approach LOS		B			D			B			C	

Intersection Summary		
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.89	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	88.1%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Future Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1856		1770	1751		1770	1859		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1770	1856		1770	1751		1157	1859		464	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	443	11	7	266	178	18	340	4	103	143	226
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	173
Lane Group Flow (vph)	525	453	0	7	417	0	18	343	0	103	143	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Effective Green, g (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Actuated g/C Ratio	0.36	0.60		0.01	0.26		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	633	1117		19	447		273	439		109	440	374
v/s Ratio Prot	c0.30	0.24		0.00	c0.24			0.18			0.08	
v/s Ratio Perm							0.02			c0.22		0.03
v/c Ratio	0.83	0.41		0.37	0.93		0.07	0.78		0.94	0.33	0.14
Uniform Delay, d1	26.4	9.4		44.2	32.8		26.6	32.2		33.8	28.4	27.1
Progression Factor	0.76	0.29		1.00	1.00		1.00	1.00		0.71	0.75	0.80
Incremental Delay, d2	7.5	0.2		11.7	26.6		0.5	13.0		56.4	1.3	0.5
Delay (s)	27.6	2.9		55.9	59.3		27.1	45.2		80.3	22.5	22.3
Level of Service	C	A		E	E		C	D		F	C	C
Approach Delay (s)		16.1			59.3			44.3			35.0	
Approach LOS		B			E			D			D	

Intersection Summary

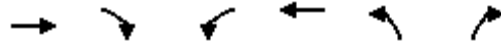
HCM 2000 Control Delay	33.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/13/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	725	210	106	472	255	274
Future Volume (vph)	725	210	106	472	255	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.23	1.00	0.95	1.00
Satd. Flow (perm)	3420		430	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	788	228	115	513	277	298
RTOR Reduction (vph)	30	0	0	0	0	147
Lane Group Flow (vph)	986	0	115	513	277	151
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	55.5		55.5	55.5	25.5	25.5
Effective Green, g (s)	55.5		55.5	55.5	25.5	25.5
Actuated g/C Ratio	0.62		0.62	0.62	0.28	0.28
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2109		265	2182	501	448
v/s Ratio Prot	c0.29			0.14	c0.16	
v/s Ratio Perm			0.27			0.10
v/c Ratio	0.47		0.43	0.24	0.55	0.34
Uniform Delay, d1	9.3		9.0	7.7	27.4	25.6
Progression Factor	0.31		1.37	0.62	1.00	1.00
Incremental Delay, d2	0.6		5.0	0.2	4.3	2.0
Delay (s)	3.5		17.3	5.0	31.8	27.6
Level of Service	A		B	A	C	C
Approach Delay (s)	3.5			7.3	29.6	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	14	5	19	210	14	104	25	898	60	20	374	12
Future Volume (vph)	14	5	19	210	14	104	25	898	60	20	374	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Fr _t		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1703		1770	1616		1770	3539	1583	1770	3523	
Fl _t Permitted		0.90		0.73	1.00		0.51	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1556		1360	1616		943	3539	1583	480	3523	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	15	5	21	228	15	113	27	976	65	22	407	13
RTOR Reduction (vph)	0	16	0	0	69	0	0	0	21	0	2	0
Lane Group Flow (vph)	0	25	0	228	59	0	27	976	44	22	418	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Effective Green, g (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Actuated g/C Ratio		0.23		0.23	0.23		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		356		311	369		632	2375	1062	322	2364	
v/s Ratio Prot					0.04			c0.28			0.12	
v/s Ratio Perm		0.02		c0.17			0.03		0.03	0.05		
v/c Ratio		0.07		0.73	0.16		0.04	0.41	0.04	0.07	0.18	
Uniform Delay, d ₁		27.2		32.2	27.8		5.0	6.7	5.0	5.1	5.5	
Progression Factor		1.00		1.00	1.00		2.54	2.90	5.63	1.00	1.00	
Incremental Delay, d ₂		0.1		8.6	0.2		0.1	0.4	0.1	0.4	0.2	
Delay (s)		27.3		40.8	28.0		12.8	19.8	28.2	5.5	5.7	
Level of Service		C		D	C		B	B	C	A	A	
Approach Delay (s)		27.3			36.2			20.2			5.7	
Approach LOS		C			D			C			A	

Intersection Summary

HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/13/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	20	17	821	209	12	526	
Future Volume (Veh/h)	20	17	821	209	12	526	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	22	18	892	227	13	572	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	576						
pX, platoon unblocked							
vC, conflicting volume	1318	560			1119		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1318	560			1119		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	85	96			98		
cM capacity (veh/h)	146	472			620		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	18	595	524	13	286	286
Volume Left	22	0	0	0	13	0	0
Volume Right	0	18	0	227	0	0	0
cSH	146	472	1700	1700	620	1700	1700
Volume to Capacity	0.15	0.04	0.35	0.31	0.02	0.17	0.17
Queue Length 95th (ft)	13	3	0	0	2	0	0
Control Delay (s)	34.0	12.9	0.0	0.0	10.9	0.0	0.0
Lane LOS	D	B			B		
Approach Delay (s)	24.5		0.0		0.2		
Approach LOS	C						
Intersection Summary							
Average Delay			0.6				
Intersection Capacity Utilization			39.4%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis
 32: Union Station North Driveway & E Cesar E Chavez Ave

12/13/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1110	67	67	1038	122	109
Future Volume (vph)	1110	67	67	1038	122	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3509		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3509		260	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1207	73	73	1128	133	118
RTOR Reduction (vph)	8	0	0	0	0	35
Lane Group Flow (vph)	1272	0	73	1128	133	83
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	28.7		28.7	28.7	22.3	22.3
Effective Green, g (s)	28.7		28.7	28.7	22.3	22.3
Actuated g/C Ratio	0.48		0.48	0.48	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1678		124	1692	657	588
v/s Ratio Prot	c0.36			0.32	c0.08	
v/s Ratio Perm			0.28			0.05
v/c Ratio	0.76		0.59	0.67	0.20	0.14
Uniform Delay, d1	12.8		11.4	12.0	12.8	12.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0		7.0	1.0	0.7	0.5
Delay (s)	14.8		18.3	13.0	13.5	13.0
Level of Service	B		B	B	B	B
Approach Delay (s)	14.8			13.3	13.3	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/13/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	180	55	68	0	854	0	0	853	112
Future Volume (vph)	0	0	0	180	55	68	0	854	0	0	853	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.98	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6296	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6296	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	196	60	74	0	928	0	0	927	122
RTOR Reduction (vph)	0	0	0	0	0	61	0	0	0	0	15	0
Lane Group Flow (vph)	0	0	0	196	60	13	0	928	0	0	1034	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				15.4	15.4	15.4		65.6			65.6	
Effective Green, g (s)				15.4	15.4	15.4		65.6			65.6	
Actuated g/C Ratio				0.17	0.17	0.17		0.73			0.73	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				302	318	270		3706			4589	
v/s Ratio Prot				c0.11	0.03			c0.18			0.16	
v/s Ratio Perm						0.01						
v/c Ratio				0.65	0.19	0.05		0.25			0.23	
Uniform Delay, d1				34.8	31.9	31.2		4.0			4.0	
Progression Factor				1.00	1.00	1.00		0.53			0.46	
Incremental Delay, d2				4.8	0.3	0.1		0.2			0.1	
Delay (s)				39.5	32.2	31.2		2.3			1.9	
Level of Service				D	C	C		A			A	
Approach Delay (s)		0.0			36.3			2.3			1.9	
Approach LOS		A			D			A			A	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

09/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	154	33	120	157	0	210	0	703	157	134	1229	0
Future Volume (vph)	154	33	120	157	0	210	0	703	157	134	1229	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	36	130	171	0	228	0	764	171	146	1336	0
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	105	0	0	0
Lane Group Flow (vph)	167	36	14	171	0	228	0	764	66	146	1336	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	9.5	9.5	9.5	20.5		20.5		28.5	28.5	13.5	46.5	
Effective Green, g (s)	9.5	9.5	9.5	20.5		20.5		28.5	28.5	13.5	46.5	
Actuated g/C Ratio	0.11	0.11	0.11	0.23		0.23		0.32	0.32	0.15	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	362	196	167	403		360		1120	501	265	2627	
v/s Ratio Prot	c0.05	0.02		0.10		c0.14		c0.22		0.08	c0.26	
v/s Ratio Perm			0.01						0.04			
v/c Ratio	0.46	0.18	0.08	0.42		0.63		0.68	0.13	0.55	0.51	
Uniform Delay, d1	37.8	36.7	36.3	29.7		31.4		26.8	21.9	35.4	14.3	
Progression Factor	0.81	0.80	0.97	0.89		0.90		1.60	3.73	0.92	0.99	
Incremental Delay, d2	4.1	2.0	0.9	3.2		8.1		3.1	0.5	5.9	0.5	
Delay (s)	34.6	31.3	36.1	29.7		36.3		46.0	82.3	38.7	14.6	
Level of Service	C	C	D	C		D		D	F	D	B	
Approach Delay (s)		34.8			33.5			52.7			17.0	
Approach LOS		C			C			D			B	
Intersection Summary												
HCM 2000 Control Delay			31.6		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			53.1%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	62	15	11	157	100	14	39	7	189	69	196
Future Volume (vph)	247	62	15	11	157	100	14	39	7	189	69	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00		1.00	0.95			0.95			1.00	1.00
Frt	1.00	0.97		1.00	0.94			0.98			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.96	1.00
Satd. Flow (prot)	3433	1809		1770	3333			3434			1797	1583
Flt Permitted	0.95	1.00		0.70	1.00			0.99			0.96	1.00
Satd. Flow (perm)	3433	1809		1310	3333			3434			1797	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	67	16	12	171	109	15	42	8	205	75	213
RTOR Reduction (vph)	0	7	0	0	68	0	0	7	0	0	0	138
Lane Group Flow (vph)	268	76	0	12	212	0	0	58	0	0	280	75
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	12.3	50.6		33.8	33.8			6.5			19.4	31.7
Effective Green, g (s)	12.3	50.6		33.8	33.8			6.5			19.4	31.7
Actuated g/C Ratio	0.14	0.56		0.38	0.38			0.07			0.22	0.35
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	469	1017		491	1251			248			387	636
v/s Ratio Prot	c0.08	0.04			c0.06			c0.02			c0.16	0.03
v/s Ratio Perm				0.01								0.02
v/c Ratio	0.57	0.07		0.02	0.17			0.23			0.72	0.12
Uniform Delay, d1	36.4	9.0		17.7	18.7			39.4			32.8	19.7
Progression Factor	1.38	0.34		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	1.6	0.1		0.0	0.1			2.2			6.6	0.1
Delay (s)	51.8	3.2		17.7	18.8			41.6			39.4	19.8
Level of Service	D	A		B	B			D			D	B
Approach Delay (s)		40.3			18.8			41.6			30.9	
Approach LOS		D			B			D			C	

Intersection Summary

HCM 2000 Control Delay	31.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: N Vignes St & E Commercial St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	➔		↙	➔	↙	↗
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	235	23	95	209	59	58
Future Volume (vph)	235	23	95	209	59	58
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	255	25	103	227	64	63

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	280	103	227	64	63
Volume Left (vph)	0	103	0	64	0
Volume Right (vph)	25	0	0	0	63
Hadj (s)	-0.02	0.53	0.03	0.53	-0.67
Departure Headway (s)	5.0	5.7	5.2	6.5	5.3
Degree Utilization, x	0.39	0.16	0.33	0.12	0.09
Capacity (veh/h)	687	612	674	512	620
Control Delay (s)	11.3	8.6	9.5	9.2	7.6
Approach Delay (s)	11.3	9.2		8.4	
Approach LOS	B	A		A	

Intersection Summary

Delay	9.8
Level of Service	A
Intersection Capacity Utilization	32.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: E Commercial St & Ramirez St

8/15/2016

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	203	4	86	3	4	7	74	370	7	9	374	226
Future Volume (vph)	203	4	86	3	4	7	74	370	7	9	374	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	4	93	3	4	8	80	402	8	10	407	246
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total (vph)	318	15	80	402	8	10	407	246				
Volume Left (vph)	221	3	80	0	0	10	0	0				
Volume Right (vph)	93	8	0	0	8	0	0	246				
Hadj (s)	0.00	-0.25	0.53	0.03	-0.67	0.53	0.03	-0.67				
Departure Headway (s)	6.4	7.2	6.9	6.4	3.2	7.0	6.5	3.2				
Degree Utilization, x	0.56	0.03	0.15	0.71	0.01	0.02	0.73	0.22				
Capacity (veh/h)	530	406	502	544	1121	495	537	1122				
Control Delay (s)	17.2	10.4	10.0	22.6	5.0	8.9	23.9	5.9				
Approach Delay (s)	17.2	10.4	20.2					17.0				
Approach LOS	C	B	C					C				
Intersection Summary												
Delay			18.0									
Level of Service			C									
Intersection Capacity Utilization			57.2%	ICU Level of Service				B				
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	108	169	155	25	362	42	264	710	0	30	876	450
Future Volume (vph)	108	169	155	25	362	42	264	710	0	30	876	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3286		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.23	1.00		0.54	1.00		0.22	1.00		0.95	1.00	1.00
Satd. Flow (perm)	431	3286		1008	3484		414	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	184	168	27	393	46	287	772	0	33	952	489
RTOR Reduction (vph)	0	122	0	0	0	0	0	0	0	0	0	169
Lane Group Flow (vph)	117	230	0	27	439	0	287	772	0	33	952	320
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	24.8	24.8		15.9	15.9		47.9	47.9		3.8	35.4	35.4
Effective Green, g (s)	24.8	24.8		15.9	15.9		47.9	47.9		3.8	35.4	35.4
Actuated g/C Ratio	0.28	0.28		0.18	0.18		0.53	0.53		0.04	0.39	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	184	905		178	615		465	1883		74	1392	622
v/s Ratio Prot	c0.03	0.07			0.13		c0.11	0.22		0.02	c0.27	
v/s Ratio Perm	c0.14			0.03			0.22					0.20
v/c Ratio	0.64	0.25		0.15	0.71		0.62	0.41		0.45	0.68	0.51
Uniform Delay, d1	26.5	25.4		31.3	34.9		21.6	12.6		42.1	22.7	20.8
Progression Factor	0.84	0.72		1.00	1.00		0.49	0.26		1.42	0.61	0.31
Incremental Delay, d2	6.9	0.1		0.4	3.9		2.1	0.6		3.7	2.4	2.7
Delay (s)	29.1	18.3		31.7	38.8		12.8	3.8		63.6	16.3	9.1
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		21.0			38.4			6.3			15.0	
Approach LOS		C			D			A			B	

Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕	↗		↕			↕			↕	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	25	65	7	106	3	370	94	12	6	48	63
Future Volume (vph)	50	25	65	7	106	3	370	94	12	6	48	63
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	27	71	8	115	3	402	102	13	7	52	68

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	81	71	126	517	127
Volume Left (vph)	54	0	8	402	7
Volume Right (vph)	0	71	3	13	68
Hadj (s)	0.37	-0.67	0.03	0.17	-0.28
Departure Headway (s)	6.8	5.8	6.1	5.1	5.2
Degree Utilization, x	0.15	0.11	0.21	0.73	0.19
Capacity (veh/h)	477	556	527	686	626
Control Delay (s)	9.9	8.3	10.7	20.8	9.4
Approach Delay (s)	9.1		10.7	20.8	9.4
Approach LOS	A		B	C	A

Intersection Summary					
Delay			15.9		
Level of Service			C		
Intersection Capacity Utilization		51.0%		ICU Level of Service	A
Analysis Period (min)			15		

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷			↷	↶	↶	↷	↶	↷	↷	↶
Traffic Volume (vph)	0	0	0	0	537	27	2	947	52	14	872	170
Future Volume (vph)	0	0	0	0	537	27	2	947	52	14	872	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted					1.00	1.00	0.23	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)					3539	1583	433	3539	1583	380	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	584	29	2	1029	57	15	948	185
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	26	0	0	27
Lane Group Flow (vph)	0	0	0	0	584	29	2	1029	31	15	948	158
Turn Type	pm+pt				NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)					21.7	21.7	49.0	49.0	49.0	49.0	49.0	54.8
Effective Green, g (s)					21.7	21.7	49.0	49.0	49.0	49.0	49.0	54.8
Actuated g/C Ratio					0.24	0.24	0.54	0.54	0.54	0.54	0.54	0.61
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)					853	381	235	1926	861	206	1926	1043
v/s Ratio Prot					c0.17			c0.29			0.27	c0.01
v/s Ratio Perm						0.02	0.00		0.02	0.04		0.09
v/c Ratio					0.68	0.08	0.01	0.53	0.04	0.07	0.49	0.15
Uniform Delay, d1					31.0	26.4	9.4	13.2	9.5	9.7	12.8	7.6
Progression Factor					1.65	1.74	1.00	1.00	1.00	0.44	0.37	0.12
Incremental Delay, d2					1.4	0.1	0.1	1.1	0.1	0.6	0.7	0.1
Delay (s)					52.6	45.9	9.4	14.2	9.6	4.8	5.5	1.0
Level of Service					D	D	A	B	A	A	A	A
Approach Delay (s)		0.0			52.2			14.0			4.8	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	32	119	11	187	540	413	4	19	27	27	34	20
Future Volume (vph)	32	119	11	187	540	413	4	19	27	27	34	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.95			0.93			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.98	
Satd. Flow (prot)		3502	1583		3320			1721			1771	
Flt Permitted		0.99	1.00		0.99			0.98			0.90	
Satd. Flow (perm)		3502	1583		3320			1701			1622	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	129	12	203	587	449	4	21	29	29	37	22
RTOR Reduction (vph)	0	0	9	0	95	0	0	23	0	0	14	0
Lane Group Flow (vph)	0	164	3	0	1144	0	0	31	0	0	74	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8				4
Permitted Phases			2				8			4		
Actuated Green, G (s)		22.3	22.3		36.1			18.1			18.1	
Effective Green, g (s)		22.3	22.3		36.1			18.1			18.1	
Actuated g/C Ratio		0.25	0.25		0.40			0.20			0.20	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		867	392		1331			342			326	
v/s Ratio Prot		c0.05			c0.34							
v/s Ratio Perm			0.00					0.02			c0.05	
v/c Ratio		0.19	0.01		0.86			0.09			0.23	
Uniform Delay, d1		26.7	25.5		24.6			29.3			30.1	
Progression Factor		1.05	1.00		0.64			1.00			1.00	
Incremental Delay, d2		0.5	0.0		3.1			0.5			1.6	
Delay (s)		28.5	25.5		18.9			29.8			31.7	
Level of Service		C	C		B			C			C	
Approach Delay (s)		28.3			18.9			29.8			31.7	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	21.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶ ↷ ↸	↶ ↷ ↸		↶ ↷ ↸	↶ ↷ ↸			↶ ↷	
Traffic Volume (vph)	0	0	0	489	1787	233	117	950	0	0	874	56
Future Volume (vph)	0	0	0	489	1787	233	117	950	0	0	874	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.95	
Frt				1.00	0.98		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4719		1770	5085			3507	
Flt Permitted				0.95	1.00		0.21	1.00			1.00	
Satd. Flow (perm)				1522	4719		387	5085			3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	532	1942	253	127	1033	0	0	950	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	479	2248	0	127	1033	0	0	1011	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				32.5	32.5		48.5	48.5			48.5	
Effective Green, g (s)				32.5	32.5		48.5	48.5			48.5	
Actuated g/C Ratio				0.36	0.36		0.54	0.54			0.54	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				549	1704		208	2740			1889	
v/s Ratio Prot				0.31	c0.48			0.20			0.29	
v/s Ratio Perm							c0.33					
v/c Ratio				0.87	1.32		0.61	0.38			0.53	
Uniform Delay, d1				26.8	28.8		14.3	12.0			13.4	
Progression Factor				1.00	1.00		0.87	0.69			0.88	
Incremental Delay, d2				17.2	147.9		9.8	0.3			0.5	
Delay (s)				44.1	176.7		22.3	8.6			12.4	
Level of Service				D	F		C	A			B	
Approach Delay (s)		0.0			153.4			10.1			12.4	
Approach LOS		A			F			B			B	























Intersection Summary

HCM 2000 Control Delay	90.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: N Alameda St & LA Union Station

09/05/2018

														
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR		
Lane Configurations														
Traffic Volume (vph)	0	54	18	107	62	38	0	638	108	62	1015	336		
Future Volume (vph)	0	54	18	107	62	38	0	638	108	62	1015	336		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900		
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5			
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		0.95	1.00	1.00	0.95			
Frt		1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.96			
Flt Protected		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	1.00			
Satd. Flow (prot)		1863	1583	1770	1863	1583		3539	1583	1770	3407			
Flt Permitted		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.22	1.00			
Satd. Flow (perm)		1863	1583	1770	1863	1583		3539	1583	406	3407			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92		
Adj. Flow (vph)	0	59	20	116	67	41	0	693	117	67	1103	365		
RTOR Reduction (vph)	0	0	16	0	0	33	0	0	78	0	36	0		
Lane Group Flow (vph)	0	59	4	116	67	8	0	693	39	67	1432	0		
Turn Type		NA	Perm	Split	NA	Perm		NA	Perm	pm+pt	NA			
Protected Phases		4		8	8			2		1	6			
Permitted Phases			4			8			2	6				
Actuated Green, G (s)		18.1	18.1	18.1	18.1	18.1		30.2	30.2	40.3	40.3			
Effective Green, g (s)		18.1	18.1	18.1	18.1	18.1		30.2	30.2	40.3	40.3			
Actuated g/C Ratio		0.20	0.20	0.20	0.20	0.20		0.34	0.34	0.45	0.45			
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5			
Lane Grp Cap (vph)		374	318	355	374	318		1187	531	266	1525			
v/s Ratio Prot		c0.03		c0.07	0.04			0.20		0.02	c0.42			
v/s Ratio Perm			0.00			0.01			0.02	0.10				
v/c Ratio		0.16	0.01	0.33	0.18	0.03		0.58	0.07	0.25	0.94			
Uniform Delay, d1		29.7	28.8	30.7	29.8	28.9		24.7	20.4	15.7	23.7			
Progression Factor		1.00	1.00	1.00	1.00	1.00		0.99	1.38	0.54	0.87			
Incremental Delay, d2		0.9	0.1	2.4	1.0	0.2		1.8	0.2	1.3	8.3			
Delay (s)		30.6	28.9	33.2	30.8	29.0		26.3	28.4	9.8	28.9			
Level of Service		C	C	C	C	C		C	C	A	C			
Approach Delay (s)		30.1			31.7			26.6			28.1			
Approach LOS		C			C			C			C			
Intersection Summary														
HCM 2000 Control Delay			28.0									HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio			0.65											
Actuated Cycle Length (s)			90.0								18.0			
Intersection Capacity Utilization			60.1%										ICU Level of Service	B
Analysis Period (min)			15											
c	Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	508	101	118	1261	47	125	419	132	78	1194	160
Future Volume (vph)	49	508	101	118	1261	47	125	419	132	78	1194	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	5058		1770	3539	1583	1770	3539	1583
Flt Permitted	0.19	1.00	1.00	0.22	1.00		0.10	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	345	3539	1583	411	5058		186	3539	1583	837	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	552	110	128	1371	51	136	455	143	85	1298	174
RTOR Reduction (vph)	0	0	50	0	5	0	0	0	79	0	0	73
Lane Group Flow (vph)	53	552	60	128	1417	0	136	455	64	85	1298	101
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	21.6	21.6	28.3	31.2	31.2		46.7	40.0	40.0	43.9	38.6	38.6
Effective Green, g (s)	21.6	21.6	28.3	31.2	31.2		46.7	40.0	40.0	43.9	38.6	38.6
Actuated g/C Ratio	0.24	0.24	0.31	0.35	0.35		0.52	0.44	0.44	0.49	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	82	849	497	219	1753		214	1572	703	463	1517	678
v/s Ratio Prot		0.16	0.01	0.03	c0.28		c0.05	0.13		0.01	c0.37	
v/s Ratio Perm	0.15		0.03	0.17			0.28		0.04	0.08		0.06
v/c Ratio	0.65	0.65	0.12	0.58	0.81		0.64	0.29	0.09	0.18	0.86	0.15
Uniform Delay, d1	30.8	30.8	22.0	21.8	26.7		33.0	15.9	14.5	14.9	23.2	15.7
Progression Factor	0.86	0.86	0.82	1.00	1.00		1.97	1.73	6.15	0.41	0.66	0.36
Incremental Delay, d2	32.6	3.8	0.5	10.9	4.1		11.5	0.4	0.2	0.8	6.0	0.4
Delay (s)	59.2	30.1	18.5	32.8	30.8		76.3	28.0	89.3	6.9	21.4	6.1
Level of Service	E	C	B	C	C		E	C	F	A	C	A
Approach Delay (s)		30.5			31.0			48.9			18.9	
Approach LOS		C			C			D			B	

Intersection Summary

HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	57	118	64	50	768	149	59	268	13	147	985	248
Future Volume (vph)	57	118	64	50	768	149	59	268	13	147	985	248
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3352		1770	3539	1583	1770	3539	1583	1770	4932	
Flt Permitted	0.18	1.00		0.63	1.00	1.00	0.15	1.00	1.00	0.57	1.00	
Satd. Flow (perm)	327	3352		1169	3539	1583	280	3539	1583	1069	4932	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	62	128	70	54	835	162	64	291	14	160	1071	270
RTOR Reduction (vph)	0	52	0	0	0	69	0	0	6	0	35	0
Lane Group Flow (vph)	62	146	0	54	835	93	64	291	8	160	1306	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	22.8	22.8		31.6	31.6	31.6	49.4	49.4	49.4	49.4	49.4	
Effective Green, g (s)	22.8	22.8		31.6	31.6	31.6	49.4	49.4	49.4	49.4	49.4	
Actuated g/C Ratio	0.25	0.25		0.35	0.35	0.35	0.55	0.55	0.55	0.55	0.55	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	849		439	1242	555	153	1942	868	586	2707	
v/s Ratio Prot		0.04		0.01	c0.24			0.08			c0.26	
v/s Ratio Perm	c0.19			0.04		0.06	0.23		0.00	0.15		
v/c Ratio	0.76	0.17		0.12	0.67	0.17	0.42	0.15	0.01	0.27	0.48	
Uniform Delay, d1	31.0	26.2		19.9	24.8	20.1	11.9	10.0	9.2	10.8	12.5	
Progression Factor	1.00	1.00		0.69	0.77	0.72	1.11	0.99	1.00	0.34	0.30	
Incremental Delay, d2	32.1	0.1		0.1	1.1	0.1	8.1	0.2	0.0	1.0	0.6	
Delay (s)	63.1	26.3		13.9	20.1	14.5	21.3	10.0	9.2	4.7	4.2	
Level of Service	E	C		B	C	B	C	B	A	A	A	
Approach Delay (s)		35.1			18.9			11.9			4.3	
Approach LOS		D			B			B			A	

Intersection Summary

HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	452	203	258	1278	351	162	381	60	152	368	30
Future Volume (vph)	53	452	203	258	1278	351	162	381	60	152	368	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3499	3499
Flt Permitted	0.11	1.00	1.00	0.36	1.00	1.00	0.56	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	213	3539	1583	675	3539	1583	1035	3539	1583	1035	3499	3499
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	491	221	280	1389	382	176	414	65	165	400	33
RTOR Reduction (vph)	0	0	135	0	0	178	0	0	53	0	7	0
Lane Group Flow (vph)	58	491	86	280	1389	204	176	414	12	165	426	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	39.3	35.0	35.0	51.9	43.1	43.1	16.1	16.1	16.1	15.7	15.7	
Effective Green, g (s)	39.3	35.0	35.0	51.9	43.1	43.1	16.1	16.1	16.1	15.7	15.7	
Actuated g/C Ratio	0.44	0.39	0.39	0.58	0.48	0.48	0.18	0.18	0.18	0.17	0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	167	1376	615	540	1694	758	257	633	283	249	610	
v/s Ratio Prot	0.02	0.14		c0.07	c0.39		0.07	c0.12		0.06	c0.12	
v/s Ratio Perm	0.13		0.05	0.23		0.13	0.05		0.01	0.05		
v/c Ratio	0.35	0.36	0.14	0.52	0.82	0.27	0.68	0.65	0.04	0.66	0.70	
Uniform Delay, d1	17.2	19.5	17.8	10.3	20.1	14.0	34.3	34.4	30.6	33.9	34.9	
Progression Factor	1.98	0.55	1.74	0.71	0.61	0.15	0.92	0.92	1.00	0.64	0.64	
Incremental Delay, d2	1.1	0.6	0.4	0.1	0.4	0.1	7.0	2.3	0.1	6.4	3.4	
Delay (s)	35.1	11.3	31.3	7.3	12.7	2.2	38.6	34.0	30.6	28.2	25.9	
Level of Service	D	B	C	A	B	A	D	C	C	C	C	
Approach Delay (s)		18.8			10.0			34.9			26.5	
Approach LOS		B			A			C			C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	117	69	71	108	130	342	36	182	103	437	152	240
Future Volume (vph)	117	69	71	108	130	342	36	182	103	437	152	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3154		1770	1863	1583	3433	3539	1583	3433	3214	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1131	2734		1770	1863	1583	3433	3539	1583	3433	3214	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	127	75	77	117	141	372	39	198	112	475	165	261
RTOR Reduction (vph)	0	66	0	0	0	265	0	0	74	0	123	0
Lane Group Flow (vph)	86	127	0	117	141	107	39	198	38	475	303	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.4	12.4		9.1	26.0	26.0	3.0	30.6	30.6	19.9	47.5	
Effective Green, g (s)	12.4	12.4		9.1	26.0	26.0	3.0	30.6	30.6	19.9	47.5	
Actuated g/C Ratio	0.14	0.14		0.10	0.29	0.29	0.03	0.34	0.34	0.22	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	155	376		178	538	457	114	1203	538	759	1696	
v/s Ratio Prot				c0.07	0.08		0.01	0.06		c0.14	c0.09	
v/s Ratio Perm	c0.08	0.05				0.07			0.02			
v/c Ratio	0.55	0.34		0.66	0.26	0.24	0.34	0.16	0.07	0.63	0.18	
Uniform Delay, d1	36.2	35.1		38.9	24.6	24.4	42.5	20.8	20.1	31.7	11.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.47	
Incremental Delay, d2	4.3	0.5		8.5	0.3	0.3	1.8	0.3	0.3	1.4	0.2	
Delay (s)	40.5	35.6		47.4	24.9	24.7	44.3	21.1	20.3	23.5	5.4	
Level of Service	D	D		D	C	C	D	C	C	C	A	
Approach Delay (s)		37.1			28.9			23.4			14.9	
Approach LOS		D			C			C			B	

Intersection Summary

HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗			↗↗		↘	↗↗		↘	↗↗	
Traffic Volume (vph)	62	211	5	0	410	186	1	175	43	230	504	556
Future Volume (vph)	62	211	5	0	410	186	1	175	43	230	504	556
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3528			3374		1770	3434		1770	3261	
Flt Permitted	0.95	1.00			1.00		0.17	1.00		0.60	1.00	
Satd. Flow (perm)	1770	3528			3374		307	3434		1126	3261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	229	5	0	446	202	1	190	47	250	548	604
RTOR Reduction (vph)	0	2	0	0	59	0	0	19	0	0	170	0
Lane Group Flow (vph)	67	232	0	0	589	0	1	218	0	250	982	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.7	31.8			19.6		49.2	49.2		49.2	49.2	
Effective Green, g (s)	7.7	31.8			19.6		49.2	49.2		49.2	49.2	
Actuated g/C Ratio	0.09	0.35			0.22		0.55	0.55		0.55	0.55	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	151	1246			734		167	1877		615	1782	
v/s Ratio Prot	c0.04	0.07			c0.17			0.06			c0.30	
v/s Ratio Perm							0.00			0.22		
v/c Ratio	0.44	0.19			0.80		0.01	0.12		0.41	0.55	
Uniform Delay, d1	39.1	20.1			33.4		9.3	9.9		11.9	13.2	
Progression Factor	1.23	1.27			0.61		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.1			5.6		0.1	0.1		2.0	1.2	
Delay (s)	50.1	25.6			25.9		9.3	10.0		13.9	14.5	
Level of Service	D	C			C		A	B		B	B	
Approach Delay (s)		31.1			25.9			10.0			14.4	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	18.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

16: N Alameda St/N Spring St & W College St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑		↖	↑↑		↖	↑↑↑	
Traffic Volume (vph)	82	70	170	29	156	11	193	268	13	12	1181	157
Future Volume (vph)	82	70	170	29	156	11	193	268	13	12	1181	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1844		1770	3515		1770	4996	
Flt Permitted	0.46	1.00	1.00	0.71	1.00		0.12	1.00		0.57	1.00	
Satd. Flow (perm)	851	1863	1583	1318	1844		226	3515		1054	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	76	185	32	170	12	210	291	14	13	1284	171
RTOR Reduction (vph)	0	0	156	0	3	0	0	3	0	0	14	0
Lane Group Flow (vph)	89	76	29	32	179	0	210	302	0	13	1441	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	14.0	14.0		67.0	67.0		51.7	51.7	
Effective Green, g (s)	14.0	14.0	14.0	14.0	14.0		67.0	67.0		51.7	51.7	
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.74	0.74		0.57	0.57	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	132	289	246	205	286		353	2616		605	2869	
v/s Ratio Prot		0.04			0.10		c0.07	0.09			0.29	
v/s Ratio Perm	c0.10		0.02	0.02			c0.37			0.01		
v/c Ratio	0.67	0.26	0.12	0.16	0.62		0.59	0.12		0.02	0.50	
Uniform Delay, d1	35.8	33.5	32.7	32.9	35.5		7.6	3.2		8.3	11.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.73	0.38		1.00	1.00	
Incremental Delay, d2	12.8	0.5	0.2	0.4	4.2		2.6	0.1		0.1	0.6	
Delay (s)	48.6	33.9	32.9	33.2	39.8		15.8	1.3		8.3	12.1	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		37.1			38.8			7.2			12.1	
Approach LOS		D			D			A			B	

Intersection Summary





















HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

8/15/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations								 			  		
Traffic Volume (veh/h)	0	0	65	0	0	0	58	375	240	0	1369	233	
Future Volume (Veh/h)	0	0	65	0	0	0	58	375	240	0	1369	233	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	71	0	0	0	63	408	261	0	1488	253	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type								None			None		
Median storage (veh)													
Upstream signal (ft)								206			797		
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90	0.99	0.90			0.99			
vC, conflicting volume	1944	2148	622	1101	2275	204	1741			408			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1599	1826	170	663	1966	173	1419			379			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	91	100	100	100	85			100			
cM capacity (veh/h)	57	58	756	251	48	832	426			1163			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3					
Volume Total	71	63	204	204	261	595	595	551					
Volume Left	0	63	0	0	0	0	0	0					
Volume Right	71	0	0	0	261	0	0	253					
cSH	756	426	1700	1700	1700	1700	1700	1700					
Volume to Capacity	0.09	0.15	0.12	0.12	0.15	0.35	0.35	0.32					
Queue Length 95th (ft)	8	13	0	0	0	0	0	0					
Control Delay (s)	10.3	14.9	0.0	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	B											
Approach Delay (s)	10.3	1.3				0.0							
Approach LOS	B												
Intersection Summary													
Average Delay			0.7										
Intersection Capacity Utilization			42.3%	ICU Level of Service						A			
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↗		↖		↗		↖↗↘		↖	↖↗↘	
Traffic Volume (vph)	194	38	16	20	0	12	0	467	48	38	1396	0
Future Volume (vph)	194	38	16	20	0	12	0	467	48	38	1396	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.96		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1781		1770		1583		5014		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.43	1.00	
Satd. Flow (perm)	3433	1781		1770		1583		5014		804	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	41	17	22	0	13	0	508	52	41	1517	0
RTOR Reduction (vph)	0	15	0	0	0	13	0	9	0	0	0	0
Lane Group Flow (vph)	211	43	0	22	0	0	0	551	0	41	1517	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	18.1	9.5		4.1		1.1		62.9		62.9	62.9	
Effective Green, g (s)	18.1	9.5		4.1		1.1		62.9		62.9	62.9	
Actuated g/C Ratio	0.20	0.11		0.05		0.01		0.70		0.70	0.70	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	690	187		80		19		3504		561	3553	
v/s Ratio Prot	c0.04	0.02		0.01				0.11			c0.30	
v/s Ratio Perm	0.02					0.00				0.05		
v/c Ratio	0.31	0.23		0.28		0.01		0.16		0.07	0.43	
Uniform Delay, d1	30.6	36.9		41.5		43.9		4.6		4.3	5.8	
Progression Factor	0.82	0.64		1.00		1.00		0.16		0.49	0.40	
Incremental Delay, d2	0.2	0.6		1.9		0.2		0.1		0.2	0.4	
Delay (s)	25.4	24.3		43.4		44.1		0.8		2.4	2.7	
Level of Service	C	C		D		D		A		A	A	
Approach Delay (s)		25.2			43.6			0.8			2.7	
Approach LOS		C			D			A			A	

Intersection Summary

HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑↑		↘	↙↑↑↑				
Traffic Volume (vph)	64	561	0	0	1526	20	122	164	97	0	0	0
Future Volume (vph)	64	561	0	0	1526	20	122	164	97	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5075		1522	4542				
Flt Permitted	0.11	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	207	3539			5075		1522	4542				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	610	0	0	1659	22	133	178	105	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	82	0	0	0	0
Lane Group Flow (vph)	70	610	0	0	1679	0	105	229	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	61.5	61.5			61.5		19.5	19.5				
Effective Green, g (s)	61.5	61.5			61.5		19.5	19.5				
Actuated g/C Ratio	0.68	0.68			0.68		0.22	0.22				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	141	2418			3467		329	984				
v/s Ratio Prot		0.17			0.33		c0.07	0.05				
v/s Ratio Perm	c0.34											
v/c Ratio	0.50	0.25			0.48		0.32	0.23				
Uniform Delay, d1	6.8	5.5			6.7		29.7	29.1				
Progression Factor	1.00	1.00			0.16		1.00	1.00				
Incremental Delay, d2	12.0	0.3			0.3		2.5	0.6				
Delay (s)	18.8	5.7			1.4		32.2	29.6				
Level of Service	B	A			A		C	C				
Approach Delay (s)		7.1			1.4		30.3				0.0	
Approach LOS		A			A		C				A	

Intersection Summary

HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	306	1593	61	88	160	0	0	344	42
Future Volume (vph)	0	0	0	306	1593	61	88	160	0	0	344	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Flt					1.00		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3481	
Flt Permitted					0.99		0.38	1.00			1.00	
Satd. Flow (perm)					5022		703	3539			3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	333	1732	66	96	174	0	0	374	46
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	2127	0	96	174	0	0	409	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					60.5		20.5	20.5			20.5	
Effective Green, g (s)					60.5		20.5	20.5			20.5	
Actuated g/C Ratio					0.67		0.23	0.23			0.23	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					3375		160	806			792	
v/s Ratio Prot								0.05			0.12	
v/s Ratio Perm					0.42		c0.14					
v/c Ratio					0.63		0.60	0.22			0.52	
Uniform Delay, d1					8.4		31.1	28.2			30.4	
Progression Factor					0.25		0.66	0.64			1.00	
Incremental Delay, d2					0.1		15.3	0.6			2.4	
Delay (s)					2.2		35.8	18.8			32.8	
Level of Service					A		D	B			C	
Approach Delay (s)		0.0			2.2			24.9			32.8	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	8.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔↔						↑↑			↑↑	
Traffic Volume (vph)	32	136	155	0	0	0	0	216	171	0	650	0
Future Volume (vph)	32	136	155	0	0	0	0	216	171	0	650	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.93						0.93			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		3269						3305			3539	
Flt Permitted		1.00						1.00			1.00	
Satd. Flow (perm)		3269						3305			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	35	148	168	0	0	0	0	235	186	0	707	0
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	240		0	0	0	0	421		0	707	
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		30.5						50.5			50.5	
Effective Green, g (s)		30.5						50.5			50.5	
Actuated g/C Ratio		0.34						0.56			0.56	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		1107						1854			1985	
v/s Ratio Prot								0.13			c0.20	
v/s Ratio Perm		0.07										
v/c Ratio		0.22						0.23			0.36	
Uniform Delay, d1		21.2						9.9			10.8	
Progression Factor		1.00						0.67			0.54	
Incremental Delay, d2		0.4						0.3			0.4	
Delay (s)		21.7						7.0			6.3	
Level of Service		C						A			A	
Approach Delay (s)		21.7			0.0			7.0			6.3	
Approach LOS		C			A			A			A	

Intersection Summary

HCM 2000 Control Delay	10.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗		↘	↗↗		↘	↗↗	↗
Traffic Volume (vph)	34	392	176	102	757	124	71	333	53	172	933	96
Future Volume (vph)	34	392	176	102	757	124	71	333	53	172	933	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3464		1770	3466		1770	3539	1583
Flt Permitted	0.15	1.00		0.32	1.00		0.20	1.00		0.49	1.00	1.00
Satd. Flow (perm)	281	3375		605	3464		370	3466		911	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	426	191	111	823	135	77	362	58	187	1014	104
RTOR Reduction (vph)	0	49	0	0	15	0	0	14	0	0	0	30
Lane Group Flow (vph)	37	568	0	111	943	0	77	406	0	187	1014	74
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	34.5	34.5		34.5	34.5		46.5	46.5		46.5	46.5	46.5
Effective Green, g (s)	34.5	34.5		34.5	34.5		46.5	46.5		46.5	46.5	46.5
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.52	0.52		0.52	0.52	0.52
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	107	1293		231	1327		191	1790		470	1828	817
v/s Ratio Prot		0.17			c0.27			0.12			c0.29	
v/s Ratio Perm	0.13			0.18			0.21			0.21		0.05
v/c Ratio	0.35	0.44		0.48	0.71		0.40	0.23		0.40	0.55	0.09
Uniform Delay, d1	19.7	20.6		21.0	23.5		13.3	11.9		13.2	14.7	11.0
Progression Factor	1.00	1.00		0.77	0.75		0.73	0.71		0.53	0.55	0.28
Incremental Delay, d2	8.6	1.1		6.7	3.1		6.2	0.3		2.5	1.2	0.2
Delay (s)	28.4	21.7		22.8	20.8		15.8	8.7		9.5	9.3	3.3
Level of Service	C	C		C	C		B	A		A	A	A
Approach Delay (s)		22.0			21.0			9.8			8.9	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↗	↘	↑↑		↘	↑↑	
Traffic Volume (vph)	29	398	122	49	658	84	109	364	42	117	837	140
Future Volume (vph)	29	398	122	49	658	84	109	364	42	117	837	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3414		1770	3539	1583	1770	3484		1770	3463	
Flt Permitted	0.20	1.00		0.30	1.00	1.00	0.21	1.00		0.49	1.00	
Satd. Flow (perm)	368	3414		559	3539	1583	400	3484		912	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	433	133	53	715	91	118	396	46	127	910	152
RTOR Reduction (vph)	0	32	0	0	0	65	0	10	0	0	15	0
Lane Group Flow (vph)	32	534	0	53	715	26	118	432	0	127	1047	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	25.9	25.9		25.9	25.9	25.9	55.1	55.1		55.1	55.1	
Effective Green, g (s)	25.9	25.9		25.9	25.9	25.9	55.1	55.1		55.1	55.1	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	105	982		160	1018	455	244	2132		558	2120	
v/s Ratio Prot		0.16			c0.20			0.12			c0.30	
v/s Ratio Perm	0.09			0.09		0.02	0.30			0.14		
v/c Ratio	0.30	0.54		0.33	0.70	0.06	0.48	0.20		0.23	0.49	
Uniform Delay, d1	25.0	27.1		25.2	28.6	23.2	9.6	7.7		7.9	9.7	
Progression Factor	1.00	1.00		0.53	0.52	0.45	1.00	1.00		0.61	0.53	
Incremental Delay, d2	7.3	2.2		5.0	3.7	0.2	6.7	0.2		0.8	0.7	
Delay (s)	32.4	29.2		18.5	18.5	10.7	16.3	7.9		5.6	5.9	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		29.4			17.7			9.7			5.9	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	352	226	208	823	189	108
Future Volume (vph)	352	226	208	823	189	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3332		1770	3539	3433	1583
Flt Permitted	1.00		0.39	1.00	0.95	1.00
Satd. Flow (perm)	3332		736	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	383	246	226	895	205	117
RTOR Reduction (vph)	86	0	0	0	0	88
Lane Group Flow (vph)	543	0	226	895	205	29
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	58.5		58.5	58.5	22.5	22.5
Effective Green, g (s)	58.5		58.5	58.5	22.5	22.5
Actuated g/C Ratio	0.65		0.65	0.65	0.25	0.25
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2165		478	2300	858	395
v/s Ratio Prot	0.16			0.25	c0.06	
v/s Ratio Perm			c0.31			0.02
v/c Ratio	0.25		0.47	0.39	0.24	0.07
Uniform Delay, d1	6.6		8.0	7.4	26.9	25.8
Progression Factor	0.40		0.76	0.80	0.82	0.71
Incremental Delay, d2	0.3		2.6	0.4	0.6	0.3
Delay (s)	2.9		8.7	6.3	22.7	18.7
Level of Service	A		A	A	C	B
Approach Delay (s)	2.9			6.8	21.2	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↶	↷		↶	↷			↷			↷	
Traffic Volume (vph)	80	307	170	107	596	66	160	229	49	25	315	35
Future Volume (vph)	80	307	170	107	596	66	160	229	49	25	315	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.98			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3350		1770	3486			3418			3478	
Flt Permitted	0.30	1.00		0.41	1.00			0.67			0.91	
Satd. Flow (perm)	561	3350		771	3486			2335			3159	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	334	185	116	648	72	174	249	53	27	342	38
RTOR Reduction (vph)	0	84	0	0	9	0	0	11	0	0	8	0
Lane Group Flow (vph)	87	435	0	116	711	0	0	465	0	0	399	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Effective Green, g (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.44			0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	258	1544		355	1607			1024			1386	
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.16			0.15				c0.20			0.13	
v/c Ratio	0.34	0.28		0.33	0.44			0.45			0.29	
Uniform Delay, d1	15.5	15.0		15.4	16.4			17.7			16.2	
Progression Factor	0.47	0.32		1.42	1.47			1.00			0.57	
Incremental Delay, d2	3.2	0.4		2.3	0.8			1.5			0.5	
Delay (s)	10.4	5.2		24.2	24.9			19.2			9.7	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		5.9			24.8			19.2			9.7	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	61.1%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	296	234	134	299	915	8	218	512	93	26	1044	754
Future Volume (vph)	296	234	134	299	915	8	218	512	93	26	1044	754
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3211		1770	3534		1770	3539	1583	1770	3539	1583
Flt Permitted	0.19	0.57		0.32	1.00		0.12	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	321	1866		600	3534		219	3539	1583	826	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	254	146	325	995	9	237	557	101	28	1135	820
RTOR Reduction (vph)	0	42	0	0	1	0	0	0	57	0	0	37
Lane Group Flow (vph)	187	493	0	325	1003	0	237	557	44	28	1135	783
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.6	35.6		38.4	22.5		39.5	39.5	39.5	29.5	29.5	44.0
Effective Green, g (s)	35.6	35.6		38.4	22.5		39.5	39.5	39.5	29.5	29.5	44.0
Actuated g/C Ratio	0.40	0.40		0.43	0.25		0.44	0.44	0.44	0.33	0.33	0.49
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	334	954		462	883		190	1553	694	270	1160	773
v/s Ratio Prot	0.09	0.08		0.12	c0.28		c0.08	0.16			0.32	c0.16
v/s Ratio Perm	0.13	0.12		0.18			c0.47		0.03	0.03		0.33
v/c Ratio	0.56	0.52		0.70	1.14		1.25	0.36	0.06	0.10	0.98	1.01
Uniform Delay, d1	31.1	20.7		25.2	33.8		23.2	16.8	14.6	21.1	29.9	23.0
Progression Factor	0.78	0.74		1.00	1.00		1.32	1.08	1.51	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.4		4.8	75.2		146.2	0.6	0.2	0.8	21.7	35.5
Delay (s)	26.1	15.7		30.0	108.9		177.0	18.8	22.2	21.8	51.7	58.5
Level of Service	C	B		C	F		F	B	C	C	D	E
Approach Delay (s)		18.4			89.6			61.1			54.1	
Approach LOS		B			F			E			D	

Intersection Summary

HCM 2000 Control Delay	59.7	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.21		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	73	9	13	581	159	40	170	2	110	172	519
Future Volume (vph)	91	73	9	13	581	159	40	170	2	110	172	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1831		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.56	1.00		0.56	1.00	1.00
Satd. Flow (perm)	1770	1831		1770	1803		1043	1860		1043	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	79	10	14	632	173	43	185	2	120	187	564
RTOR Reduction (vph)	0	4	0	0	11	0	0	1	0	0	0	233
Lane Group Flow (vph)	99	85	0	14	794	0	43	186	0	120	187	331
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.3	50.8		1.0	41.5		24.7	24.7		24.7	24.7	24.7
Effective Green, g (s)	10.3	50.8		1.0	41.5		24.7	24.7		24.7	24.7	24.7
Actuated g/C Ratio	0.11	0.56		0.01	0.46		0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	202	1033		19	831		286	510		286	511	434
v/s Ratio Prot	c0.06	0.05		0.01	c0.44			0.10			0.10	
v/s Ratio Perm							0.04			0.11		c0.21
v/c Ratio	0.49	0.08		0.74	0.96		0.15	0.37		0.42	0.37	0.76
Uniform Delay, d1	37.4	9.0		44.4	23.4		24.7	26.3		26.8	26.3	30.0
Progression Factor	0.71	0.82		1.00	1.00		1.00	1.00		0.49	0.50	0.10
Incremental Delay, d2	1.9	0.0		88.4	20.9		1.1	2.0		2.0	0.9	5.7
Delay (s)	28.2	7.4		132.8	44.2		25.8	28.3		15.3	14.1	8.7
Level of Service	C	A		F	D		C	C		B	B	A
Approach Delay (s)		18.4			45.7			27.9			10.8	
Approach LOS		B			D			C			B	

Intersection Summary

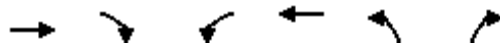
HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	0	381	146	563	206	0
Future Volume (vph)	0	381	146	563	206	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.85		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3008		1770	3539	1770	
Flt Permitted	1.00		0.49	1.00	0.95	
Satd. Flow (perm)	3008		922	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	414	159	612	224	0
RTOR Reduction (vph)	196	0	0	0	0	0
Lane Group Flow (vph)	219	0	159	612	224	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	47.5		47.5	47.5	33.5	
Effective Green, g (s)	47.5		47.5	47.5	33.5	
Actuated g/C Ratio	0.53		0.53	0.53	0.37	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1587		486	1867	658	
v/s Ratio Prot	0.07			c0.17	c0.13	
v/s Ratio Perm			0.17			
v/c Ratio	0.14		0.33	0.33	0.34	
Uniform Delay, d1	10.8		12.1	12.1	20.3	
Progression Factor	1.00		0.31	0.32	1.00	
Incremental Delay, d2	0.2		1.6	0.4	1.4	
Delay (s)	11.0		5.4	4.3	21.7	
Level of Service	B		A	A	C	
Approach Delay (s)	11.0			4.5	21.7	
Approach LOS	B			A	C	





















Intersection Summary

HCM 2000 Control Delay	9.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

10/28/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	4	4	6	102	4	24	20	602	172	63	427	13	
Future Volume (vph)	4	4	6	102	4	24	20	602	172	63	427	13	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5		
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95		
Frt		0.94		1.00	0.87		1.00	1.00	0.85	1.00	1.00		
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1722		1770	1621		1770	3539	1583	1770	3524		
Flt Permitted		0.94		0.75	1.00		0.48	1.00	1.00	0.40	1.00		
Satd. Flow (perm)		1642		1393	1621		892	3539	1583	748	3524		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	4	4	7	111	4	26	22	654	187	68	464	14	
RTOR Reduction (vph)	0	6	0	0	23	0	0	0	42	0	1	0	
Lane Group Flow (vph)	0	9	0	111	7	0	22	654	145	68	477	0	
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA		
Protected Phases		4			8			2				6	
Permitted Phases	4			8			2		2	6			
Actuated Green, G (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9		
Effective Green, g (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9		
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78		
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5		
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)		202		171	199		692	2748	1229	580	2736		
v/s Ratio Prot					0.00			c0.18				0.14	
v/s Ratio Perm		0.01		c0.08			0.02		0.09	0.09			
v/c Ratio		0.04		0.65	0.04		0.03	0.24	0.12	0.12	0.17		
Uniform Delay, d1		34.8		37.6	34.7		2.3	2.8	2.5	2.5	2.6		
Progression Factor		1.00		1.00	1.00		2.64	2.90	9.27	1.47	1.39		
Incremental Delay, d2		0.1		8.2	0.1		0.1	0.2	0.2	0.1	0.0		
Delay (s)		34.9		45.8	34.8		6.1	8.2	23.1	3.7	3.6		
Level of Service		C		D	C		A	A	C	A	A		
Approach Delay (s)		34.9			43.5			11.3			3.7		
Approach LOS		C			D			B			A		
Intersection Summary													
HCM 2000 Control Delay			11.8									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.29										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			44.4%									ICU Level of Service	A
Analysis Period (min)			15										

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

09/05/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	55	43	441	139	46	554	
Future Volume (Veh/h)	55	43	441	139	46	554	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	60	47	479	151	50	602	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	529						
pX, platoon unblocked							
vC, conflicting volume	956	315			630		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	956	315			630		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	75	93			95		
cM capacity (veh/h)	243	681			948		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	60	47	319	311	50	301	301
Volume Left	60	0	0	0	50	0	0
Volume Right	0	47	0	151	0	0	0
cSH	243	681	1700	1700	948	1700	1700
Volume to Capacity	0.25	0.07	0.19	0.18	0.05	0.18	0.18
Queue Length 95th (ft)	24	6	0	0	4	0	0
Control Delay (s)	24.6	10.7	0.0	0.0	9.0	0.0	0.0
Lane LOS	C	B			A		
Approach Delay (s)	18.5	0.0		0.7			
Approach LOS	C						
Intersection Summary							
Average Delay			1.8				
Intersection Capacity Utilization			33.3%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis
 32: Union Station North Driveway & E Cesar E Chavez Ave

09/05/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	654	59	83	1338	80	56
Future Volume (vph)	654	59	83	1338	80	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3495		1770	3539	1770	1583
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3495		576	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	711	64	90	1454	87	61
RTOR Reduction (vph)	12	0	0	0	0	40
Lane Group Flow (vph)	763	0	90	1454	87	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	30.5		30.5	30.5	20.5	20.5
Effective Green, g (s)	30.5		30.5	30.5	20.5	20.5
Actuated g/C Ratio	0.51		0.51	0.51	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1776		292	1798	604	540
v/s Ratio Prot	0.22			c0.41	c0.05	
v/s Ratio Perm			0.16			0.01
v/c Ratio	0.43		0.31	0.81	0.14	0.04
Uniform Delay, d1	9.3		8.6	12.3	13.7	13.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	2.8	0.5	0.1
Delay (s)	9.4		9.2	15.1	14.2	13.3
Level of Service	A		A	B	B	B
Approach Delay (s)	9.4			14.8	13.8	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

110: N Alameda St & LA Union Station

8/16/2016



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Volume (veh/h)	0	18	658	0	0	1413
Future Volume (Veh/h)	0	18	658	0	0	1413
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	20	715	0	0	1536
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
Median storage (veh)						
Upstream signal (ft)						
pX, platoon unblocked	0.71	0.89			0.89	
vC, conflicting volume	1483	358			715	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	192	38			439	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	98			100	
cM capacity (veh/h)	555	915			997	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	20	358	358	768	768	
Volume Left	0	0	0	0	0	
Volume Right	20	0	0	0	0	
cSH	915	1700	1700	1700	1700	
Volume to Capacity	0.02	0.21	0.21	0.45	0.45	
Queue Length 95th (ft)	2	0	0	0	0	
Control Delay (s)	9.0	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.0	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			42.4%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

09/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	615	66	49	93	0	168	0	1258	172	140	757	0
Future Volume (vph)	615	66	49	93	0	168	0	1258	172	140	757	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	668	72	53	101	0	183	0	1367	187	152	823	0
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	78	0	0	0
Lane Group Flow (vph)	668	72	11	101	0	183	0	1367	109	152	823	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	18.5	18.5	18.5	10.5		10.5		35.0	35.0	8.0	47.5	
Effective Green, g (s)	18.5	18.5	18.5	10.5		10.5		35.0	35.0	8.0	47.5	
Actuated g/C Ratio	0.21	0.21	0.21	0.12		0.12		0.39	0.39	0.09	0.53	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	705	382	325	206		184		1376	615	157	2683	
v/s Ratio Prot	c0.19	0.04		0.06		c0.12		c0.39		c0.09	0.16	
v/s Ratio Perm			0.01						0.07			
v/c Ratio	0.95	0.19	0.03	0.49		0.99		0.99	0.18	0.97	0.31	
Uniform Delay, d1	35.3	29.5	28.6	37.2		39.7		27.4	18.1	40.9	12.0	
Progression Factor	0.94	0.90	1.00	1.08		1.08		1.30	2.48	1.26	0.80	
Incremental Delay, d2	19.6	0.9	0.1	7.9		63.9		19.7	0.5	61.3	0.3	
Delay (s)	52.8	27.4	28.7	48.1		106.6		55.2	45.3	112.9	9.9	
Level of Service	D	C	C	D		F		E	D	F	A	
Approach Delay (s)		48.9			85.8			54.0			26.0	
Approach LOS		D			F			D			C	
Intersection Summary												
HCM 2000 Control Delay			47.8								HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.98									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	18.0
Intersection Capacity Utilization			74.0%								ICU Level of Service	D
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	46	17	1	46	298	20	463	19	116	20	172
Future Volume (vph)	357	46	17	1	46	298	20	463	19	116	20	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00		1.00	0.95			0.95			1.00	1.00
Frt	1.00	0.96		1.00	0.87			0.99			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			1.00			0.96	1.00
Satd. Flow (prot)	3433	1789		1770	3079			3512			1787	1583
Flt Permitted	0.95	1.00		0.71	1.00			1.00			0.96	1.00
Satd. Flow (perm)	3433	1789		1328	3079			3512			1787	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	50	18	1	50	324	22	503	21	126	22	187
RTOR Reduction (vph)	0	9	0	0	237	0	0	3	0	0	0	131
Lane Group Flow (vph)	388	59	0	1	137	0	0	543	0	0	148	56
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	14.8	43.6		24.3	24.3			20.7			12.2	27.0
Effective Green, g (s)	14.8	43.6		24.3	24.3			20.7			12.2	27.0
Actuated g/C Ratio	0.16	0.48		0.27	0.27			0.23			0.14	0.30
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	564	866		358	831			807			242	554
v/s Ratio Prot	c0.11	0.03			c0.04			c0.15			c0.08	0.01
v/s Ratio Perm				0.00								0.02
v/c Ratio	0.69	0.07		0.00	0.17			0.67			0.61	0.10
Uniform Delay, d1	35.4	12.4		24.0	25.1			31.6			36.7	22.7
Progression Factor	1.32	0.44		1.00	1.00			1.00			1.00	1.00
Incremental Delay, d2	3.2	0.1		0.0	0.1			4.5			4.5	0.1
Delay (s)	50.1	5.6		24.0	25.2			36.0			41.2	22.8
Level of Service	D	A		C	C			D			D	C
Approach Delay (s)		43.5			25.2			36.0			30.9	
Approach LOS		D			C			D			C	

Intersection Summary

HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

3: N Vignes St & E Commercial St

8/15/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	→		↵	↑	↵	↵
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	162	19	53	245	100	163
Future Volume (vph)	162	19	53	245	100	163
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	176	21	58	266	109	177

Direction, Lane #	EB 1	WB 1	WB 2	NB 1	NB 2
Volume Total (vph)	197	58	266	109	177
Volume Left (vph)	0	58	0	109	0
Volume Right (vph)	21	0	0	0	177
Hadj (s)	-0.03	0.53	0.03	0.53	-0.67
Departure Headway (s)	5.5	6.1	5.6	6.4	5.2
Degree Utilization, x	0.30	0.10	0.41	0.19	0.26
Capacity (veh/h)	622	565	622	531	648
Control Delay (s)	10.8	8.5	11.2	9.7	8.8
Approach Delay (s)	10.8	10.7		9.1	
Approach LOS	B	B		A	





















Intersection Summary

Delay	10.2
Level of Service	B
Intersection Capacity Utilization	28.6%
ICU Level of Service	A
Analysis Period (min)	15

HCM Unsignalized Intersection Capacity Analysis

4: Center St & E Commercial St

04/12/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	256	5	64	6	6	14	52	623	7	7	259	240
Future Volume (vph)	256	5	64	6	6	14	52	623	7	7	259	240
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	278	5	70	7	7	15	57	677	8	8	282	261
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3				
Volume Total (vph)	353	29	57	677	8	8	282	261				
Volume Left (vph)	278	7	57	0	0	8	0	0				
Volume Right (vph)	70	15	0	0	8	0	0	261				
Hadj (s)	0.07	-0.23	0.53	0.03	-0.67	0.53	0.03	-0.67				
Departure Headway (s)	6.6	7.4	7.0	6.5	3.2	7.4	6.9	3.2				
Degree Utilization, x	0.64	0.06	0.11	1.22	0.01	0.02	0.54	0.23				
Capacity (veh/h)	532	433	506	563	1121	471	498	1122				
Control Delay (s)	20.6	10.8	9.6	133.3	5.0	9.3	16.4	6.0				
Approach Delay (s)	20.6	10.8	122.4					11.4				
Approach LOS	C	B	F					B				
Intersection Summary												
Delay			62.5									
Level of Service			F									
Intersection Capacity Utilization			71.1%	ICU Level of Service	C							
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	256	458	200	30	162	96	91	1005	0	77	750	316
Future Volume (vph)	256	458	200	30	162	96	91	1005	0	77	750	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.35	1.00		0.38	1.00		0.34	1.00		0.95	1.00	1.00
Satd. Flow (perm)	650	3378		708	3342		641	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	498	217	33	176	104	99	1092	0	84	815	343
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	180
Lane Group Flow (vph)	278	655	0	33	280	0	99	1092	0	84	815	163
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.8	28.8		12.8	12.8		40.0	40.0		7.7	42.8	42.8
Effective Green, g (s)	28.8	28.8		12.8	12.8		40.0	40.0		7.7	42.8	42.8
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.44	0.44		0.09	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	351	1080		100	475		346	1572		151	1682	752
v/s Ratio Prot	c0.10	0.19			0.08		0.02	c0.31		0.05	c0.23	
v/s Ratio Perm	c0.15			0.05			0.11					0.10
v/c Ratio	0.79	0.61		0.33	0.59		0.29	0.69		0.56	0.48	0.22
Uniform Delay, d1	25.0	25.8		34.7	36.1		16.4	20.1		39.5	16.1	13.8
Progression Factor	0.61	0.48		1.00	1.00		0.66	0.73		1.36	0.61	0.31
Incremental Delay, d2	10.4	0.9		1.9	1.9		0.4	2.2		4.3	1.0	0.6
Delay (s)	25.8	13.3		36.7	38.0		11.2	16.8		58.1	10.7	4.9
Level of Service	C	B		D	D		B	B		E	B	A
Approach Delay (s)		16.8			37.9			16.3			12.3	
Approach LOS		B			D			B			B	

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

6: N Vignes St & E Temple St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔	↔		↔			↔			↔	
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	66	42	111	14	66	28	97	168	20	13	33	26
Future Volume (vph)	66	42	111	14	66	28	97	168	20	13	33	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	46	121	15	72	30	105	183	22	14	36	28

Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1
Volume Total (vph)	118	121	117	310	78
Volume Left (vph)	72	0	15	105	14
Volume Right (vph)	0	121	30	22	28
Hadj (s)	0.34	-0.67	-0.09	0.06	-0.15
Departure Headway (s)	6.0	5.0	5.3	5.0	5.1
Degree Utilization, x	0.20	0.17	0.17	0.43	0.11
Capacity (veh/h)	560	672	622	690	636
Control Delay (s)	9.3	7.8	9.4	11.7	8.8
Approach Delay (s)	8.5		9.4	11.7	8.8
Approach LOS	A		A	B	A

Intersection Summary

Delay	10.0
Level of Service	A
Intersection Capacity Utilization	41.4%
ICU Level of Service	A
Analysis Period (min)	15

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	493	118	0	279	15	69	753	149	42	812	126
Future Volume (vph)	328	493	118	0	279	15	69	753	149	42	812	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.33	1.00			1.00	1.00	0.24	1.00	1.00	0.27	1.00	1.00
Satd. Flow (perm)	614	3437			3539	1583	447	3539	1583	498	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	357	536	128	0	303	16	75	818	162	46	883	137
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	82	0	0	41
Lane Group Flow (vph)	357	638	0	0	303	16	75	818	80	46	883	96
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	36.5	36.5			13.3	13.3	44.5	44.5	44.5	44.5	44.5	63.2
Effective Green, g (s)	36.5	36.5			13.3	13.3	44.5	44.5	44.5	44.5	44.5	63.2
Actuated g/C Ratio	0.41	0.41			0.15	0.15	0.49	0.49	0.49	0.49	0.49	0.70
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	489	1393			522	233	221	1749	782	246	1749	1190
v/s Ratio Prot	c0.15	0.19			0.09			0.23			c0.25	0.02
v/s Ratio Perm	c0.14					0.01	0.17		0.05	0.09		0.04
v/c Ratio	0.73	0.46			0.58	0.07	0.34	0.47	0.10	0.19	0.50	0.08
Uniform Delay, d1	20.4	19.5			35.7	33.0	13.8	15.0	12.1	12.7	15.3	4.2
Progression Factor	0.60	0.53			1.40	1.52	1.00	1.00	1.00	0.70	0.66	0.17
Incremental Delay, d2	4.9	0.2			1.2	0.1	4.1	0.9	0.3	1.5	0.9	0.0
Delay (s)	17.1	10.5			51.5	50.4	17.9	15.9	12.4	10.4	11.0	0.8
Level of Service	B	B			D	D	B	B	B	B	B	A
Approach Delay (s)		12.8			51.4			15.5			9.7	
Approach LOS		B			D			B			A	

Intersection Summary

HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕			↕	
Traffic Volume (vph)	73	599	23	81	317	79	6	80	235	83	28	30
Future Volume (vph)	73	599	23	81	317	79	6	80	235	83	28	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.98			0.90			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.97	
Satd. Flow (prot)		3520	1583		3422			1677			1757	
Flt Permitted		0.99	1.00		0.99			0.99			0.52	
Satd. Flow (perm)		3520	1583		3422			1671			948	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	79	651	25	88	345	86	7	87	255	90	30	33
RTOR Reduction (vph)	0	0	16	0	19	0	0	108	0	0	11	0
Lane Group Flow (vph)	0	730	9	0	500	0	0	241	0	0	142	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8				4
Permitted Phases			2				8			4		
Actuated Green, G (s)		31.4	31.4		17.6			27.5			27.5	
Effective Green, g (s)		31.4	31.4		17.6			27.5			27.5	
Actuated g/C Ratio		0.35	0.35		0.20			0.31			0.31	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		1228	552		669			510			289	
v/s Ratio Prot		c0.21			c0.15							
v/s Ratio Perm			0.01					0.14			c0.15	
v/c Ratio		0.59	0.02		0.75			0.47			0.49	
Uniform Delay, d1		24.1	19.2		34.1			25.4			25.5	
Progression Factor		0.63	1.00		1.03			1.00			1.00	
Incremental Delay, d2		2.0	0.1		3.4			3.1			5.9	
Delay (s)		17.2	19.2		38.4			28.5			31.4	
Level of Service		B	B		D			C			C	
Approach Delay (s)		17.2			38.4			28.5			31.4	
Approach LOS		B			D			C			C	

Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

09/05/2018

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↶ ↷	↶ ↷		↶ ↷	↶ ↷			↶ ↷		
Traffic Volume (vph)	0	0	0	274	578	183	20	2021	0	0	623	25	
Future Volume (vph)	0	0	0	274	578	183	20	2021	0	0	623	25	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Util. Factor				0.86	0.86		1.00	0.91			0.95		
Frt				1.00	0.97		1.00	1.00			0.99		
Flt Protected				0.95	1.00		0.95	1.00			1.00		
Satd. Flow (prot)				1522	4630		1770	5085			3519		
Flt Permitted				0.95	1.00		0.35	1.00			1.00		
Satd. Flow (perm)				1522	4630		649	5085			3519		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	298	628	199	22	2197	0	0	677	27	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0	
Lane Group Flow (vph)	0	0	0	268	857	0	22	2197	0	0	701	0	
Turn Type				Prot	NA		Perm	NA			NA		
Protected Phases				3	8			2			6		
Permitted Phases							2						
Actuated Green, G (s)				27.5	27.5		53.5	53.5			53.5		
Effective Green, g (s)				27.5	27.5		53.5	53.5			53.5		
Actuated g/C Ratio				0.31	0.31		0.59	0.59			0.59		
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)				465	1414		385	3022			2091		
v/s Ratio Prot				0.18	c0.19			c0.43			0.20		
v/s Ratio Perm							0.03						
v/c Ratio				0.58	0.61		0.06	0.73			0.34		
Uniform Delay, d1				26.3	26.6		7.7	13.0			9.2		
Progression Factor				1.00	1.00		1.00	0.80			1.00		
Incremental Delay, d2				5.1	1.9		0.1	0.4			0.4		
Delay (s)				31.5	28.6		7.8	10.8			9.7		
Level of Service				C	C		A	B			A		
Approach Delay (s)		0.0			29.3			10.8			9.7		
Approach LOS		A			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			15.7		HCM 2000 Level of Service						B		
HCM 2000 Volume to Capacity ratio			0.69										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			62.2%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

10: N Alameda St & LA Union Station





























09/05/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	58	85	141	56	62	0	869	67	51	811	0
Future Volume (vph)	0	58	85	141	56	62	0	869	67	51	811	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		0.95	1.00	1.00	0.95	
Frt		1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	1.00	
Flt Protected		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1863	1583	1770	1863	1583		3539	1583	1770	3539	
Flt Permitted		1.00	1.00	0.72	1.00	1.00		1.00	1.00	0.17	1.00	
Satd. Flow (perm)		1863	1583	1334	1863	1583		3539	1583	324	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	63	92	153	61	67	0	945	73	55	882	0
RTOR Reduction (vph)	0	0	62	0	0	45	0	0	48	0	0	0
Lane Group Flow (vph)	0	63	30	153	61	22	0	945	25	55	882	0
Turn Type		NA	Perm	Perm	NA	Perm		NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases			4	8		8			2	6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0	18.0		18.5	18.5	28.0	28.0	
Effective Green, g (s)		18.0	18.0	18.0	18.0	18.0		18.5	18.5	28.0	28.0	
Actuated g/C Ratio		0.33	0.33	0.33	0.33	0.33		0.34	0.34	0.51	0.51	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)		609	518	436	609	518		1190	532	296	1801	
v/s Ratio Prot		0.03			0.03			c0.27		0.02	c0.25	
v/s Ratio Perm			0.02	c0.11		0.01			0.02	0.08		
v/c Ratio		0.10	0.06	0.35	0.10	0.04		0.79	0.05	0.19	0.49	
Uniform Delay, d1		12.9	12.7	14.1	12.9	12.6		16.5	12.3	8.7	8.8	
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.3	0.2	2.2	0.3	0.2		5.5	0.2	1.4	1.0	
Delay (s)		13.2	12.9	16.3	13.2	12.8		22.0	12.5	10.1	9.8	
Level of Service		B	B	B	B	B		C	B	B	A	
Approach Delay (s)		13.0			14.8			21.3			9.8	
Approach LOS		B			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.5				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			55.0				Sum of lost time (s)		13.5			
Intersection Capacity Utilization			53.9%				ICU Level of Service			A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave





























09/05/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			 			 	
Traffic Volume (vph)	93	985	197	116	953	120	100	709	122	100	663	124
Future Volume (vph)	93	985	197	116	953	120	100	709	122	100	663	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	5000		1770	3539	1583	1770	3539	1583
Flt Permitted	0.23	1.00	1.00	0.10	1.00		0.19	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	430	3539	1583	191	5000		358	3539	1583	298	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	1071	214	126	1036	130	109	771	133	109	721	135
RTOR Reduction (vph)	0	0	47	0	17	0	0	0	92	0	0	91
Lane Group Flow (vph)	101	1071	167	126	1149	0	109	771	41	109	721	44
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	34.5	34.5	40.0	45.5	45.5		31.4	25.9	25.9	30.6	25.5	25.5
Effective Green, g (s)	34.5	34.5	40.0	45.5	45.5		31.4	25.9	25.9	30.6	25.5	25.5
Actuated g/C Ratio	0.38	0.38	0.44	0.51	0.51		0.35	0.29	0.29	0.34	0.28	0.28
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	164	1356	703	210	2527		211	1018	455	184	1002	448
v/s Ratio Prot		c0.30	0.01	c0.04	0.23		0.03	c0.22		c0.03	0.20	
v/s Ratio Perm	0.24		0.09	0.26			0.15		0.03	0.17		0.03
v/c Ratio	0.62	0.79	0.24	0.60	0.45		0.52	0.76	0.09	0.59	0.72	0.10
Uniform Delay, d1	22.4	24.5	15.5	16.5	14.3		33.5	29.2	23.4	34.8	29.0	23.8
Progression Factor	0.59	0.58	0.49	1.00	1.00		1.00	1.00	1.00	0.67	0.54	0.34
Incremental Delay, d2	12.8	3.7	0.6	12.1	0.6		8.8	5.3	0.4	12.8	4.3	0.4
Delay (s)	26.1	18.0	8.2	28.5	14.9		42.2	34.5	23.8	36.2	19.9	8.6
Level of Service	C	B	A	C	B		D	C	C	D	B	A
Approach Delay (s)		17.1			16.2			33.9			20.1	
Approach LOS		B			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			21.1			HCM 2000 Level of Service				C		
HCM 2000 Volume to Capacity ratio			0.75									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			73.8%			ICU Level of Service				D		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

8/16/2016

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 		 	  		
Traffic Volume (vph)	105	328	71	57	433	363	180	999	50	98	404	58	
Future Volume (vph)	105	328	71	57	433	363	180	999	50	98	404	58	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1770	3445		1770	3539	1583	1770	3539	1583	1770	4990		
Flt Permitted	0.35	1.00		0.38	1.00	1.00	0.46	1.00	1.00	0.20	1.00		
Satd. Flow (perm)	645	3445		703	3539	1583	853	3539	1583	373	4990		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	114	357	77	62	471	395	196	1086	54	107	439	63	
RTOR Reduction (vph)	0	21	0	0	0	52	0	0	22	0	19	0	
Lane Group Flow (vph)	114	413	0	62	471	343	196	1086	32	107	483	0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases		4		3	8			2			6		
Permitted Phases	4			8		8	2		2	6			
Actuated Green, G (s)	19.2	19.2		27.9	27.9	27.9	53.1	53.1	53.1	53.1	53.1		
Effective Green, g (s)	19.2	19.2		27.9	27.9	27.9	53.1	53.1	53.1	53.1	53.1		
Actuated g/C Ratio	0.21	0.21		0.31	0.31	0.31	0.59	0.59	0.59	0.59	0.59		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	137	734		267	1097	490	503	2088	933	220	2944		
v/s Ratio Prot		0.12		0.01	0.13			c0.31			0.10		
v/s Ratio Perm	c0.18			0.06		c0.22	0.23		0.02	0.29			
v/c Ratio	0.83	0.56		0.23	0.43	0.70	0.39	0.52	0.03	0.49	0.16		
Uniform Delay, d1	33.9	31.6		27.4	24.7	27.4	9.8	10.9	7.7	10.6	8.4		
Progression Factor	1.00	1.00		0.36	0.45	0.33	0.90	0.89	1.35	0.90	0.52		
Incremental Delay, d2	33.0	1.0		0.0	0.0	0.4	1.9	0.8	0.1	7.2	0.1		
Delay (s)	66.9	32.6		9.9	11.2	9.3	10.7	10.4	10.5	16.8	4.5		
Level of Service	E	C		A	B	A	B	B	B	B	A		
Approach Delay (s)		39.8			10.3			10.5			6.7		
Approach LOS		D			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			14.4									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.63										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			67.2%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↘
Traffic Volume (vph)	48	969	270	120	885	308	293	712	152	250	317	49
Future Volume (vph)	48	969	270	120	885	308	293	712	152	250	317	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3469	3469
Flt Permitted	0.14	1.00	1.00	0.14	1.00	1.00	0.38	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	264	3539	1583	264	3539	1583	709	3539	1583	358	3469	3469
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	1053	293	130	962	335	318	774	165	272	345	53
RTOR Reduction (vph)	0	0	191	0	0	203	0	0	125	0	14	0
Lane Group Flow (vph)	52	1053	102	130	962	132	318	774	40	272	384	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	31.2	31.2	31.2	35.5	35.5	35.5	34.7	22.0	22.0	32.3	20.8	20.8
Effective Green, g (s)	31.2	31.2	31.2	35.5	35.5	35.5	34.7	22.0	22.0	32.3	20.8	20.8
Actuated g/C Ratio	0.35	0.35	0.35	0.39	0.39	0.39	0.39	0.24	0.24	0.36	0.23	0.23
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	1226	548	226	1395	624	423	865	386	308	801	801
v/s Ratio Prot	0.01	c0.30		0.05	c0.27		0.11	c0.22		c0.11	0.11	0.11
v/s Ratio Perm	0.11		0.06	0.18		0.08	0.18		0.03	0.20		
v/c Ratio	0.37	0.86	0.19	0.58	0.69	0.21	0.75	0.89	0.10	0.88	0.48	0.48
Uniform Delay, d1	22.4	27.4	20.5	31.9	22.7	18.0	21.0	32.9	26.4	23.3	29.9	29.9
Progression Factor	0.41	0.43	0.02	0.79	0.72	0.30	0.73	0.70	0.38	1.12	0.75	0.75
Incremental Delay, d2	1.2	6.0	0.5	2.5	2.0	0.5	6.6	10.5	0.1	23.0	0.4	0.4
Delay (s)	10.4	17.8	0.9	27.6	18.4	5.9	22.0	33.4	10.3	49.1	22.9	22.9
Level of Service	B	B	A	C	B	A	C	C	B	D	C	C
Approach Delay (s)		14.0			16.3			27.5			33.5	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	158	73	84	160	131	533	45	459	70	308	238	130
Future Volume (vph)	158	73	84	160	131	533	45	459	70	308	238	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3150		1770	1863	1583	3433	3539	1583	3433	3352	
Flt Permitted	0.67	0.83		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1130	2643		1770	1863	1583	3433	3539	1583	3433	3352	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	172	79	91	174	142	579	49	499	76	335	259	141
RTOR Reduction (vph)	0	77	0	0	0	344	0	0	52	0	68	0
Lane Group Flow (vph)	107	158	0	174	142	235	49	499	24	335	332	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	13.4	13.4		13.5	31.4	31.4	3.8	28.8	28.8	16.3	41.3	
Effective Green, g (s)	13.4	13.4		13.5	31.4	31.4	3.8	28.8	28.8	16.3	41.3	
Actuated g/C Ratio	0.15	0.15		0.15	0.35	0.35	0.04	0.32	0.32	0.18	0.46	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	168	393		265	649	552	144	1132	506	621	1538	
v/s Ratio Prot				c0.10	0.08		0.01	c0.14		c0.10	0.10	
v/s Ratio Perm	c0.09	0.06				0.15			0.02			
v/c Ratio	0.64	0.40		0.66	0.22	0.42	0.34	0.44	0.05	0.54	0.22	
Uniform Delay, d1	36.0	34.7		36.1	20.7	22.4	41.9	24.2	21.1	33.4	14.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.85	0.82	
Incremental Delay, d2	7.7	0.7		5.8	0.2	0.5	1.4	1.2	0.2	0.8	0.3	
Delay (s)	43.7	35.3		41.8	20.8	22.9	43.3	25.5	21.3	29.2	12.3	
Level of Service	D	D		D	C	C	D	C	C	C	B	
Approach Delay (s)		38.0			26.3			26.4			20.0	
Approach LOS		D			C			C			B	

Intersection Summary




















HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

8/16/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	233	242	1	0	658	370	5	672	36	192	281	190
Future Volume (vph)	233	242	1	0	658	370	5	672	36	192	281	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3537			3348		1770	3512		1770	3325	
Flt Permitted	0.95	1.00			1.00		0.41	1.00		0.26	1.00	
Satd. Flow (perm)	1770	3537			3348		755	3512		481	3325	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	253	263	1	0	715	402	5	730	39	209	305	207
RTOR Reduction (vph)	0	1	0	0	86	0	0	4	0	0	120	0
Lane Group Flow (vph)	253	263	0	0	1031	0	5	765	0	209	392	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	16.3	43.3			22.5		37.7	37.7		37.7	37.7	
Effective Green, g (s)	16.3	43.3			22.5		37.7	37.7		37.7	37.7	
Actuated g/C Ratio	0.18	0.48			0.25		0.42	0.42		0.42	0.42	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	320	1701			837		316	1471		201	1392	
v/s Ratio Prot	c0.14	0.07			c0.31			0.22			0.12	
v/s Ratio Perm							0.01			c0.43		
v/c Ratio	0.79	0.15			1.23		0.02	0.52		1.04	0.28	
Uniform Delay, d1	35.2	13.1			33.8		15.3	19.4		26.1	17.2	
Progression Factor	0.78	0.59			0.37		1.00	1.00		1.00	1.00	
Incremental Delay, d2	11.5	0.0			111.5		0.1	1.3		74.3	0.5	
Delay (s)	39.0	7.8			123.9		15.4	20.7		100.5	17.7	
Level of Service	D	A			F		B	C		F	B	
Approach Delay (s)		23.1			123.9			20.7			41.7	
Approach LOS		C			F			C			D	
Intersection Summary												
HCM 2000 Control Delay			62.8				HCM 2000 Level of Service			E		
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			13.5			
Intersection Capacity Utilization			88.3%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

16: N Alameda St/N Spring St & W College St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	110	97	182	33	200	27	542	897	28	9	345	103
Future Volume (vph)	110	97	182	33	200	27	542	897	28	9	345	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1830		1770	3523		1770	4910	
Flt Permitted	0.37	1.00	1.00	0.69	1.00		0.43	1.00		0.22	1.00	
Satd. Flow (perm)	686	1863	1583	1284	1830		801	3523		403	4910	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	105	198	36	217	29	589	975	30	10	375	112
RTOR Reduction (vph)	0	0	159	0	6	0	0	2	0	0	54	0
Lane Group Flow (vph)	120	105	39	36	240	0	589	1003	0	10	433	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.7	17.7	17.7	17.7	17.7		63.3	63.3		27.3	27.3	
Effective Green, g (s)	17.7	17.7	17.7	17.7	17.7		63.3	63.3		27.3	27.3	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20		0.70	0.70		0.30	0.30	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	366	311	252	359		902	2477		122	1489	
v/s Ratio Prot		0.06			0.13		c0.23	0.28			0.09	
v/s Ratio Perm	c0.17		0.02	0.03			c0.23			0.02		
v/c Ratio	0.90	0.29	0.13	0.14	0.67		0.65	0.40		0.08	0.29	
Uniform Delay, d1	35.2	30.8	29.8	29.9	33.4		10.3	5.5		22.4	24.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.35	0.34		1.00	1.00	
Incremental Delay, d2	47.3	0.4	0.2	0.3	4.7		1.4	0.4		1.3	0.5	
Delay (s)	82.5	31.2	30.0	30.1	38.1		5.1	2.3		23.7	24.4	
Level of Service	F	C	C	C	D		A	A		C	C	
Approach Delay (s)		45.2			37.1			3.3			24.4	
Approach LOS		D			D			A			C	

Intersection Summary

HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

8/15/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	82	0	0	0	102	1133	658	0	711	52	
Future Volume (Veh/h)	0	0	82	0	0	0	102	1133	658	0	711	52	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	89	0	0	0	111	1232	715	0	773	57	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type								None			None		
Median storage (veh)													
Upstream signal (ft)								206			797		
pX, platoon unblocked	0.77	0.77		0.77	0.77	0.77				0.77			
vC, conflicting volume	1640	2256	286	1801	2284	616	830			1232			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1235	2034	286	1444	2071	0	830			707			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	87	100	100	100	86			100			
cM capacity (veh/h)	91	37	711	56	35	836	798			684			
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3					
Volume Total	89	111	616	616	715	309	309	212					
Volume Left	0	111	0	0	0	0	0	0					
Volume Right	89	0	0	0	715	0	0	57					
cSH	711	798	1700	1700	1700	1700	1700	1700					
Volume to Capacity	0.13	0.14	0.36	0.36	0.42	0.18	0.18	0.12					
Queue Length 95th (ft)	11	12	0	0	0	0	0	0					
Control Delay (s)	10.8	10.2	0.0	0.0	0.0	0.0	0.0	0.0					
Lane LOS	B	B											
Approach Delay (s)	10.8	0.6				0.0							
Approach LOS	B												
Intersection Summary													
Average Delay			0.7										
Intersection Capacity Utilization			44.1%	ICU Level of Service						A			
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔		↔		↑↑↑		↔	↑↑↑	
Traffic Volume (vph)	947	22	34	64	0	40	0	906	16	4	789	0
Future Volume (vph)	947	22	34	64	0	40	0	906	16	4	789	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1693		1770		1583		5072		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.23	1.00	
Satd. Flow (perm)	3433	1693		1770		1583		5072		421	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1029	24	37	70	0	43	0	985	17	4	858	0
RTOR Reduction (vph)	0	32	0	0	0	41	0	2	0	0	0	0
Lane Group Flow (vph)	1029	29	0	70	0	2	0	1000	0	4	858	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	29.8	11.5		21.9		3.6		43.1		43.1	43.1	
Effective Green, g (s)	29.8	11.5		21.9		3.6		43.1		43.1	43.1	
Actuated g/C Ratio	0.33	0.13		0.24		0.04		0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	1136	216		430		63		2428		201	2435	
v/s Ratio Prot	c0.30	0.02		c0.04				c0.20			0.17	
v/s Ratio Perm						0.00				0.01		
v/c Ratio	0.91	0.13		0.16		0.03		0.41		0.02	0.35	
Uniform Delay, d1	28.8	34.8		26.8		41.5		15.2		12.3	14.7	
Progression Factor	0.41	1.04		1.00		1.00		0.40		0.80	0.81	
Incremental Delay, d2	7.4	0.2		0.2		0.2		0.4		0.2	0.4	
Delay (s)	19.2	36.4		27.0		41.7		6.4		10.1	12.4	
Level of Service	B	D		C		D		A		B	B	
Approach Delay (s)		20.2			32.6			6.4			12.3	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

8/16/2016























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑			↑↑↑		↘	↙↑↑↑				
Traffic Volume (vph)	80	1029	0	0	1230	23	423	900	246	0	0	0
Future Volume (vph)	80	1029	0	0	1230	23	423	900	246	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5071		1522	4649				
Flt Permitted	0.14	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	263	3539			5071		1522	4649				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1118	0	0	1337	25	460	978	267	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	40	0	0	0	0
Lane Group Flow (vph)	87	1118	0	0	1360	0	414	1251	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	47.5	47.5			47.5		33.5	33.5				
Effective Green, g (s)	47.5	47.5			47.5		33.5	33.5				
Actuated g/C Ratio	0.53	0.53			0.53		0.37	0.37				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	138	1867			2676		566	1730				
v/s Ratio Prot		0.32			0.27		c0.27	0.27				
v/s Ratio Perm	c0.33											
v/c Ratio	0.63	0.60			0.51		0.73	0.72				
Uniform Delay, d1	15.0	14.7			13.7		24.4	24.3				
Progression Factor	1.00	1.00			0.72		1.00	1.00				
Incremental Delay, d2	19.9	1.4			0.6		8.1	2.7				
Delay (s)	34.9	16.1			10.5		32.5	26.9				
Level of Service	C	B			B		C	C				
Approach Delay (s)		17.5			10.5		28.3				0.0	
Approach LOS		B			B		C				A	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 21: N Los Angeles St & Arcadia St













09/05/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations					  			 			 		
Traffic Volume (vph)	0	0	0	98	504	21	193	855	0	0	157	40	
Future Volume (vph)	0	0	0	98	504	21	193	855	0	0	157	40	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.5		4.5	4.5			4.5		
Lane Util. Factor					0.91		1.00	0.95			0.95		
Frt					0.99		1.00	1.00			0.97		
Flt Protected					0.99		0.95	1.00			1.00		
Satd. Flow (prot)					5020		1770	3539			3433		
Flt Permitted					0.99		0.62	1.00			1.00		
Satd. Flow (perm)					5020		1151	3539			3433		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	107	548	23	210	929	0	0	171	43	
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	19	0	
Lane Group Flow (vph)	0	0	0	0	674	0	210	929	0	0	195	0	
Turn Type				Perm	NA		Perm	NA			NA		
Protected Phases					8			2			6		
Permitted Phases				8			2						
Actuated Green, G (s)					30.5		50.5	50.5			50.5		
Effective Green, g (s)					30.5		50.5	50.5			50.5		
Actuated g/C Ratio					0.34		0.56	0.56			0.56		
Clearance Time (s)					4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)					1701		645	1985			1926		
v/s Ratio Prot								c0.26			0.06		
v/s Ratio Perm					0.13		0.18						
v/c Ratio					0.40		0.33	0.47			0.10		
Uniform Delay, d1					22.7		10.6	11.8			9.2		
Progression Factor					0.14		0.53	0.51			1.00		
Incremental Delay, d2					0.6		1.0	0.6			0.1		
Delay (s)					3.8		6.7	6.6			9.3		
Level of Service					A		A	A			A		
Approach Delay (s)		0.0			3.8			6.6			9.3		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			5.9		HCM 2000 Level of Service						A		
HCM 2000 Volume to Capacity ratio			0.44										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			59.3%		ICU Level of Service						B		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

09/05/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	83	294	21	0	0	0	0	965	436	0	256	0
Future Volume (vph)	83	294	21	0	0	0	0	965	436	0	256	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.95			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3475						3374			3539	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		3475						3374			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	90	320	23	0	0	0	0	1049	474	0	278	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	428	0	0	0	0	0	1523	0	0	278	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		19.5						61.5			61.5	
Effective Green, g (s)		19.5						61.5			61.5	
Actuated g/C Ratio		0.22						0.68			0.68	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		752						2305			2418	
v/s Ratio Prot								c0.45			0.08	
v/s Ratio Perm		0.12										
v/c Ratio		0.57						0.66			0.11	
Uniform Delay, d1		31.5						8.2			4.9	
Progression Factor		1.00						0.65			1.58	
Incremental Delay, d2		3.1						1.1			0.1	
Delay (s)		34.6						6.5			7.8	
Level of Service		C						A			A	
Approach Delay (s)		34.6			0.0			6.5			7.8	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			12.1					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			59.3%					ICU Level of Service		B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	126	707	116	74	422	249	152	1135	75	88	407	166
Future Volume (vph)	126	707	116	74	422	249	152	1135	75	88	407	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3506		1770	3539	1583
Flt Permitted	0.25	1.00		0.16	1.00		0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	459	3464		304	3342		892	3506		217	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	768	126	80	459	271	165	1234	82	96	442	180
RTOR Reduction (vph)	0	15	0	0	32	0	0	6	0	0	0	83
Lane Group Flow (vph)	137	879	0	80	698	0	165	1310	0	96	442	97
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	165	1250		109	1206		480	1889		116	1907	853
v/s Ratio Prot		0.25			0.21			0.37			0.12	
v/s Ratio Perm	c0.30			0.26			0.18			c0.44		0.06
v/c Ratio	0.83	0.70		0.73	0.58		0.34	0.69		0.83	0.23	0.11
Uniform Delay, d1	26.2	24.6		25.0	23.2		11.7	15.3		17.3	10.9	10.2
Progression Factor	1.00	1.00		0.70	0.67		0.50	0.44		1.07	0.71	0.21
Incremental Delay, d2	36.2	3.3		34.5	2.0		1.5	1.6		46.5	0.3	0.3
Delay (s)	62.4	28.0		52.1	17.5		7.4	8.3		65.1	8.1	2.4
Level of Service	E	C		D	B		A	A		E	A	A
Approach Delay (s)		32.5			20.9			8.2			14.3	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗	↗	↘	↗↗		↘	↗↗	
Traffic Volume (vph)	114	843	129	96	493	241	140	1055	86	87	470	179
Future Volume (vph)	114	843	129	96	493	241	140	1055	86	87	470	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3393	
Flt Permitted	0.39	1.00		0.14	1.00	1.00	0.31	1.00		0.11	1.00	
Satd. Flow (perm)	728	3469		255	3539	1583	586	3499		204	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	124	916	140	104	536	262	152	1147	93	95	511	195
RTOR Reduction (vph)	0	13	0	0	0	25	0	7	0	0	44	0
Lane Group Flow (vph)	124	1043	0	104	536	237	152	1233	0	95	662	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.9	37.9		37.9	37.9	37.9	43.1	43.1		43.1	43.1	
Effective Green, g (s)	37.9	37.9		37.9	37.9	37.9	43.1	43.1		43.1	43.1	
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	306	1460		107	1490	666	280	1675		97	1624	
v/s Ratio Prot		0.30			0.15			0.35			0.20	
v/s Ratio Perm	0.17			c0.41		0.15	0.26			c0.47		
v/c Ratio	0.41	0.71		0.97	0.36	0.36	0.54	0.74		0.98	0.41	
Uniform Delay, d1	18.2	21.6		25.5	17.8	17.7	16.5	18.9		23.0	15.2	
Progression Factor	1.00	1.00		0.53	0.42	0.32	1.00	1.00		0.82	0.79	
Incremental Delay, d2	3.9	3.0		74.7	0.6	1.3	7.4	2.9		84.4	0.7	
Delay (s)	22.1	24.6		88.3	8.0	7.0	23.9	21.8		103.2	12.7	
Level of Service	C	C		F	A	A	C	C		F	B	
Approach Delay (s)		24.3			17.0			22.0			23.4	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	21.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	84.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

8/16/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	761	107	98	472	314	285
Future Volume (vph)	761	107	98	472	314	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.24	1.00	0.95	1.00
Satd. Flow (perm)	3474		454	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	827	116	107	513	341	310
RTOR Reduction (vph)	12	0	0	0	0	110
Lane Group Flow (vph)	931	0	107	513	341	200
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	51.5		51.5	51.5	29.5	29.5
Effective Green, g (s)	51.5		51.5	51.5	29.5	29.5
Actuated g/C Ratio	0.57		0.57	0.57	0.33	0.33
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1987		259	2025	1125	518
v/s Ratio Prot	c0.27			0.14	0.10	
v/s Ratio Perm			0.24			c0.13
v/c Ratio	0.47		0.41	0.25	0.30	0.39
Uniform Delay, d1	11.2		10.8	9.6	22.6	23.3
Progression Factor	0.27		0.98	0.97	0.63	0.37
Incremental Delay, d2	0.5		4.6	0.3	0.5	1.7
Delay (s)	3.5		15.1	9.6	14.8	10.3
Level of Service	A		B	A	B	B
Approach Delay (s)	3.5			10.6	12.7	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	87	824	131	70	584	82	187	433	143	33	193	65
Future Volume (vph)	87	824	131	70	584	82	187	433	143	33	193	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3467		1770	3474			3398			3401	
Flt Permitted	0.30	1.00		0.17	1.00			0.76			0.82	
Satd. Flow (perm)	565	3467		318	3474			2612			2803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	896	142	76	635	89	203	471	155	36	210	71
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	30	0
Lane Group Flow (vph)	95	1024	0	76	712	0	0	807	0	0	287	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.5	42.5		42.5	42.5			38.5			38.5	
Effective Green, g (s)	42.5	42.5		42.5	42.5			38.5			38.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.43			0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	266	1637		150	1640			1117			1199	
v/s Ratio Prot		c0.30			0.20							
v/s Ratio Perm	0.17			0.24				c0.31			0.10	
v/c Ratio	0.36	0.63		0.51	0.43			0.72			0.24	
Uniform Delay, d1	15.1	17.8		16.5	15.8			21.3			16.4	
Progression Factor	0.38	0.35		1.10	1.11			1.00			0.40	
Incremental Delay, d2	2.5	1.2		11.2	0.8			4.1			0.5	
Delay (s)	8.3	7.5		29.3	18.2			25.4			7.0	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.6			19.3			25.4			7.0	
Approach LOS		A			B			C			A	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↙↘		↘	↙↘		↘	↙↘	↘	↘	↙↘	↘
Traffic Volume (vph)	445	662	309	160	619	37	234	571	83	39	567	384
Future Volume (vph)	445	662	309	160	619	37	234	571	83	39	567	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3228		1770	3509		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.60		0.23	1.00		0.27	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	273	1960		433	3509		501	3539	1583	536	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	720	336	174	673	40	254	621	90	42	616	417
RTOR Reduction (vph)	0	46	0	0	5	0	0	0	53	0	0	38
Lane Group Flow (vph)	382	1112	0	174	708	0	254	621	37	42	616	379
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.3	44.3		25.8	20.3		36.7	36.7	36.7	23.7	23.7	43.2
Effective Green, g (s)	44.3	44.3		25.8	20.3		36.7	36.7	36.7	23.7	23.7	43.2
Actuated g/C Ratio	0.49	0.49		0.29	0.23		0.41	0.41	0.41	0.26	0.26	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	424	1239		205	791		324	1443	645	141	931	759
v/s Ratio Prot	c0.20	c0.19		0.05	0.20		c0.07	0.18			0.17	0.11
v/s Ratio Perm	c0.25	0.25		0.19			c0.25		0.02	0.08		0.13
v/c Ratio	0.90	0.90		0.85	0.90		0.78	0.43	0.06	0.30	0.66	0.50
Uniform Delay, d1	22.8	20.8		26.0	33.8		29.4	19.1	16.2	26.5	29.6	16.0
Progression Factor	0.93	0.46		1.00	1.00		0.73	0.65	0.50	1.00	1.00	1.00
Incremental Delay, d2	15.6	6.0		26.4	12.7		6.2	0.5	0.1	5.3	3.7	0.5
Delay (s)	36.8	15.7		52.4	46.5		27.6	12.9	8.1	31.8	33.3	16.5
Level of Service	D	B		D	D		C	B	A	C	C	B
Approach Delay (s)		20.9			47.6			16.3			26.7	
Approach LOS		C			D			B			C	

Intersection Summary

HCM 2000 Control Delay	26.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

8/16/2016



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	414	11	6	249	167	17	319	4	97	135	211
Future Volume (vph)	492	414	11	6	249	167	17	319	4	97	135	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1855		1770	1750		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.61	1.00		0.23	1.00	1.00
Satd. Flow (perm)	1770	1855		1770	1750		1139	1860		425	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	535	450	12	7	271	182	18	347	4	105	147	229
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	176
Lane Group Flow (vph)	535	461	0	7	426	0	18	350	0	105	147	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	32.4	54.6		1.0	23.2		20.9	20.9		20.9	20.9	20.9
Effective Green, g (s)	32.4	54.6		1.0	23.2		20.9	20.9		20.9	20.9	20.9
Actuated g/C Ratio	0.36	0.61		0.01	0.26		0.23	0.23		0.23	0.23	0.23
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	637	1125		19	451		264	431		98	432	367
v/s Ratio Prot	c0.30	0.25		0.00	c0.24			0.19			0.08	
v/s Ratio Perm							0.02			c0.25		0.03
v/c Ratio	0.84	0.41		0.37	0.95		0.07	0.81		1.07	0.34	0.14
Uniform Delay, d1	26.4	9.3		44.2	32.8		27.0	32.7		34.5	28.8	27.5
Progression Factor	0.73	0.27		1.00	1.00		1.00	1.00		0.82	0.87	1.10
Incremental Delay, d2	8.0	0.2		11.7	28.7		0.5	15.3		92.7	1.4	0.5
Delay (s)	27.3	2.7		55.9	61.5		27.5	48.0		120.9	26.4	30.7
Level of Service	C	A		E	E		C	D		F	C	C
Approach Delay (s)		15.9			61.4			47.0			49.1	
Approach LOS		B			E			D			D	

Intersection Summary

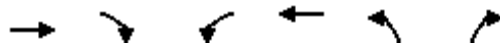
HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

8/16/2016



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↙	↑↑	↙	↗
Traffic Volume (vph)	738	213	108	480	260	279
Future Volume (vph)	738	213	108	480	260	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.22	1.00	0.95	1.00
Satd. Flow (perm)	3420		419	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	232	117	522	283	303
RTOR Reduction (vph)	30	0	0	0	0	143
Lane Group Flow (vph)	1004	0	117	522	283	160
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	55.5		55.5	55.5	25.5	25.5
Effective Green, g (s)	55.5		55.5	55.5	25.5	25.5
Actuated g/C Ratio	0.62		0.62	0.62	0.28	0.28
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2109		258	2182	501	448
v/s Ratio Prot	c0.29			0.15	c0.16	
v/s Ratio Perm			0.28			0.10
v/c Ratio	0.48		0.45	0.24	0.56	0.36
Uniform Delay, d1	9.4		9.2	7.8	27.5	25.7
Progression Factor	0.29		1.28	0.63	1.00	1.00
Incremental Delay, d2	0.6		5.5	0.3	4.6	2.2
Delay (s)	3.3		17.3	5.2	32.1	27.9
Level of Service	A		B	A	C	C
Approach Delay (s)	3.3			7.4	29.9	
Approach LOS	A			A	C	






















Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

10/28/2016

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	5	19	213	15	106	25	914	61	20	380	13
Future Volume (vph)	15	5	19	213	15	106	25	914	61	20	380	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1705		1770	1617		1770	3539	1583	1770	3522	
Flt Permitted		0.89		0.73	1.00		0.50	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1548		1359	1617		937	3539	1583	469	3522	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	5	21	232	16	115	27	993	66	22	413	14
RTOR Reduction (vph)	0	16	0	0	65	0	0	0	22	0	2	0
Lane Group Flow (vph)	0	26	0	232	66	0	27	993	44	22	425	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.8		20.8	20.8		60.2	60.2	60.2	60.2	60.2	
Effective Green, g (s)		20.8		20.8	20.8		60.2	60.2	60.2	60.2	60.2	
Actuated g/C Ratio		0.23		0.23	0.23		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		357		314	373		626	2367	1058	313	2355	
v/s Ratio Prot					0.04			c0.28				0.12
v/s Ratio Perm		0.02		c0.17			0.03		0.03	0.05		
v/c Ratio		0.07		0.74	0.18		0.04	0.42	0.04	0.07	0.18	
Uniform Delay, d1		27.1		32.1	27.7		5.1	6.9	5.1	5.2	5.6	
Progression Factor		1.00		1.00	1.00		2.63	2.98	5.89	1.25	1.30	
Incremental Delay, d2		0.1		8.8	0.2		0.1	0.4	0.1	0.4	0.1	
Delay (s)		27.1		40.9	28.0		13.5	20.8	30.0	6.9	7.4	
Level of Service		C		D	C		B	C	C	A	A	
Approach Delay (s)		27.1			36.2			21.2			7.4	
Approach LOS		C			D			C			A	

Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

09/05/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	20	17	835	58	13	486	
Future Volume (Veh/h)	20	17	835	58	13	486	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	22	18	908	63	14	528	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	597						
pX, platoon unblocked							
vC, conflicting volume	1232	486			971		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1232	486			971		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	87	97			98		
cM capacity (veh/h)	166	528			706		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	18	605	366	14	264	264
Volume Left	22	0	0	0	14	0	0
Volume Right	0	18	0	63	0	0	0
cSH	166	528	1700	1700	706	1700	1700
Volume to Capacity	0.13	0.03	0.36	0.22	0.02	0.16	0.16
Queue Length 95th (ft)	11	3	0	0	2	0	0
Control Delay (s)	30.0	12.1	0.0	0.0	10.2	0.0	0.0
Lane LOS	D	B			B		
Approach Delay (s)	21.9	0.0		0.3			
Approach LOS	C						
Intersection Summary							
Average Delay			0.7				
Intersection Capacity Utilization			34.9%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis
 32: Union Station North Driveway & E Cesar E Chavez Ave

09/05/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1137	64	69	1063	119	112
Future Volume (vph)	1137	64	69	1063	119	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3511		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3511		258	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1236	70	75	1155	129	122
RTOR Reduction (vph)	8	0	0	0	0	32
Lane Group Flow (vph)	1298	0	75	1155	129	90
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	28.9		28.9	28.9	22.1	22.1
Effective Green, g (s)	28.9		28.9	28.9	22.1	22.1
Actuated g/C Ratio	0.48		0.48	0.48	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1691		124	1704	651	583
v/s Ratio Prot	c0.37			0.33	c0.07	
v/s Ratio Perm			0.29			0.06
v/c Ratio	0.77		0.60	0.68	0.20	0.15
Uniform Delay, d1	12.8		11.4	12.0	12.9	12.7
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.2		8.1	1.1	0.7	0.6
Delay (s)	14.9		19.4	13.1	13.6	13.3
Level of Service	B		B	B	B	B
Approach Delay (s)	14.9			13.4	13.4	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

110: N Alameda St & LA Union Station

8/16/2016




























Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations		↗	↕			↕
Traffic Volume (veh/h)	0	31	900	0	0	976
Future Volume (Veh/h)	0	31	900	0	0	976
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	34	978	0	0	1061
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
			None			
Median storage (veh)						
			304			
Upstream signal (ft)						
pX, platoon unblocked	0.91	0.81			0.81	
vC, conflicting volume	1508	489			978	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	448	0			517	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	100	96			100	
cM capacity (veh/h)	488	883			851	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	34	489	489	530	530	
Volume Left	0	0	0	0	0	
Volume Right	34	0	0	0	0	
cSH	883	1700	1700	1700	1700	
Volume to Capacity	0.04	0.29	0.29	0.31	0.31	
Queue Length 95th (ft)	3	0	0	0	0	
Control Delay (s)	9.2	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.2	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.2			
Intersection Capacity Utilization			34.9%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

09/05/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			  	
Traffic Volume (vph)	154	33	120	157	0	210	0	715	157	134	1235	0
Future Volume (vph)	154	33	120	157	0	210	0	715	157	134	1235	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	167	36	130	171	0	228	0	777	171	146	1342	0
RTOR Reduction (vph)	0	0	116	0	0	0	0	0	104	0	0	0
Lane Group Flow (vph)	167	36	14	171	0	228	0	777	67	146	1342	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	9.5	9.5	9.5	20.5		20.5		28.5	28.5	13.5	46.5	
Effective Green, g (s)	9.5	9.5	9.5	20.5		20.5		28.5	28.5	13.5	46.5	
Actuated g/C Ratio	0.11	0.11	0.11	0.23		0.23		0.32	0.32	0.15	0.52	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	362	196	167	403		360		1120	501	265	2627	
v/s Ratio Prot	c0.05	0.02		0.10		c0.14		c0.22		0.08	c0.26	
v/s Ratio Perm			0.01						0.04			
v/c Ratio	0.46	0.18	0.08	0.42		0.63		0.69	0.13	0.55	0.51	
Uniform Delay, d1	37.8	36.7	36.3	29.7		31.4		26.9	21.9	35.4	14.3	
Progression Factor	0.81	0.80	0.97	1.00		1.00		1.60	3.66	0.93	0.98	
Incremental Delay, d2	4.1	2.0	0.9	3.3		8.2		3.3	0.5	5.9	0.5	
Delay (s)	34.6	31.3	36.0	33.0		39.6		46.4	80.9	38.8	14.6	
Level of Service	C	C	D	C		D		D	F	D	B	
Approach Delay (s)		34.8			36.7			52.6			16.9	
Approach LOS		C			D			D			B	
Intersection Summary												
HCM 2000 Control Delay			32.0		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			53.4%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	247	62	15	102	157	100	14	39	61	189	69	196
Future Volume (vph)	247	62	15	102	157	100	14	39	61	189	69	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.97			0.96			0.92			1.00	0.85
Flt Protected	0.95	1.00			0.99			0.99			0.96	1.00
Satd. Flow (prot)	3433	1809			1768			3235			1797	1583
Flt Permitted	0.95	1.00			0.99			0.99			0.96	1.00
Satd. Flow (perm)	3433	1809			1768			3235			1797	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	268	67	16	111	171	109	15	42	66	205	75	213
RTOR Reduction (vph)	0	11	0	0	17	0	0	54	0	0	0	182
Lane Group Flow (vph)	268	72	0	0	374	0	0	69	0	0	280	31
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	custom
Protected Phases	2	2		1	1		3	3		4	4	4
Permitted Phases												5
Actuated Green, G (s)	18.0	18.0			18.0			14.5			11.5	11.5
Effective Green, g (s)	18.0	18.0			18.0			14.5			11.5	11.5
Actuated g/C Ratio	0.22	0.22			0.22			0.18			0.14	0.14
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	772	407			397			586			258	227
v/s Ratio Prot	c0.08	0.04			c0.21			c0.02			c0.16	0.02
v/s Ratio Perm												
v/c Ratio	0.35	0.18			0.94			0.12			1.09	0.13
Uniform Delay, d1	26.1	25.0			30.5			27.4			34.2	29.9
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	1.2	1.0			30.6			0.4			80.6	0.3
Delay (s)	27.3	26.0			61.1			27.8			114.9	30.2
Level of Service	C	C			E			C			F	C
Approach Delay (s)		27.0			61.1			27.8			78.3	
Approach LOS		C			E			C			E	

Intersection Summary












HCM 2000 Control Delay	55.5	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	54.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: E Commercial St & Center St


























04/12/2018

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	203	109	133	435	478	226
Future Volume (vph)	203	109	133	435	478	226
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	221	118	145	473	520	246
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total (vph)	339	145	473	766		
Volume Left (vph)	221	145	0	0		
Volume Right (vph)	118	0	0	246		
Hadj (s)	-0.04	0.53	0.03	-0.16		
Departure Headway (s)	6.8	7.2	6.7	6.1		
Degree Utilization, x	0.64	0.29	0.88	1.30		
Capacity (veh/h)	512	493	532	596		
Control Delay (s)	21.2	11.9	39.7	167.9		
Approach Delay (s)	21.2	33.2		167.9		
Approach LOS	C	D		F		
Intersection Summary						
Delay			90.7			
Level of Service			F			
Intersection Capacity Utilization			74.2%	ICU Level of Service	D	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	108	169	155	25	362	42	264	722	0	30	882	450
Future Volume (vph)	108	169	155	25	362	42	264	722	0	30	882	450
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Flt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3286		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.23	1.00		0.54	1.00		0.22	1.00		0.95	1.00	1.00
Satd. Flow (perm)	431	3286		1008	3484		407	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	184	168	27	393	46	287	785	0	33	959	489
RTOR Reduction (vph)	0	122	0	0	0	0	0	0	0	0	0	169
Lane Group Flow (vph)	117	230	0	27	439	0	287	785	0	33	959	320
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	24.8	24.8		15.9	15.9		47.9	47.9		3.8	35.4	35.4
Effective Green, g (s)	24.8	24.8		15.9	15.9		47.9	47.9		3.8	35.4	35.4
Actuated g/C Ratio	0.28	0.28		0.18	0.18		0.53	0.53		0.04	0.39	0.39
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	184	905		178	615		463	1883		74	1392	622
v/s Ratio Prot	c0.03	0.07			0.13		c0.11	0.22		0.02	c0.27	
v/s Ratio Perm	c0.14			0.03			0.22					0.20
v/c Ratio	0.64	0.25		0.15	0.71		0.62	0.42		0.45	0.69	0.52
Uniform Delay, d1	26.5	25.4		31.3	34.9		21.7	12.7		42.1	22.7	20.8
Progression Factor	0.84	0.72		1.00	1.00		0.49	0.26		1.42	0.61	0.31
Incremental Delay, d2	6.9	0.1		0.4	3.9		2.1	0.6		3.7	2.5	2.7
Delay (s)	29.1	18.3		31.7	38.8		12.9	3.9		63.3	16.4	9.2
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		21.0			38.4			6.3			15.1	
Approach LOS		C			D			A			B	

Intersection Summary


















HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

6: N Vignes St & E Temple St



























3/2/2017

															
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR			
Lane Configurations															
Sign Control		Stop			Stop			Stop			Stop				
Traffic Volume (vph)	50	25	65	7	106	3	370	94	12	6	48	63			
Future Volume (vph)	50	25	65	7	106	3	370	94	12	6	48	63			
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92			
Hourly flow rate (vph)	54	27	71	8	115	3	402	102	13	7	52	68			
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1										
Volume Total (vph)	81	71	126	517	127										
Volume Left (vph)	54	0	8	402	7										
Volume Right (vph)	0	71	3	13	68										
Hadj (s)	0.37	-0.67	0.03	0.17	-0.28										
Departure Headway (s)	6.8	5.8	6.1	5.1	5.2										
Degree Utilization, x	0.15	0.11	0.21	0.73	0.19										
Capacity (veh/h)	477	556	527	686	626										
Control Delay (s)	9.9	8.3	10.7	20.8	9.4										
Approach Delay (s)	9.1		10.7	20.8	9.4										
Approach LOS	A		B	C	A										
Intersection Summary															
Delay			15.9												
Level of Service			C												
Intersection Capacity Utilization			51.0%				ICU Level of Service				A				
Analysis Period (min)			15												

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

3/2/2017


















													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	0	0	0	0	537	27	2	959	52	14	878	170	
Future Volume (vph)	0	0	0	0	537	27	2	959	52	14	878	170	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Fr _t					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	
Fl _t Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583	
Fl _t Permitted					1.00	1.00	0.23	1.00	1.00	0.20	1.00	1.00	
Satd. Flow (perm)					3539	1583	429	3539	1583	371	3539	1583	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	0	584	29	2	1042	57	15	954	185	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	26	0	0	27	
Lane Group Flow (vph)	0	0	0	0	584	29	2	1042	31	15	954	158	
Turn Type	pm+pt			NA			Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7	
Permitted Phases	4					8	2		2	6		6	
Actuated Green, G (s)					21.7	21.7	49.0	49.0	49.0	49.0	49.0	54.8	
Effective Green, g (s)					21.7	21.7	49.0	49.0	49.0	49.0	49.0	54.8	
Actuated g/C Ratio					0.24	0.24	0.54	0.54	0.54	0.54	0.54	0.61	
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)					853	381	233	1926	861	201	1926	1043	
v/s Ratio Prot					c0.17			c0.29			0.27	c0.01	
v/s Ratio Perm						0.02	0.00		0.02	0.04		0.09	
v/c Ratio					0.68	0.08	0.01	0.54	0.04	0.07	0.50	0.15	
Uniform Delay, d1					31.0	26.4	9.4	13.2	9.5	9.7	12.8	7.6	
Progression Factor					1.65	1.74	1.00	1.00	1.00	0.45	0.38	0.12	
Incremental Delay, d2					1.4	0.1	0.1	1.1	0.1	0.6	0.7	0.1	
Delay (s)					52.6	45.9	9.4	14.3	9.6	5.0	5.6	1.0	
Level of Service					D	D	A	B	A	A	A	A	
Approach Delay (s)		0.0			52.2			14.1			4.8		
Approach LOS		A			D			B			A		
Intersection Summary													
HCM 2000 Control Delay			18.5		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.56										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				13.5				
Intersection Capacity Utilization			48.9%		ICU Level of Service				A				
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

3/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	32	119	11	187	540	413	4	19	27	27	34	20	
Future Volume (vph)	32	119	11	187	540	413	4	19	27	27	34	20	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5		
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00		
Flt		1.00	0.85		0.95			0.93			0.97		
Flt Protected		0.99	1.00		0.99			1.00			0.98		
Satd. Flow (prot)		3502	1583		3320			1721			1771		
Flt Permitted		0.99	1.00		0.99			0.98			0.90		
Satd. Flow (perm)		3502	1583		3320			1701			1622		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	35	129	12	203	587	449	4	21	29	29	37	22	
RTOR Reduction (vph)	0	0	9	0	95	0	0	23	0	0	14	0	
Lane Group Flow (vph)	0	164	3	0	1144	0	0	31	0	0	74	0	
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA		
Protected Phases	2	2		1	1			8				4	
Permitted Phases			2				8			4			
Actuated Green, G (s)		22.3	22.3		36.1			18.1			18.1		
Effective Green, g (s)		22.3	22.3		36.1			18.1			18.1		
Actuated g/C Ratio		0.25	0.25		0.40			0.20			0.20		
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		867	392		1331			342			326		
v/s Ratio Prot		c0.05			c0.34								
v/s Ratio Perm			0.00					0.02			c0.05		
v/c Ratio		0.19	0.01		0.86			0.09			0.23		
Uniform Delay, d1		26.7	25.5		24.6			29.3			30.1		
Progression Factor		1.05	1.00		0.64			1.00			1.00		
Incremental Delay, d2		0.5	0.0		3.1			0.5			1.6		
Delay (s)		28.6	25.5		18.9			29.8			31.7		
Level of Service		C	C		B			C			C		
Approach Delay (s)		28.4			18.9			29.8			31.7		
Approach LOS		C			B			C			C		
Intersection Summary													
HCM 2000 Control Delay			21.1									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.51										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			55.6%									ICU Level of Service	B
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

09/05/2018

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖ ↗ ↘ ↙	↖ ↗ ↘ ↙		↖ ↗ ↘ ↙	↖ ↗ ↘ ↙			↖ ↗ ↘ ↙	
Traffic Volume (vph)	0	0	0	489	1787	233	117	962	0	0	880	56
Future Volume (vph)	0	0	0	489	1787	233	117	962	0	0	880	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.95	
Frt				1.00	0.98		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4719		1770	5085			3507	
Flt Permitted				0.95	1.00		0.21	1.00			1.00	
Satd. Flow (perm)				1522	4719		383	5085			3507	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	532	1942	253	127	1046	0	0	957	61
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	479	2248	0	127	1046	0	0	1018	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				32.5	32.5		48.5	48.5			48.5	
Effective Green, g (s)				32.5	32.5		48.5	48.5			48.5	
Actuated g/C Ratio				0.36	0.36		0.54	0.54			0.54	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				549	1704		206	2740			1889	
v/s Ratio Prot				0.31	c0.48			0.21			0.29	
v/s Ratio Perm							c0.33					
v/c Ratio				0.87	1.32		0.62	0.38			0.54	
Uniform Delay, d1				26.8	28.8		14.3	12.0			13.5	
Progression Factor				1.00	1.00		0.87	0.70			0.87	
Incremental Delay, d2				17.2	147.9		10.1	0.3			0.5	
Delay (s)				44.1	176.7		22.5	8.8			12.2	
Level of Service				D	F		C	A			B	
Approach Delay (s)		0.0			153.4			10.2			12.2	
Approach LOS		A			F			B			B	
Intersection Summary												
HCM 2000 Control Delay			90.0									F
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			90.0							9.0		
Intersection Capacity Utilization			81.1%									D
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

10: N Alameda St & LA Union Station

09/05/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	0	58	18	115	62	39	0	638	120	65	1015	336	
Future Volume (vph)	0	58	18	115	62	39	0	638	120	65	1015	336	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5		
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		0.95	1.00	1.00	0.95		
Frt		1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.96		
Flt Protected		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	1.00		
Satd. Flow (prot)		1863	1583	1770	1863	1583		3539	1583	1770	3407		
Flt Permitted		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.22	1.00		
Satd. Flow (perm)		1863	1583	1770	1863	1583		3539	1583	405	3407		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	63	20	125	67	42	0	693	130	71	1103	365	
RTOR Reduction (vph)	0	0	16	0	0	34	0	0	85	0	36	0	
Lane Group Flow (vph)	0	63	4	125	67	8	0	693	45	71	1432	0	
Turn Type		NA	Perm	Split	NA	Perm		NA	Perm	pm+pt	NA		
Protected Phases		4		8	8			2		1	6		
Permitted Phases			4			8			2	6			
Actuated Green, G (s)		18.1	18.1	18.1	18.1	18.1		30.1	30.1	40.3	40.3		
Effective Green, g (s)		18.1	18.1	18.1	18.1	18.1		30.1	30.1	40.3	40.3		
Actuated g/C Ratio		0.20	0.20	0.20	0.20	0.20		0.33	0.33	0.45	0.45		
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5		
Lane Grp Cap (vph)		374	318	355	374	318		1183	529	267	1525		
v/s Ratio Prot		c0.03		c0.07	0.04			0.20		0.02	c0.42		
v/s Ratio Perm			0.00			0.01			0.03	0.10			
v/c Ratio		0.17	0.01	0.35	0.18	0.03		0.59	0.09	0.27	0.94		
Uniform Delay, d1		29.7	28.8	30.9	29.8	28.9		24.8	20.5	15.7	23.7		
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.33	0.54	0.87		
Incremental Delay, d2		1.0	0.1	2.7	1.0	0.2		1.8	0.3	1.4	8.3		
Delay (s)		30.7	28.9	33.6	30.8	29.0		26.7	27.6	9.9	28.9		
Level of Service		C	C	C	C	C		C	C	A	C		
Approach Delay (s)		30.3			32.0			26.8			28.0		
Approach LOS		C			C			C			C		
Intersection Summary													
HCM 2000 Control Delay			28.1									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.66										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	18.0
Intersection Capacity Utilization			60.6%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	508	101	118	1261	48	125	420	132	80	1197	160
Future Volume (vph)	49	508	101	118	1261	48	125	420	132	80	1197	160
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	5057		1770	3539	1583	1770	3539	1583
Flt Permitted	0.19	1.00	1.00	0.22	1.00		0.10	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	345	3539	1583	411	5057		186	3539	1583	834	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	552	110	128	1371	52	136	457	143	87	1301	174
RTOR Reduction (vph)	0	0	50	0	5	0	0	0	79	0	0	73
Lane Group Flow (vph)	53	552	60	128	1418	0	136	457	64	87	1301	101
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	21.6	21.6	28.3	31.2	31.2		46.7	40.0	40.0	43.9	38.6	38.6
Effective Green, g (s)	21.6	21.6	28.3	31.2	31.2		46.7	40.0	40.0	43.9	38.6	38.6
Actuated g/C Ratio	0.24	0.24	0.31	0.35	0.35		0.52	0.44	0.44	0.49	0.43	0.43
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	82	849	497	219	1753		214	1572	703	461	1517	678
v/s Ratio Prot		0.16	0.01	0.03	c0.28		c0.05	0.13		0.01	c0.37	
v/s Ratio Perm	0.15		0.03	0.17			0.28		0.04	0.08		0.06
v/c Ratio	0.65	0.65	0.12	0.58	0.81		0.64	0.29	0.09	0.19	0.86	0.15
Uniform Delay, d1	30.8	30.8	22.0	21.8	26.7		33.0	15.9	14.5	14.9	23.2	15.7
Progression Factor	0.86	0.86	0.82	1.00	1.00		1.97	1.73	6.16	0.41	0.66	0.36
Incremental Delay, d2	32.6	3.8	0.5	10.9	4.2		11.5	0.4	0.2	0.8	6.1	0.4
Delay (s)	59.2	30.1	18.5	32.8	30.8		76.5	28.0	89.3	7.0	21.5	6.1
Level of Service	E	C	B	C	C		E	C	F	A	C	A
Approach Delay (s)		30.5			31.0			48.9			19.0	
Approach LOS		C			C			D			B	
























Intersection Summary

HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

3/2/2017





























													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	57	118	64	51	768	149	59	270	13	147	988	248	
Future Volume (vph)	57	118	64	51	768	149	59	270	13	147	988	248	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91		
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1770	3352		1770	3539	1583	1770	3539	1583	1770	4932		
Flt Permitted	0.18	1.00		0.63	1.00	1.00	0.15	1.00	1.00	0.57	1.00		
Satd. Flow (perm)	327	3352		1169	3539	1583	279	3539	1583	1067	4932		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	62	128	70	55	835	162	64	293	14	160	1074	270	
RTOR Reduction (vph)	0	52	0	0	0	69	0	0	6	0	35	0	
Lane Group Flow (vph)	62	146	0	55	835	93	64	293	8	160	1309	0	
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA		
Protected Phases		4		3	8			2				6	
Permitted Phases	4			8		8	2		2	6			
Actuated Green, G (s)	22.8	22.8		31.6	31.6	31.6	49.4	49.4	49.4	49.4	49.4		
Effective Green, g (s)	22.8	22.8		31.6	31.6	31.6	49.4	49.4	49.4	49.4	49.4		
Actuated g/C Ratio	0.25	0.25		0.35	0.35	0.35	0.55	0.55	0.55	0.55	0.55		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	82	849		439	1242	555	153	1942	868	585	2707		
v/s Ratio Prot		0.04		0.01	c0.24			0.08				c0.27	
v/s Ratio Perm	c0.19			0.04		0.06	0.23		0.00	0.15			
v/c Ratio	0.76	0.17		0.13	0.67	0.17	0.42	0.15	0.01	0.27	0.48		
Uniform Delay, d1	31.0	26.2		19.9	24.8	20.1	11.9	10.0	9.2	10.8	12.5		
Progression Factor	1.00	1.00		0.78	0.84	0.79	1.11	0.99	1.00	0.34	0.30		
Incremental Delay, d2	32.1	0.1		0.1	1.1	0.1	8.1	0.2	0.0	1.0	0.6		
Delay (s)	63.1	26.3		15.6	22.0	16.0	21.3	10.0	9.2	4.7	4.2		
Level of Service	E	C		B	C	B	C	B	A	A	A		
Approach Delay (s)		35.1			20.8			11.9			4.3		
Approach LOS		D			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			13.1		HCM 2000 Level of Service					B			
HCM 2000 Volume to Capacity ratio			0.59										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)					13.5			
Intersection Capacity Utilization			69.2%		ICU Level of Service					C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	53	452	203	258	1278	351	162	381	61	152	368	30
Future Volume (vph)	53	452	203	258	1278	351	162	381	61	152	368	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3499	3499
Flt Permitted	0.11	1.00	1.00	0.36	1.00	1.00	0.56	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	213	3539	1583	675	3539	1583	1035	3539	1583	1035	3499	3499
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	58	491	221	280	1389	382	176	414	66	165	400	33
RTOR Reduction (vph)	0	0	135	0	0	178	0	0	54	0	7	0
Lane Group Flow (vph)	58	491	86	280	1389	204	176	414	12	165	426	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	39.3	35.0	35.0	51.9	43.1	43.1	16.1	16.1	16.1	15.7	15.7	15.7
Effective Green, g (s)	39.3	35.0	35.0	51.9	43.1	43.1	16.1	16.1	16.1	15.7	15.7	15.7
Actuated g/C Ratio	0.44	0.39	0.39	0.58	0.48	0.48	0.18	0.18	0.18	0.17	0.17	0.17
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1376	615	540	1694	758	257	633	283	249	610	610
v/s Ratio Prot	0.02	0.14		c0.07	c0.39		0.07	c0.12		0.06	c0.12	c0.12
v/s Ratio Perm	0.13		0.05	0.23		0.13	0.05		0.01	0.05		
v/c Ratio	0.35	0.36	0.14	0.52	0.82	0.27	0.68	0.65	0.04	0.66	0.70	0.70
Uniform Delay, d1	17.2	19.5	17.8	10.3	20.1	14.0	34.3	34.4	30.6	33.9	34.9	34.9
Progression Factor	1.99	0.55	1.74	0.71	0.61	0.15	0.92	0.92	1.00	0.61	0.62	0.62
Incremental Delay, d2	1.1	0.6	0.4	0.1	0.4	0.1	7.0	2.3	0.1	6.4	3.5	3.5
Delay (s)	35.2	11.3	31.3	7.3	12.6	2.2	38.6	33.9	30.6	27.3	25.3	25.3
Level of Service	D	B	C	A	B	A	D	C	C	C	C	C
Approach Delay (s)		18.8			10.0			34.8			25.8	25.8
Approach LOS		B			A			C			C	C

Intersection Summary






























HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

3/2/2017

























												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 					 	 		 	 	 
Traffic Volume (vph)	118	69	73	108	130	342	41	182	103	437	152	241
Future Volume (vph)	118	69	73	108	130	342	41	182	103	437	152	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3151		1770	1863	1583	3433	3539	1583	3433	3213	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1131	2734		1770	1863	1583	3433	3539	1583	3433	3213	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	128	75	79	117	141	372	45	198	112	475	165	262
RTOR Reduction (vph)	0	68	0	0	0	265	0	0	74	0	124	0
Lane Group Flow (vph)	87	127	0	117	141	107	45	198	38	475	303	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.4	12.4		9.1	26.0	26.0	3.0	30.7	30.7	19.8	47.5	
Effective Green, g (s)	12.4	12.4		9.1	26.0	26.0	3.0	30.7	30.7	19.8	47.5	
Actuated g/C Ratio	0.14	0.14		0.10	0.29	0.29	0.03	0.34	0.34	0.22	0.53	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	155	376		178	538	457	114	1207	539	755	1695	
v/s Ratio Prot				c0.07	0.08		0.01	0.06		c0.14	c0.09	
v/s Ratio Perm	c0.08	0.05				0.07			0.02			
v/c Ratio	0.56	0.34		0.66	0.26	0.24	0.39	0.16	0.07	0.63	0.18	
Uniform Delay, d1	36.3	35.1		38.9	24.6	24.4	42.6	20.7	20.0	31.8	11.1	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.71	0.41	
Incremental Delay, d2	4.6	0.5		8.5	0.3	0.3	2.2	0.3	0.3	1.5	0.2	
Delay (s)	40.8	35.6		47.4	24.9	24.7	44.9	21.0	20.3	23.9	4.7	
Level of Service	D	D		D	C	C	D	C	C	C	A	
Approach Delay (s)		37.2			28.9			23.8			14.8	
Approach LOS		D			C			C			B	
Intersection Summary												
HCM 2000 Control Delay			23.3				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.43									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			18.0		
Intersection Capacity Utilization			44.5%				ICU Level of Service			A		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

3/3/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	62	211	5	0	410	186	1	175	43	230	504	556
Future Volume (vph)	62	211	5	0	410	186	1	175	43	230	504	556
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3528			3374		1770	3434		1770	3261	
Flt Permitted	0.95	1.00			1.00		0.15	1.00		0.60	1.00	
Satd. Flow (perm)	1770	3528			3374		284	3434		1126	3261	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	229	5	0	446	202	1	190	47	250	548	604
RTOR Reduction (vph)	0	3	0	0	78	0	0	22	0	0	202	0
Lane Group Flow (vph)	67	231	0	0	570	0	1	215	0	250	950	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2				6
Permitted Phases							2			6		
Actuated Green, G (s)	5.6	26.1			16.0		34.9	34.9		34.9	34.9	
Effective Green, g (s)	5.6	26.1			16.0		34.9	34.9		34.9	34.9	
Actuated g/C Ratio	0.08	0.37			0.23		0.50	0.50		0.50	0.50	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	141	1315			771		141	1712		561	1625	
v/s Ratio Prot	c0.04	0.07			c0.17			0.06				c0.29
v/s Ratio Perm							0.00			0.22		
v/c Ratio	0.48	0.18			0.74		0.01	0.13		0.45	0.58	
Uniform Delay, d1	30.8	14.7			25.1		8.8	9.4		11.3	12.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.5	0.1			3.7		0.1	0.2		2.6	1.5	
Delay (s)	33.3	14.8			28.8		8.9	9.5		13.9	14.0	
Level of Service	C	B			C		A	A		B	B	
Approach Delay (s)		18.9			28.8			9.5			13.9	
Approach LOS		B			C			A			B	

Intersection Summary























HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	70.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

16: N Alameda St/N Spring St & W College St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	70	170	29	156	11	193	270	13	12	1184	157
Future Volume (vph)	82	70	170	29	156	11	193	270	13	12	1184	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1844		1770	3515		1770	4996	
Flt Permitted	0.46	1.00	1.00	0.71	1.00		0.12	1.00		0.56	1.00	
Satd. Flow (perm)	851	1863	1583	1318	1844		225	3515		1052	4996	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	76	185	32	170	12	210	293	14	13	1287	171
RTOR Reduction (vph)	0	0	156	0	3	0	0	3	0	0	14	0
Lane Group Flow (vph)	89	76	29	32	179	0	210	304	0	13	1444	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	14.0	14.0	14.0	14.0	14.0		67.0	67.0		51.7	51.7	
Effective Green, g (s)	14.0	14.0	14.0	14.0	14.0		67.0	67.0		51.7	51.7	
Actuated g/C Ratio	0.16	0.16	0.16	0.16	0.16		0.74	0.74		0.57	0.57	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	132	289	246	205	286		352	2616		604	2869	
v/s Ratio Prot		0.04			0.10		c0.07	0.09			0.29	
v/s Ratio Perm	c0.10		0.02	0.02			c0.37			0.01		
v/c Ratio	0.67	0.26	0.12	0.16	0.62		0.60	0.12		0.02	0.50	
Uniform Delay, d1	35.8	33.5	32.7	32.9	35.5		7.7	3.2		8.3	11.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.79	0.37		1.00	1.00	
Incremental Delay, d2	12.8	0.5	0.2	0.4	4.2		2.7	0.1		0.1	0.6	
Delay (s)	48.6	33.9	32.9	33.2	39.8		16.4	1.3		8.3	12.1	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		37.1			38.8			7.4			12.1	
Approach LOS		D			D			A			B	

Intersection Summary





















HCM 2000 Control Delay	16.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	65.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

























3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations								 			  	
Traffic Volume (veh/h)	0	0	65	0	0	0	58	377	240	0	1374	233
Future Volume (Veh/h)	0	0	65	0	0	0	58	377	240	0	1374	233
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	71	0	0	0	63	410	261	0	1493	253
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
Median storage (veh)												
Upstream signal (ft)												
pX, platoon unblocked	0.90	0.90	0.89	0.90	0.90	0.99	0.89			0.99		
vC, conflicting volume	1950	2156	624	1105	2282	205	1746			410		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1602	1830	169	663	1970	172	1422			380		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	91	100	100	100	85			100		
cM capacity (veh/h)	56	58	757	251	47	831	425			1162		
Direction, Lane #												
	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	71	63	205	205	261	597	597	552				
Volume Left	0	63	0	0	0	0	0	0				
Volume Right	71	0	0	0	261	0	0	253				
cSH	757	425	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.09	0.15	0.12	0.12	0.15	0.35	0.35	0.32				
Queue Length 95th (ft)	8	13	0	0	0	0	0	0				
Control Delay (s)	10.2	15.0	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.2	1.3				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			42.4%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	194	38	16	20	0	12	0	469	48	38	1401	0
Future Volume (vph)	194	38	16	20	0	12	0	469	48	38	1401	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Fr _t	1.00	0.96		1.00		0.85		0.99		1.00	1.00	
Fl _t Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1781		1770		1583		5015		1770	5085	
Fl _t Permitted	0.95	1.00		0.95		1.00		1.00		0.43	1.00	
Satd. Flow (perm)	3433	1781		1770		1583		5015		802	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	211	41	17	22	0	13	0	510	52	41	1523	0
RTOR Reduction (vph)	0	15	0	0	0	13	0	9	0	0	0	0
Lane Group Flow (vph)	211	43	0	22	0	0	0	553	0	41	1523	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2				6
Permitted Phases	4					8				6		
Actuated Green, G (s)	18.1	9.5		4.1		1.1		62.9		62.9	62.9	
Effective Green, g (s)	18.1	9.5		4.1		1.1		62.9		62.9	62.9	
Actuated g/C Ratio	0.20	0.11		0.05		0.01		0.70		0.70	0.70	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	690	187		80		19		3504		560	3553	
v/s Ratio Prot	c0.04	0.02		0.01				0.11			c0.30	
v/s Ratio Perm	0.02					0.00				0.05		
v/c Ratio	0.31	0.23		0.28		0.01		0.16		0.07	0.43	
Uniform Delay, d ₁	30.6	36.9		41.5		43.9		4.6		4.3	5.8	
Progression Factor	0.82	0.64		1.00		1.00		0.16		0.50	0.40	
Incremental Delay, d ₂	0.2	0.6		1.9		0.2		0.1		0.2	0.4	
Delay (s)	25.4	24.3		43.4		44.1		0.8		2.4	2.7	
Level of Service	C	C		D		D		A		A	A	
Approach Delay (s)		25.2			43.6			0.8			2.7	
Approach LOS		C			D			A			A	

Intersection Summary























HCM 2000 Control Delay	5.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			  				
Traffic Volume (vph)	64	561	0	0	1526	20	122	164	97	0	0	0
Future Volume (vph)	64	561	0	0	1526	20	122	164	97	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5075		1522	4542				
Flt Permitted	0.11	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	207	3539			5075		1522	4542				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	70	610	0	0	1659	22	133	178	105	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	82	0	0	0	0
Lane Group Flow (vph)	70	610	0	0	1679	0	105	229	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	61.5	61.5			61.5		19.5	19.5				
Effective Green, g (s)	61.5	61.5			61.5		19.5	19.5				
Actuated g/C Ratio	0.68	0.68			0.68		0.22	0.22				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	141	2418			3467		329	984				
v/s Ratio Prot		0.17			0.33		c0.07	0.05				
v/s Ratio Perm	c0.34											
v/c Ratio	0.50	0.25			0.48		0.32	0.23				
Uniform Delay, d1	6.8	5.5			6.7		29.7	29.1				
Progression Factor	1.00	1.00			0.16		1.00	1.00				
Incremental Delay, d2	12.0	0.3			0.3		2.5	0.6				
Delay (s)	18.8	5.7			1.4		32.2	29.6				
Level of Service	B	A			A		C	C				
Approach Delay (s)		7.1			1.4		30.3				0.0	
Approach LOS		A			A		C				A	
Intersection Summary												
HCM 2000 Control Delay		7.1			HCM 2000 Level of Service		A					
HCM 2000 Volume to Capacity ratio		0.45										
Actuated Cycle Length (s)		90.0			Sum of lost time (s)		9.0					
Intersection Capacity Utilization		51.2%			ICU Level of Service		A					
Analysis Period (min)		15										
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

09/05/2018


















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	306	1593	61	88	164	0	0	344	42
Future Volume (vph)	0	0	0	306	1593	61	88	164	0	0	344	42
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					1.00		1.00	1.00			0.98	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3481	
Flt Permitted					0.99		0.38	1.00			1.00	
Satd. Flow (perm)					5022		703	3539			3481	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	333	1732	66	96	178	0	0	374	46
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	11	0
Lane Group Flow (vph)	0	0	0	0	2127	0	96	178	0	0	409	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					60.5		20.5	20.5			20.5	
Effective Green, g (s)					60.5		20.5	20.5			20.5	
Actuated g/C Ratio					0.67		0.23	0.23			0.23	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					3375		160	806			792	
v/s Ratio Prot								0.05			0.12	
v/s Ratio Perm					0.42		c0.14					
v/c Ratio					0.63		0.60	0.22			0.52	
Uniform Delay, d1					8.4		31.1	28.3			30.4	
Progression Factor					0.25		0.68	0.66			1.00	
Incremental Delay, d2					0.1		15.3	0.6			2.4	
Delay (s)					2.2		36.4	19.3			32.8	
Level of Service					A		D	B			C	
Approach Delay (s)		0.0			2.2			25.2			32.8	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 22: N Los Angeles St & E Aliso St


























09/05/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	36	136	155	0	0	0	0	216	171	0	650	0	
Future Volume (vph)	36	136	155	0	0	0	0	216	171	0	650	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5						4.5			4.5		
Lane Util. Factor		0.95						0.95			0.95		
Frt		0.93						0.93			1.00		
Flt Protected		0.99						1.00			1.00		
Satd. Flow (prot)		3270						3305			3539		
Flt Permitted		0.99						1.00			1.00		
Satd. Flow (perm)		3270						3305			3539		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	39	148	168	0	0	0	0	235	186	0	707	0	
RTOR Reduction (vph)	0	111	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	244	0	0	0	0	0	421	0	0	707	0	
Turn Type	Perm	NA						NA			NA		
Protected Phases		4						2			6		
Permitted Phases	4												
Actuated Green, G (s)		30.5						50.5			50.5		
Effective Green, g (s)		30.5						50.5			50.5		
Actuated g/C Ratio		0.34						0.56			0.56		
Clearance Time (s)		4.5						4.5			4.5		
Lane Grp Cap (vph)		1108						1854			1985		
v/s Ratio Prot								0.13			c0.20		
v/s Ratio Perm		0.07											
v/c Ratio		0.22						0.23			0.36		
Uniform Delay, d1		21.3						9.9			10.8		
Progression Factor		1.00						0.67			0.54		
Incremental Delay, d2		0.5						0.3			0.4		
Delay (s)		21.7						7.0			6.3		
Level of Service		C						A			A		
Approach Delay (s)		21.7			0.0			7.0			6.3		
Approach LOS		C			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			10.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.30										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			76.3%									ICU Level of Service	D
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	34	392	176	102	757	124	71	333	53	172	933	96
Future Volume (vph)	34	392	176	102	757	124	71	333	53	172	933	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3464		1770	3466		1770	3539	1583
Flt Permitted	0.15	1.00		0.32	1.00		0.20	1.00		0.49	1.00	1.00
Satd. Flow (perm)	281	3375		605	3464		370	3466		911	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	37	426	191	111	823	135	77	362	58	187	1014	104
RTOR Reduction (vph)	0	49	0	0	15	0	0	14	0	0	0	30
Lane Group Flow (vph)	37	568	0	111	943	0	77	406	0	187	1014	74
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	34.5	34.5		34.5	34.5		46.5	46.5		46.5	46.5	46.5
Effective Green, g (s)	34.5	34.5		34.5	34.5		46.5	46.5		46.5	46.5	46.5
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.52	0.52		0.52	0.52	0.52
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	107	1293		231	1327		191	1790		470	1828	817
v/s Ratio Prot		0.17			c0.27			0.12			c0.29	
v/s Ratio Perm	0.13			0.18			0.21			0.21		0.05
v/c Ratio	0.35	0.44		0.48	0.71		0.40	0.23		0.40	0.55	0.09
Uniform Delay, d1	19.7	20.6		21.0	23.5		13.3	11.9		13.2	14.7	11.0
Progression Factor	1.00	1.00		0.77	0.75		0.73	0.71		0.53	0.55	0.28
Incremental Delay, d2	8.6	1.1		6.7	3.1		6.2	0.3		2.5	1.2	0.2
Delay (s)	28.4	21.7		22.9	20.8		15.8	8.7		9.5	9.3	3.3
Level of Service	C	C		C	C		B	A		A	A	A
Approach Delay (s)		22.0			21.1			9.8			8.9	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

3/2/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	398	122	49	658	84	109	364	42	117	837	140
Future Volume (vph)	29	398	122	49	658	84	109	364	42	117	837	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Flt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3414		1770	3539	1583	1770	3484		1770	3463	
Flt Permitted	0.20	1.00		0.30	1.00	1.00	0.21	1.00		0.49	1.00	
Satd. Flow (perm)	368	3414		559	3539	1583	400	3484		912	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	433	133	53	715	91	118	396	46	127	910	152
RTOR Reduction (vph)	0	32	0	0	0	65	0	10	0	0	15	0
Lane Group Flow (vph)	32	534	0	53	715	26	118	432	0	127	1047	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	25.9	25.9		25.9	25.9	25.9	55.1	55.1		55.1	55.1	
Effective Green, g (s)	25.9	25.9		25.9	25.9	25.9	55.1	55.1		55.1	55.1	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	105	982		160	1018	455	244	2132		558	2120	
v/s Ratio Prot		0.16			c0.20			0.12			c0.30	
v/s Ratio Perm	0.09			0.09		0.02	0.30			0.14		
v/c Ratio	0.30	0.54		0.33	0.70	0.06	0.48	0.20		0.23	0.49	
Uniform Delay, d1	25.0	27.1		25.2	28.6	23.2	9.6	7.7		7.9	9.7	
Progression Factor	1.00	1.00		0.53	0.52	0.45	1.00	1.00		0.61	0.53	
Incremental Delay, d2	7.3	2.2		5.0	3.7	0.2	6.7	0.2		0.8	0.7	
Delay (s)	32.4	29.2		18.5	18.5	10.7	16.3	7.9		5.6	5.9	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		29.4			17.7			9.7			5.9	
Approach LOS		C			B			A			A	
Intersection Summary												
HCM 2000 Control Delay			14.1				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.56									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			71.0%				ICU Level of Service			C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis























25: Judge John Aiso St & E Temple St

3/2/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘↙	↗
Traffic Volume (vph)	352	226	208	823	189	108
Future Volume (vph)	352	226	208	823	189	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3332		1770	3539	3433	1583
Flt Permitted	1.00		0.39	1.00	0.95	1.00
Satd. Flow (perm)	3332		736	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	383	246	226	895	205	117
RTOR Reduction (vph)	86	0	0	0	0	88
Lane Group Flow (vph)	543	0	226	895	205	29
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	58.5		58.5	58.5	22.5	22.5
Effective Green, g (s)	58.5		58.5	58.5	22.5	22.5
Actuated g/C Ratio	0.65		0.65	0.65	0.25	0.25
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2165		478	2300	858	395
v/s Ratio Prot	0.16			0.25	c0.06	
v/s Ratio Perm			c0.31			0.02
v/c Ratio	0.25		0.47	0.39	0.24	0.07
Uniform Delay, d1	6.6		8.0	7.4	26.9	25.8
Progression Factor	0.40		0.76	0.80	0.82	0.71
Incremental Delay, d2	0.3		2.6	0.4	0.6	0.3
Delay (s)	2.9		8.7	6.3	22.7	18.7
Level of Service	A		A	A	C	B
Approach Delay (s)	2.9			6.8	21.2	
Approach LOS	A			A	C	
Intersection Summary						
HCM 2000 Control Delay			7.8		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.41			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			45.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St



























3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	80	307	170	107	596	66	160	229	49	25	315	35
Future Volume (vph)	80	307	170	107	596	66	160	229	49	25	315	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.98			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3350		1770	3486			3418			3478	
Flt Permitted	0.30	1.00		0.41	1.00			0.67			0.91	
Satd. Flow (perm)	561	3350		771	3486			2335			3159	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	334	185	116	648	72	174	249	53	27	342	38
RTOR Reduction (vph)	0	84	0	0	9	0	0	11	0	0	8	0
Lane Group Flow (vph)	87	435	0	116	711	0	0	465	0	0	399	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Effective Green, g (s)	41.5	41.5		41.5	41.5			39.5			39.5	
Actuated g/C Ratio	0.46	0.46		0.46	0.46			0.44			0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	258	1544		355	1607			1024			1386	
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.16			0.15				c0.20			0.13	
v/c Ratio	0.34	0.28		0.33	0.44			0.45			0.29	
Uniform Delay, d1	15.5	15.0		15.4	16.4			17.7			16.2	
Progression Factor	0.47	0.32		1.42	1.47			1.00			0.57	
Incremental Delay, d2	3.2	0.4		2.3	0.8			1.5			0.5	
Delay (s)	10.5	5.2		24.3	24.9			19.2			9.7	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		6.0			24.8			19.2			9.7	
Approach LOS		A			C			B			A	
Intersection Summary												
HCM 2000 Control Delay			16.1								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.45									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	9.0
Intersection Capacity Utilization			61.1%								ICU Level of Service	B
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

3/2/2017






















												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	296	235	134	299	916	8	218	512	93	26	1044	754
Future Volume (vph)	296	235	134	299	916	8	218	512	93	26	1044	754
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3211		1770	3534		1770	3539	1583	1770	3539	1583
Flt Permitted	0.19	0.57		0.32	1.00		0.12	1.00	1.00	0.44	1.00	1.00
Satd. Flow (perm)	320	1865		600	3534		219	3539	1583	826	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	322	255	146	325	996	9	237	557	101	28	1135	820
RTOR Reduction (vph)	0	42	0	0	1	0	0	0	57	0	0	37
Lane Group Flow (vph)	187	494	0	325	1004	0	237	557	44	28	1135	783
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	35.7	35.7		38.3	22.5		39.5	39.5	39.5	29.5	29.5	44.0
Effective Green, g (s)	35.7	35.7		38.3	22.5		39.5	39.5	39.5	29.5	29.5	44.0
Actuated g/C Ratio	0.40	0.40		0.43	0.25		0.44	0.44	0.44	0.33	0.33	0.49
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	334	956		460	883		190	1553	694	270	1160	773
v/s Ratio Prot	0.09	0.08		0.12	c0.28		c0.08	0.16			0.32	c0.16
v/s Ratio Perm	0.13	0.12		0.18			c0.47		0.03	0.03		0.33
v/c Ratio	0.56	0.52		0.71	1.14		1.25	0.36	0.06	0.10	0.98	1.01
Uniform Delay, d1	31.1	20.6		25.3	33.8		23.2	16.8	14.6	21.1	29.9	23.0
Progression Factor	0.78	0.74		1.00	1.00		1.32	1.08	1.52	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.4		4.9	75.6		146.2	0.6	0.2	0.8	21.7	35.5
Delay (s)	26.2	15.7		30.2	109.3		177.0	18.8	22.3	21.8	51.7	58.5
Level of Service	C	B		C	F		F	B	C	C	D	E
Approach Delay (s)		18.4			90.0			61.1			54.1	
Approach LOS		B			F			E			D	
Intersection Summary												
HCM 2000 Control Delay			59.8	HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			1.21									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			95.6%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	91	73	9	13	581	159	40	170	2	110	172	519
Future Volume (vph)	91	73	9	13	581	159	40	170	2	110	172	519
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1831		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.56	1.00		0.56	1.00	1.00
Satd. Flow (perm)	1770	1831		1770	1803		1043	1860		1043	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	79	10	14	632	173	43	185	2	120	187	564
RTOR Reduction (vph)	0	4	0	0	11	0	0	1	0	0	0	233
Lane Group Flow (vph)	99	85	0	14	794	0	43	186	0	120	187	331
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.3	50.8		1.0	41.5		24.7	24.7		24.7	24.7	24.7
Effective Green, g (s)	10.3	50.8		1.0	41.5		24.7	24.7		24.7	24.7	24.7
Actuated g/C Ratio	0.11	0.56		0.01	0.46		0.27	0.27		0.27	0.27	0.27
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	202	1033		19	831		286	510		286	511	434
v/s Ratio Prot	c0.06	0.05		0.01	c0.44			0.10				0.10
v/s Ratio Perm							0.04			0.11		c0.21
v/c Ratio	0.49	0.08		0.74	0.96		0.15	0.37		0.42	0.37	0.76
Uniform Delay, d1	37.4	9.0		44.4	23.4		24.7	26.3		26.8	26.3	30.0
Progression Factor	0.71	0.82		1.00	1.00		1.00	1.00		0.49	0.50	0.10
Incremental Delay, d2	1.9	0.0		88.4	20.9		1.1	2.0		2.0	0.9	5.7
Delay (s)	28.2	7.4		132.8	44.2		25.8	28.3		15.3	14.1	8.7
Level of Service	C	A		F	D		C	C		B	B	A
Approach Delay (s)		18.4			45.7			27.9			10.8	
Approach LOS		B			D			C			B	

Intersection Summary

HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	87.8%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St






















3/2/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	0	381	146	563	206	0
Future Volume (vph)	0	381	146	563	206	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.85		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3008		1770	3539	1770	
Flt Permitted	1.00		0.49	1.00	0.95	
Satd. Flow (perm)	3008		922	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	414	159	612	224	0
RTOR Reduction (vph)	196	0	0	0	0	0
Lane Group Flow (vph)	219	0	159	612	224	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	47.5		47.5	47.5	33.5	
Effective Green, g (s)	47.5		47.5	47.5	33.5	
Actuated g/C Ratio	0.53		0.53	0.53	0.37	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1587		486	1867	658	
v/s Ratio Prot	0.07			c0.17	c0.13	
v/s Ratio Perm			0.17			
v/c Ratio	0.14		0.33	0.33	0.34	
Uniform Delay, d1	10.8		12.1	12.1	20.3	
Progression Factor	1.00		0.31	0.32	1.00	
Incremental Delay, d2	0.2		1.6	0.4	1.4	
Delay (s)	11.0		5.4	4.3	21.7	
Level of Service	B		A	A	C	
Approach Delay (s)	11.0			4.5	21.7	
Approach LOS	B			A	C	
Intersection Summary						
HCM 2000 Control Delay			9.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.33			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			43.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	4	4	6	102	4	24	20	602	172	63	427	13
Future Volume (vph)	4	4	6	102	4	24	20	602	172	63	427	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.94		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1722		1770	1621		1770	3539	1583	1770	3524	
Flt Permitted		0.94		0.75	1.00		0.48	1.00	1.00	0.40	1.00	
Satd. Flow (perm)		1642		1393	1621		892	3539	1583	748	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	4	4	7	111	4	26	22	654	187	68	464	14
RTOR Reduction (vph)	0	6	0	0	23	0	0	0	42	0	1	0
Lane Group Flow (vph)	0	9	0	111	7	0	22	654	145	68	477	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9	
Effective Green, g (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		202		171	199		692	2748	1229	580	2736	
v/s Ratio Prot					0.00			c0.18				0.14
v/s Ratio Perm		0.01		c0.08			0.02		0.09	0.09		
v/c Ratio		0.04		0.65	0.04		0.03	0.24	0.12	0.12	0.17	
Uniform Delay, d1		34.8		37.6	34.7		2.3	2.8	2.5	2.5	2.6	
Progression Factor		1.00		1.00	1.00		2.70	2.96	9.49	1.42	1.35	
Incremental Delay, d2		0.1		8.2	0.1		0.1	0.2	0.2	0.4	0.1	
Delay (s)		34.9		45.8	34.8		6.3	8.3	23.6	3.9	3.6	
Level of Service		C		D	C		A	A	C	A	A	
Approach Delay (s)		34.9			43.5			11.6			3.7	
Approach LOS		C			D			B			A	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.29		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.4%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

09/05/2018

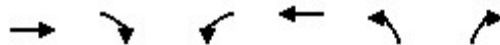


Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	55	43	441	197	46	649	
Future Volume (Veh/h)	55	43	441	197	46	649	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	60	47	479	214	50	705	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	564						
pX, platoon unblocked							
vC, conflicting volume	1038	346			693		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1038	346			693		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	72	93			94		
cM capacity (veh/h)	214	650			898		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	60	47	319	374	50	352	352
Volume Left	60	0	0	0	50	0	0
Volume Right	0	47	0	214	0	0	0
cSH	214	650	1700	1700	898	1700	1700
Volume to Capacity	0.28	0.07	0.19	0.22	0.06	0.21	0.21
Queue Length 95th (ft)	28	6	0	0	4	0	0
Control Delay (s)	28.3	11.0	0.0	0.0	9.2	0.0	0.0
Lane LOS	D	B			A		
Approach Delay (s)	20.7		0.0		0.6		
Approach LOS	C						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utilization			35.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

09/05/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	654	61	83	1338	81	56
Future Volume (vph)	654	61	83	1338	81	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3494		1770	3539	1770	1583
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3494		575	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	711	66	90	1454	88	61
RTOR Reduction (vph)	12	0	0	0	0	40
Lane Group Flow (vph)	765	0	90	1454	88	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	30.5		30.5	30.5	20.5	20.5
Effective Green, g (s)	30.5		30.5	30.5	20.5	20.5
Actuated g/C Ratio	0.51		0.51	0.51	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1776		292	1798	604	540
v/s Ratio Prot	0.22			c0.41	c0.05	
v/s Ratio Perm			0.16			0.01
v/c Ratio	0.43		0.31	0.81	0.15	0.04
Uniform Delay, d1	9.3		8.6	12.3	13.7	13.2
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	2.8	0.5	0.1
Delay (s)	9.5		9.2	15.1	14.2	13.3
Level of Service	A		A	B	B	B
Approach Delay (s)	9.5			14.8	13.8	
Approach LOS	A			B	B	

Intersection Summary










HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

110: N Alameda St & LA Union Station

3/2/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	8	20	658	0	0	1416
Future Volume (Veh/h)	8	20	658	0	0	1416
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	9	22	715	0	0	1539
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			306			385
pX, platoon unblocked	0.71	0.89			0.89	
vC, conflicting volume	1484	358			715	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	187	38			439	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	98	98			100	
cM capacity (veh/h)	558	915			997	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	31	358	358	770	770	
Volume Left	9	0	0	0	0	
Volume Right	22	0	0	0	0	
cSH	771	1700	1700	1700	1700	
Volume to Capacity	0.04	0.21	0.21	0.45	0.45	
Queue Length 95th (ft)	3	0	0	0	0	
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	
Lane LOS	A					
Approach Delay (s)	9.9	0.0		0.0		
Approach LOS	A					
Intersection Summary						
Average Delay			0.1			
Intersection Capacity Utilization			Err%	ICU Level of Service		H
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

09/05/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	615	66	49	93	0	168	0	1285	172	140	789	0
Future Volume (vph)	615	66	49	93	0	168	0	1285	172	140	789	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	668	72	53	101	0	183	0	1397	187	152	858	0
RTOR Reduction (vph)	0	0	42	0	0	0	0	0	78	0	0	0
Lane Group Flow (vph)	668	72	11	101	0	183	0	1397	109	152	858	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	18.5	18.5	18.5	10.5		10.5		35.0	35.0	8.0	47.5	
Effective Green, g (s)	18.5	18.5	18.5	10.5		10.5		35.0	35.0	8.0	47.5	
Actuated g/C Ratio	0.21	0.21	0.21	0.12		0.12		0.39	0.39	0.09	0.53	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	705	382	325	206		184		1376	615	157	2683	
v/s Ratio Prot	c0.19	0.04		0.06		c0.12		c0.39		c0.09	0.17	
v/s Ratio Perm			0.01						0.07			
v/c Ratio	0.95	0.19	0.03	0.49		0.99		1.02	0.18	0.97	0.32	
Uniform Delay, d1	35.3	29.5	28.6	37.2		39.7		27.5	18.1	40.9	12.1	
Progression Factor	0.94	0.90	1.00	1.10		1.07		1.30	2.48	1.28	0.79	
Incremental Delay, d2	19.5	0.8	0.1	6.7		58.9		24.9	0.5	61.2	0.3	
Delay (s)	52.7	27.4	28.7	47.8		101.4		60.5	45.2	113.5	9.8	
Level of Service	D	C	C	D		F		E	D	F	A	
Approach Delay (s)		48.8			82.3			58.7			25.4	
Approach LOS		D			F			E			C	
Intersection Summary												
HCM 2000 Control Delay			49.2								HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio			0.99									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	18.0
Intersection Capacity Utilization			74.7%								ICU Level of Service	D
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	357	204	17	48	46	298	20	463	19	116	20	172
Future Volume (vph)	357	204	17	48	46	298	20	463	19	116	20	172
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.99			0.90			0.99			1.00	0.85
Flt Protected	0.95	1.00			0.99			1.00			0.96	1.00
Satd. Flow (prot)	3433	1842			1661			3512			1787	1583
Flt Permitted	0.95	1.00			0.99			1.00			0.96	1.00
Satd. Flow (perm)	3433	1842			1661			3512			1787	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	388	222	18	52	50	324	22	503	21	126	22	187
RTOR Reduction (vph)	0	3	0	0	128	0	0	3	0	0	0	167
Lane Group Flow (vph)	388	237	0	0	298	0	0	543	0	0	148	20
Turn Type	Split	NA		Split	NA		Split	NA		Split	NA	custom
Protected Phases	2	2		1	1		3	3		4	4	4
Permitted Phases												5
Actuated Green, G (s)	20.1	20.1			17.5			25.0			9.4	9.4
Effective Green, g (s)	20.1	20.1			17.5			25.0			9.4	9.4
Actuated g/C Ratio	0.22	0.22			0.19			0.28			0.10	0.10
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	766	411			322			975			186	165
v/s Ratio Prot	0.11	c0.13			c0.18			c0.15			c0.08	0.01
v/s Ratio Perm												
v/c Ratio	0.51	0.58			0.93			0.56			0.80	0.12
Uniform Delay, d1	30.6	31.2			35.6			27.8			39.4	36.5
Progression Factor	0.98	0.98			1.00			1.00			1.00	1.00
Incremental Delay, d2	2.3	5.5			31.3			2.3			20.5	0.3
Delay (s)	32.3	36.2			66.9			30.1			59.9	36.9
Level of Service	C	D			E			C			E	D
Approach Delay (s)		33.8			66.9			30.1			47.0	
Approach LOS		C			E			C			D	

Intersection Summary












HCM 2000 Control Delay	42.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	22.5
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

4: Center St & E Commercial St


























04/12/2018

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Sign Control	Stop			Stop	Stop	
Traffic Volume (vph)	256	83	152	793	319	240
Future Volume (vph)	256	83	152	793	319	240
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	278	90	165	862	347	261
Direction, Lane #	EB 1	NB 1	NB 2	SB 1		
Volume Total (vph)	368	165	862	608		
Volume Left (vph)	278	165	0	0		
Volume Right (vph)	90	0	0	261		
Hadj (s)	0.04	0.53	0.03	-0.22		
Departure Headway (s)	7.0	7.4	6.9	6.2		
Degree Utilization, x	0.72	0.34	1.65	1.05		
Capacity (veh/h)	505	481	527	583		
Control Delay (s)	25.8	13.0	319.1	76.9		
Approach Delay (s)	25.8	269.9		76.9		
Approach LOS	D	F		F		
Intersection Summary						
Delay			166.5			
Level of Service			F			
Intersection Capacity Utilization			69.1%	ICU Level of Service	C	
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	256	458	200	30	162	96	91	1032	0	77	782	316
Future Volume (vph)	256	458	200	30	162	96	91	1032	0	77	782	316
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Flt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.35	1.00		0.38	1.00		0.33	1.00		0.95	1.00	1.00
Satd. Flow (perm)	650	3378		708	3342		619	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	498	217	33	176	104	99	1122	0	84	850	343
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	177
Lane Group Flow (vph)	278	655	0	33	280	0	99	1122	0	84	850	166
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.0	28.0		12.8	12.8		40.8	40.8		7.7	43.6	43.6
Effective Green, g (s)	28.0	28.0		12.8	12.8		40.8	40.8		7.7	43.6	43.6
Actuated g/C Ratio	0.31	0.31		0.14	0.14		0.45	0.45		0.09	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	335	1050		100	475		343	1604		151	1714	766
v/s Ratio Prot	c0.10	0.19			0.08		0.02	c0.32		0.05	c0.24	
v/s Ratio Perm	c0.16			0.05			0.11					0.10
v/c Ratio	0.83	0.62		0.33	0.59		0.29	0.70		0.56	0.50	0.22
Uniform Delay, d1	26.2	26.5		34.7	36.1		16.0	19.7		39.5	15.7	13.4
Progression Factor	0.59	0.48		1.00	1.00		0.66	0.73		1.36	0.58	0.23
Incremental Delay, d2	14.1	1.0		1.9	1.9		0.4	2.2		4.3	1.0	0.6
Delay (s)	29.6	13.9		36.7	38.0		10.9	16.5		58.1	10.1	3.6
Level of Service	C	B		D	D		B	B		E	B	A
Approach Delay (s)		18.3			37.9			16.0			11.5	
Approach LOS		B			D			B			B	

Intersection Summary



















HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

6: N Vignes St & E Temple St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	66	42	111	14	66	28	97	168	20	13	33	26
Future Volume (vph)	66	42	111	14	66	28	97	168	20	13	33	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	72	46	121	15	72	30	105	183	22	14	36	28
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	118	121	117	310	78							
Volume Left (vph)	72	0	15	105	14							
Volume Right (vph)	0	121	30	22	28							
Hadj (s)	0.34	-0.67	-0.09	0.06	-0.15							
Departure Headway (s)	6.0	5.0	5.3	5.0	5.1							
Degree Utilization, x	0.20	0.17	0.17	0.43	0.11							
Capacity (veh/h)	560	672	622	690	636							
Control Delay (s)	9.3	7.8	9.4	11.7	8.8							
Approach Delay (s)	8.5		9.4	11.7	8.8							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			10.0									
Level of Service			A									
Intersection Capacity Utilization			41.4%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

3/2/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	328	493	118	0	279	15	69	780	149	42	844	126
Future Volume (vph)	328	493	118	0	279	15	69	780	149	42	844	126
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.33	1.00			1.00	1.00	0.23	1.00	1.00	0.26	1.00	1.00
Satd. Flow (perm)	614	3437			3539	1583	428	3539	1583	480	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	357	536	128	0	303	16	75	848	162	46	917	137
RTOR Reduction (vph)	0	26	0	0	0	0	0	0	80	0	0	41
Lane Group Flow (vph)	357	638	0	0	303	16	75	848	82	46	917	96
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	35.7	35.7			13.3	13.3	45.3	45.3	45.3	45.3	45.3	63.2
Effective Green, g (s)	35.7	35.7			13.3	13.3	45.3	45.3	45.3	45.3	45.3	63.2
Actuated g/C Ratio	0.40	0.40			0.15	0.15	0.50	0.50	0.50	0.50	0.50	0.70
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	473	1363			522	233	215	1781	796	241	1781	1190
v/s Ratio Prot	c0.15	0.19			0.09			0.24			c0.26	0.02
v/s Ratio Perm	c0.15					0.01	0.18		0.05	0.10		0.04
v/c Ratio	0.75	0.47			0.58	0.07	0.35	0.48	0.10	0.19	0.51	0.08
Uniform Delay, d1	21.0	20.1			35.7	33.0	13.5	14.6	11.7	12.3	15.0	4.2
Progression Factor	0.60	0.53			1.41	1.52	1.00	1.00	1.00	0.71	0.66	0.15
Incremental Delay, d2	6.0	0.2			1.2	0.1	4.4	0.9	0.3	1.6	0.9	0.0
Delay (s)	18.6	11.0			51.6	50.4	17.9	15.5	12.0	10.2	10.8	0.7
Level of Service	B	B			D	D	B	B	B	B	B	A
Approach Delay (s)		13.6			51.6			15.1			9.5	
Approach LOS		B			D			B			A	

Intersection Summary


















HCM 2000 Control Delay	16.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

3/2/2017

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	73	599	23	81	317	79	6	80	235	83	28	30	
Future Volume (vph)	73	599	23	81	317	79	6	80	235	83	28	30	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5		
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00		
Fr _t		1.00	0.85		0.98			0.90			0.97		
Fl _t Protected		0.99	1.00		0.99			1.00			0.97		
Satd. Flow (prot)		3520	1583		3422			1677			1757		
Fl _t Permitted		0.99	1.00		0.99			0.99			0.52		
Satd. Flow (perm)		3520	1583		3422			1671			948		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	79	651	25	88	345	86	7	87	255	90	30	33	
RTOR Reduction (vph)	0	0	16	0	19	0	0	108	0	0	11	0	
Lane Group Flow (vph)	0	730	9	0	500	0	0	241	0	0	142	0	
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA		
Protected Phases	2	2		1	1			8				4	
Permitted Phases			2				8			4			
Actuated Green, G (s)		31.4	31.4		17.6			27.5			27.5		
Effective Green, g (s)		31.4	31.4		17.6			27.5			27.5		
Actuated g/C Ratio		0.35	0.35		0.20			0.31			0.31		
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5		
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0		
Lane Grp Cap (vph)		1228	552		669			510			289		
v/s Ratio Prot		c0.21			c0.15								
v/s Ratio Perm			0.01					0.14			c0.15		
v/c Ratio		0.59	0.02		0.75			0.47			0.49		
Uniform Delay, d ₁		24.1	19.2		34.1			25.4			25.5		
Progression Factor		0.61	1.00		1.03			1.00			1.00		
Incremental Delay, d ₂		2.0	0.0		3.4			3.1			5.9		
Delay (s)		16.6	19.2		38.4			28.5			31.4		
Level of Service		B	B		D			C			C		
Approach Delay (s)		16.7			38.4			28.5			31.4		
Approach LOS		B			D			C			C		
Intersection Summary													
HCM 2000 Control Delay			26.6									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.59										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			74.2%									ICU Level of Service	D
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

09/05/2018

























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↶ ↷	↶ ↷		↶ ↷	↶ ↷			↶ ↷	
Traffic Volume (vph)	0	0	0	274	578	183	20	2048	0	0	655	25
Future Volume (vph)	0	0	0	274	578	183	20	2048	0	0	655	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Util. Factor				0.86	0.86		1.00	0.91			0.95	
Flt				1.00	0.97		1.00	1.00			0.99	
Flt Protected				0.95	1.00		0.95	1.00			1.00	
Satd. Flow (prot)				1522	4630		1770	5085			3520	
Flt Permitted				0.95	1.00		0.33	1.00			1.00	
Satd. Flow (perm)				1522	4630		619	5085			3520	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	298	628	199	22	2226	0	0	712	27
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0
Lane Group Flow (vph)	0	0	0	268	857	0	22	2226	0	0	736	0
Turn Type				Prot	NA		Perm	NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases							2					
Actuated Green, G (s)				27.5	27.5		53.5	53.5			53.5	
Effective Green, g (s)				27.5	27.5		53.5	53.5			53.5	
Actuated g/C Ratio				0.31	0.31		0.59	0.59			0.59	
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)				465	1414		367	3022			2092	
v/s Ratio Prot				0.18	c0.19			c0.44			0.21	
v/s Ratio Perm							0.04					
v/c Ratio				0.58	0.61		0.06	0.74			0.35	
Uniform Delay, d1				26.3	26.6		7.7	13.2			9.4	
Progression Factor				1.00	1.00		0.99	0.78			1.00	
Incremental Delay, d2				5.1	1.9		0.1	0.4			0.5	
Delay (s)				31.5	28.6		7.7	10.7			9.8	
Level of Service				C	C		A	B			A	
Approach Delay (s)		0.0			29.3			10.7			9.8	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	62.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

10: N Alameda St & LA Union Station

09/05/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	67	85	183	56	69	0	869	94	57	811	114
Future Volume (vph)	0	67	85	183	56	69	0	869	94	57	811	114
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00	1.00	1.00	1.00	1.00		0.95	1.00	1.00	0.95	
Frt		1.00	0.85	1.00	1.00	0.85		1.00	0.85	1.00	0.98	
Flt Protected		1.00	1.00	0.95	1.00	1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1863	1583	1770	1863	1583		3539	1583	1770	3474	
Flt Permitted		1.00	1.00	0.71	1.00	1.00		1.00	1.00	0.15	1.00	
Satd. Flow (perm)		1863	1583	1322	1863	1583		3539	1583	283	3474	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	73	92	199	61	75	0	945	102	62	882	124
RTOR Reduction (vph)	0	0	64	0	0	53	0	0	62	0	18	0
Lane Group Flow (vph)	0	73	28	199	61	23	0	945	40	62	988	0
Turn Type		NA	Perm	Perm	NA	Perm		NA	Perm	pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases			4	8		8			2	6		
Actuated Green, G (s)		18.0	18.0	18.0	18.0	18.0		23.5	23.5	33.0	33.0	
Effective Green, g (s)		18.0	18.0	18.0	18.0	18.0		23.5	23.5	33.0	33.0	
Actuated g/C Ratio		0.30	0.30	0.30	0.30	0.30		0.39	0.39	0.55	0.55	
Clearance Time (s)		4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)		558	474	396	558	474		1386	620	279	1910	
v/s Ratio Prot		0.04			0.03			c0.27		0.02	c0.28	
v/s Ratio Perm			0.02	c0.15		0.01			0.03	0.10		
v/c Ratio		0.13	0.06	0.50	0.11	0.05		0.68	0.06	0.22	0.52	
Uniform Delay, d1		15.3	15.0	17.3	15.2	14.9		15.1	11.4	8.1	8.5	
Progression Factor		1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.5	0.2	4.5	0.4	0.2		2.7	0.2	1.8	1.0	
Delay (s)		15.8	15.2	21.8	15.6	15.1		17.9	11.6	9.9	9.5	
Level of Service		B	B	C	B	B		B	B	A	A	
Approach Delay (s)		15.5			19.2			17.3			9.5	
Approach LOS		B			B			B			A	
Intersection Summary												
HCM 2000 Control Delay			14.2				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.62									
Actuated Cycle Length (s)			60.0				Sum of lost time (s)		13.5			
Intersection Capacity Utilization			56.2%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	93	985	197	116	953	126	100	716	122	100	669	124
Future Volume (vph)	93	985	197	116	953	126	100	716	122	100	669	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	4996		1770	3539	1583	1770	3539	1583
Flt Permitted	0.23	1.00	1.00	0.10	1.00		0.19	1.00	1.00	0.16	1.00	1.00
Satd. Flow (perm)	427	3539	1583	191	4996		349	3539	1583	295	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	101	1071	214	126	1036	137	109	778	133	109	727	135
RTOR Reduction (vph)	0	0	46	0	19	0	0	0	91	0	0	91
Lane Group Flow (vph)	101	1071	168	126	1154	0	109	778	42	109	727	44
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2		2	6		6
Actuated Green, G (s)	34.5	34.5	40.2	45.5	45.5		31.6	25.9	25.9	30.4	25.3	25.3
Effective Green, g (s)	34.5	34.5	40.2	45.5	45.5		31.6	25.9	25.9	30.4	25.3	25.3
Actuated g/C Ratio	0.38	0.38	0.45	0.51	0.51		0.35	0.29	0.29	0.34	0.28	0.28
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	163	1356	707	210	2525		212	1018	455	183	994	444
v/s Ratio Prot		c0.30	0.02	c0.04	0.23		0.03	c0.22		c0.03	0.21	
v/s Ratio Perm	0.24		0.09	0.26			0.15		0.03	0.17		0.03
v/c Ratio	0.62	0.79	0.24	0.60	0.46		0.51	0.76	0.09	0.60	0.73	0.10
Uniform Delay, d1	22.4	24.5	15.4	16.5	14.3		33.5	29.3	23.4	35.1	29.3	23.9
Progression Factor	0.58	0.58	0.45	1.00	1.00		1.00	1.00	1.00	0.67	0.53	0.32
Incremental Delay, d2	13.1	3.7	0.6	12.1	0.6		8.6	5.5	0.4	13.0	4.6	0.4
Delay (s)	26.1	18.0	7.5	28.5	14.9		42.1	34.7	23.8	36.4	20.1	8.1
Level of Service	C	B	A	C	B		D	C	C	D	C	A
Approach Delay (s)		16.9			16.2			34.1			20.3	
Approach LOS		B			B			C			C	
























Intersection Summary

HCM 2000 Control Delay	21.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	328	71	59	433	363	180	1011	50	98	411	58
Future Volume (vph)	105	328	71	59	433	363	180	1011	50	98	411	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3445		1770	3539	1583	1770	3539	1583	1770	4991	
Flt Permitted	0.35	1.00		0.38	1.00	1.00	0.45	1.00	1.00	0.20	1.00	
Satd. Flow (perm)	645	3445		703	3539	1583	846	3539	1583	366	4991	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	357	77	64	471	395	196	1099	54	107	447	63
RTOR Reduction (vph)	0	21	0	0	0	51	0	0	22	0	18	0
Lane Group Flow (vph)	114	413	0	64	471	344	196	1099	32	107	492	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2				6
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	19.2	19.2		27.9	27.9	27.9	53.1	53.1	53.1	53.1	53.1	
Effective Green, g (s)	19.2	19.2		27.9	27.9	27.9	53.1	53.1	53.1	53.1	53.1	
Actuated g/C Ratio	0.21	0.21		0.31	0.31	0.31	0.59	0.59	0.59	0.59	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	137	734		267	1097	490	499	2088	933	215	2944	
v/s Ratio Prot		0.12		0.01	0.13			c0.31				0.10
v/s Ratio Perm	c0.18			0.06		c0.22	0.23		0.02	0.29		
v/c Ratio	0.83	0.56		0.24	0.43	0.70	0.39	0.53	0.03	0.50	0.17	
Uniform Delay, d1	33.9	31.6		27.5	24.7	27.4	9.8	11.0	7.7	10.7	8.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	0.91	0.90	1.40	0.82	0.49	
Incremental Delay, d2	33.0	1.0		0.5	0.3	4.5	1.9	0.8	0.1	7.7	0.1	
Delay (s)	66.9	32.6		28.0	25.0	31.9	10.8	10.6	10.8	16.5	4.2	
Level of Service	E	C		C	C	C	B	B	B	B	A	
Approach Delay (s)		39.8			28.1			10.7			6.4	
Approach LOS		D			C			B			A	

Intersection Summary

HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

3/2/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	48	969	270	120	885	308	293	712	155	250	317	49
Future Volume (vph)	48	969	270	120	885	308	293	712	155	250	317	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	1.00
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3469	3469
Flt Permitted	0.14	1.00	1.00	0.14	1.00	1.00	0.38	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	264	3539	1583	264	3539	1583	699	3539	1583	362	3469	3469
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	52	1053	293	130	962	335	318	774	168	272	345	53
RTOR Reduction (vph)	0	0	191	0	0	203	0	0	127	0	14	0
Lane Group Flow (vph)	52	1053	102	130	962	132	318	774	41	272	384	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	31.2	31.2	31.2	35.5	35.5	35.5	34.9	22.0	22.0	32.1	20.6	20.6
Effective Green, g (s)	31.2	31.2	31.2	35.5	35.5	35.5	34.9	22.0	22.0	32.1	20.6	20.6
Actuated g/C Ratio	0.35	0.35	0.35	0.39	0.39	0.39	0.39	0.24	0.24	0.36	0.23	0.23
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	141	1226	548	226	1395	624	424	865	386	309	794	794
v/s Ratio Prot	0.01	c0.30		0.05	c0.27		0.11	c0.22		c0.11	0.11	0.11
v/s Ratio Perm	0.11		0.06	0.18		0.08	0.18		0.03	0.20		
v/c Ratio	0.37	0.86	0.19	0.58	0.69	0.21	0.75	0.89	0.11	0.88	0.48	0.48
Uniform Delay, d1	22.4	27.4	20.5	31.9	22.7	18.0	20.9	32.9	26.4	23.4	30.1	30.1
Progression Factor	0.40	0.43	0.02	0.79	0.72	0.29	0.75	0.69	0.38	0.92	1.02	1.02
Incremental Delay, d2	1.2	6.0	0.5	2.5	2.0	0.5	6.5	10.5	0.1	23.5	0.5	0.5
Delay (s)	10.3	17.8	0.9	27.6	18.3	5.8	22.2	33.3	10.1	45.1	31.0	31.0
Level of Service	B	B	A	C	B	A	C	C	B	D	C	C
Approach Delay (s)		14.0			16.2			27.4			36.8	36.8
Approach LOS		B			B			C			D	D

Intersection Summary

HCM 2000 Control Delay	21.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	82.0%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

3/2/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	161	73	96	160	131	533	55	459	70	308	238	132
Future Volume (vph)	161	73	96	160	131	533	55	459	70	308	238	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3135		1770	1863	1583	3433	3539	1583	3433	3350	
Flt Permitted	0.67	0.83		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1130	2649		1770	1863	1583	3433	3539	1583	3433	3350	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	175	79	104	174	142	579	60	499	76	335	259	143
RTOR Reduction (vph)	0	88	0	0	0	344	0	0	51	0	72	0
Lane Group Flow (vph)	112	158	0	174	142	235	60	499	25	335	330	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	13.9	13.9		13.5	31.9	31.9	5.1	29.1	29.1	15.5	39.5	
Effective Green, g (s)	13.9	13.9		13.5	31.9	31.9	5.1	29.1	29.1	15.5	39.5	
Actuated g/C Ratio	0.15	0.15		0.15	0.35	0.35	0.06	0.32	0.32	0.17	0.44	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	174	409		265	660	561	194	1144	511	591	1470	
v/s Ratio Prot				c0.10	0.08		0.02	c0.14		c0.10	0.10	
v/s Ratio Perm	c0.10	0.06				0.15			0.02			
v/c Ratio	0.64	0.39		0.66	0.22	0.42	0.31	0.44	0.05	0.57	0.22	
Uniform Delay, d1	35.7	34.2		36.1	20.3	22.0	40.8	24.0	20.9	34.2	15.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.83	0.80	
Incremental Delay, d2	7.9	0.6		5.8	0.2	0.5	0.9	1.2	0.2	1.1	0.3	
Delay (s)	43.6	34.8		41.8	20.5	22.5	41.7	25.2	21.1	29.6	12.9	
Level of Service	D	C		D	C	C	D	C	C	C	B	
Approach Delay (s)		37.6			26.0			26.3			20.5	
Approach LOS		D			C			C			C	

Intersection Summary

























HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	233	242	1	0	658	370	5	672	36	192	281	190
Future Volume (vph)	233	242	1	0	658	370	5	672	36	192	281	190
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3537			3348		1770	3512		1770	3325	
Flt Permitted	0.95	1.00			1.00		0.40	1.00		0.26	1.00	
Satd. Flow (perm)	1770	3537			3348		740	3512		477	3325	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	253	263	1	0	715	402	5	730	39	209	305	207
RTOR Reduction (vph)	0	0	0	0	65	0	0	3	0	0	100	0
Lane Group Flow (vph)	253	264	0	0	1052	0	5	766	0	209	412	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2				6
Permitted Phases							2			6		
Actuated Green, G (s)	18.1	58.7			36.1		52.3	52.3		52.3	52.3	
Effective Green, g (s)	18.1	58.7			36.1		52.3	52.3		52.3	52.3	
Actuated g/C Ratio	0.15	0.49			0.30		0.44	0.44		0.44	0.44	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	266	1730			1007		322	1530		207	1449	
v/s Ratio Prot	c0.14	0.07			c0.31			0.22				0.12
v/s Ratio Perm							0.01			c0.44		
v/c Ratio	0.95	0.15			1.04		0.02	0.50		1.01	0.28	
Uniform Delay, d1	50.5	16.9			42.0		19.2	24.4		33.9	21.8	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	41.8	0.0			40.7		0.1	1.2		65.1	0.5	
Delay (s)	92.3	17.0			82.7		19.3	25.6		98.9	22.3	
Level of Service	F	B			F		B	C		F	C	
Approach Delay (s)		53.8			82.7			25.6			44.5	
Approach LOS		D			F			C			D	

Intersection Summary























HCM 2000 Control Delay	55.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.01		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	88.3%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

16: N Alameda St/N Spring St & W College St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	110	97	182	33	200	27	542	909	28	9	352	103
Future Volume (vph)	110	97	182	33	200	27	542	909	28	9	352	103
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1830		1770	3524		1770	4913	
Flt Permitted	0.37	1.00	1.00	0.69	1.00		0.42	1.00		0.21	1.00	
Satd. Flow (perm)	686	1863	1583	1284	1830		785	3524		388	4913	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	120	105	198	36	217	29	589	988	30	10	383	112
RTOR Reduction (vph)	0	0	159	0	6	0	0	2	0	0	54	0
Lane Group Flow (vph)	120	105	39	36	240	0	589	1016	0	10	441	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2				6
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.7	17.7	17.7	17.7	17.7		63.3	63.3		26.3	26.3	
Effective Green, g (s)	17.7	17.7	17.7	17.7	17.7		63.3	63.3		26.3	26.3	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20		0.70	0.70		0.29	0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	366	311	252	359		907	2478		113	1435	
v/s Ratio Prot		0.06			0.13		c0.23	0.29				0.09
v/s Ratio Perm	c0.17		0.02	0.03			c0.22			0.03		
v/c Ratio	0.90	0.29	0.13	0.14	0.67		0.65	0.41		0.09	0.31	
Uniform Delay, d1	35.2	30.8	29.8	29.9	33.4		10.3	5.6		23.1	24.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.41	0.39		1.00	1.00	
Incremental Delay, d2	47.3	0.4	0.2	0.3	4.7		1.3	0.4		1.5	0.6	
Delay (s)	82.5	31.2	30.0	30.1	38.1		5.6	2.6		24.7	25.3	
Level of Service	F	C	C	C	D		A	A		C	C	
Approach Delay (s)		45.2			37.1			3.7			25.3	
Approach LOS		D			D			A			C	

Intersection Summary



















HCM 2000 Control Delay	17.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	72.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St





















3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	82	0	0	0	102	1145	658	0	721	52
Future Volume (Veh/h)	0	0	82	0	0	0	102	1145	658	0	721	52
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	89	0	0	0	111	1245	715	0	784	57
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage (veh)												
Upstream signal (ft)												
								206			797	
pX, platoon unblocked	0.76	0.76		0.76	0.76	0.76				0.76		
vC, conflicting volume	1657	2280	290	1817	2308	622	841			1245		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1229	2050	290	1441	2088	0	841			686		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	87	100	100	100	86			100		
cM capacity (veh/h)	91	36	707	55	34	822	790			685		
Direction, Lane #												
	EB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	89	111	622	622	715	314	314	214				
Volume Left	0	111	0	0	0	0	0	0				
Volume Right	89	0	0	0	715	0	0	57				
cSH	707	790	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.13	0.14	0.37	0.37	0.42	0.18	0.18	0.13				
Queue Length 95th (ft)	11	12	0	0	0	0	0	0				
Control Delay (s)	10.8	10.3	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	B										
Approach Delay (s)	10.8	0.6				0.0						
Approach LOS	B											
Intersection Summary												
Average Delay			0.7									
Intersection Capacity Utilization			44.1%		ICU Level of Service					A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	947	22	34	64	0	40	0	918	16	4	799	0
Future Volume (vph)	947	22	34	64	0	40	0	918	16	4	799	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Flt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1693		1770		1583		5073		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.22	1.00	
Satd. Flow (perm)	3433	1693		1770		1583		5073		413	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1029	24	37	70	0	43	0	998	17	4	868	0
RTOR Reduction (vph)	0	32	0	0	0	41	0	2	0	0	0	0
Lane Group Flow (vph)	1029	29	0	70	0	2	0	1013	0	4	868	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2				6
Permitted Phases	4					8				6		
Actuated Green, G (s)	29.8	11.5		21.9		3.6		43.1		43.1	43.1	
Effective Green, g (s)	29.8	11.5		21.9		3.6		43.1		43.1	43.1	
Actuated g/C Ratio	0.33	0.13		0.24		0.04		0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	1136	216		430		63		2429		197	2435	
v/s Ratio Prot	c0.30	0.02		c0.04				c0.20			0.17	
v/s Ratio Perm						0.00				0.01		
v/c Ratio	0.91	0.13		0.16		0.03		0.42		0.02	0.36	
Uniform Delay, d1	28.8	34.8		26.8		41.5		15.3		12.3	14.7	
Progression Factor	0.47	0.86		1.00		1.00		0.41		0.79	0.80	
Incremental Delay, d2	7.4	0.2		0.2		0.2		0.4		0.2	0.4	
Delay (s)	21.0	30.3		27.0		41.7		6.6		9.9	12.2	
Level of Service	C	C		C		D		A		A	B	
Approach Delay (s)		21.5			32.6			6.6			12.2	
Approach LOS		C			C			A			B	

Intersection Summary























HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			  				
Traffic Volume (vph)	80	1029	0	0	1230	23	423	900	246	0	0	0
Future Volume (vph)	80	1029	0	0	1230	23	423	900	246	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5071		1522	4649				
Flt Permitted	0.14	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	263	3539			5071		1522	4649				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	87	1118	0	0	1337	25	460	978	267	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	40	0	0	0	0
Lane Group Flow (vph)	87	1118	0	0	1360	0	414	1251	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	47.5	47.5			47.5		33.5	33.5				
Effective Green, g (s)	47.5	47.5			47.5		33.5	33.5				
Actuated g/C Ratio	0.53	0.53			0.53		0.37	0.37				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	138	1867			2676		566	1730				
v/s Ratio Prot		0.32			0.27		c0.27	0.27				
v/s Ratio Perm	c0.33											
v/c Ratio	0.63	0.60			0.51		0.73	0.72				
Uniform Delay, d1	15.0	14.7			13.7		24.4	24.3				
Progression Factor	1.00	1.00			0.68		1.00	1.00				
Incremental Delay, d2	19.9	1.4			0.6		8.1	2.7				
Delay (s)	34.9	16.1			10.0		32.5	26.9				
Level of Service	C	B			A		C	C				
Approach Delay (s)		17.5			10.0			28.3			0.0	
Approach LOS		B			A			C			A	
Intersection Summary												
HCM 2000 Control Delay			19.4				HCM 2000 Level of Service		B			
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			63.6%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					←↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	98	504	21	193	864	0	0	157	40
Future Volume (vph)	0	0	0	98	504	21	193	864	0	0	157	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5020		1770	3539			3433	
Flt Permitted					0.99		0.62	1.00			1.00	
Satd. Flow (perm)					5020		1151	3539			3433	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	107	548	23	210	939	0	0	171	43
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	19	0
Lane Group Flow (vph)	0	0	0	0	674	0	210	939	0	0	195	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					30.5		50.5	50.5			50.5	
Effective Green, g (s)					30.5		50.5	50.5			50.5	
Actuated g/C Ratio					0.34		0.56	0.56			0.56	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					1701		645	1985			1926	
v/s Ratio Prot								c0.27			0.06	
v/s Ratio Perm					0.13		0.18					
v/c Ratio					0.40		0.33	0.47			0.10	
Uniform Delay, d1					22.7		10.6	11.8			9.2	
Progression Factor					0.14		0.54	0.51			1.00	
Incremental Delay, d2					0.6		1.0	0.6			0.1	
Delay (s)					3.8		6.7	6.6			9.3	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			3.8			6.7			9.3	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

09/05/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	92	294	21	0	0	0	0	965	436	0	256	0
Future Volume (vph)	92	294	21	0	0	0	0	965	436	0	256	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.95			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3472						3374			3539	
Flt Permitted		0.99						1.00			1.00	
Satd. Flow (perm)		3472						3374			3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	320	23	0	0	0	0	1049	474	0	278	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	438	0	0	0	0	0	1523	0	0	278	0
Turn Type	Perm	NA						NA			NA	
Protected Phases		4						2			6	
Permitted Phases	4											
Actuated Green, G (s)		19.5						61.5			61.5	
Effective Green, g (s)		19.5						61.5			61.5	
Actuated g/C Ratio		0.22						0.68			0.68	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		752						2305			2418	
v/s Ratio Prot								c0.45			0.08	
v/s Ratio Perm		0.13										
v/c Ratio		0.58						0.66			0.11	
Uniform Delay, d1		31.6						8.2			4.9	
Progression Factor		1.00						0.65			1.58	
Incremental Delay, d2		3.3						1.1			0.1	
Delay (s)		34.9						6.4			7.8	
Level of Service		C						A			A	
Approach Delay (s)		34.9			0.0			6.4			7.8	
Approach LOS		C			A			A			A	


























Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	59.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	126	707	116	74	422	249	152	1135	75	88	407	166
Future Volume (vph)	126	707	116	74	422	249	152	1135	75	88	407	166
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3506		1770	3539	1583
Flt Permitted	0.25	1.00		0.16	1.00		0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	459	3464		304	3342		892	3506		217	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	137	768	126	80	459	271	165	1234	82	96	442	180
RTOR Reduction (vph)	0	15	0	0	32	0	0	6	0	0	0	83
Lane Group Flow (vph)	137	879	0	80	698	0	165	1310	0	96	442	97
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	165	1250		109	1206		480	1889		116	1907	853
v/s Ratio Prot		0.25			0.21			0.37			0.12	
v/s Ratio Perm	c0.30			0.26			0.18			c0.44		0.06
v/c Ratio	0.83	0.70		0.73	0.58		0.34	0.69		0.83	0.23	0.11
Uniform Delay, d1	26.2	24.6		25.0	23.2		11.7	15.3		17.3	10.9	10.2
Progression Factor	1.00	1.00		0.71	0.67		0.50	0.44		1.07	0.71	0.21
Incremental Delay, d2	36.2	3.3		34.5	2.0		1.5	1.6		46.5	0.3	0.3
Delay (s)	62.4	28.0		52.2	17.5		7.4	8.3		65.1	8.1	2.4
Level of Service	E	C		D	B		A	A		E	A	A
Approach Delay (s)		32.5			20.9			8.2			14.3	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			18.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.82									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			81.0%				ICU Level of Service			D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

3/2/2017

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	114	843	129	96	493	241	140	1055	86	87	470	179	
Future Volume (vph)	114	843	129	96	493	241	140	1055	86	87	470	179	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95		
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3393		
Flt Permitted	0.39	1.00		0.14	1.00	1.00	0.31	1.00		0.11	1.00		
Satd. Flow (perm)	728	3469		255	3539	1583	586	3499		204	3393		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	124	916	140	104	536	262	152	1147	93	95	511	195	
RTOR Reduction (vph)	0	13	0	0	0	25	0	7	0	0	44	0	
Lane Group Flow (vph)	124	1043	0	104	536	237	152	1233	0	95	662	0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)	37.9	37.9		37.9	37.9	37.9	43.1	43.1		43.1	43.1		
Effective Green, g (s)	37.9	37.9		37.9	37.9	37.9	43.1	43.1		43.1	43.1		
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48		
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5		
Lane Grp Cap (vph)	306	1460		107	1490	666	280	1675		97	1624		
v/s Ratio Prot		0.30			0.15			0.35			0.20		
v/s Ratio Perm	0.17			c0.41		0.15	0.26			c0.47			
v/c Ratio	0.41	0.71		0.97	0.36	0.36	0.54	0.74		0.98	0.41		
Uniform Delay, d1	18.2	21.6		25.5	17.8	17.7	16.5	18.9		23.0	15.2		
Progression Factor	1.00	1.00		0.53	0.42	0.32	1.00	1.00		0.82	0.79		
Incremental Delay, d2	3.9	3.0		74.7	0.6	1.3	7.4	2.9		84.4	0.7		
Delay (s)	22.1	24.6		88.3	8.0	7.0	23.9	21.8		103.2	12.7		
Level of Service	C	C		F	A	A	C	C		F	B		
Approach Delay (s)		24.3			17.0			22.0			23.4		
Approach LOS		C			B			C			C		
Intersection Summary													
HCM 2000 Control Delay			21.9									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.97										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			84.5%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis























25: Judge John Aiso St & E Temple St

3/2/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘↘	↗
Traffic Volume (vph)	761	107	98	472	314	285
Future Volume (vph)	761	107	98	472	314	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.24	1.00	0.95	1.00
Satd. Flow (perm)	3474		454	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	827	116	107	513	341	310
RTOR Reduction (vph)	12	0	0	0	0	110
Lane Group Flow (vph)	931	0	107	513	341	200
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	51.5		51.5	51.5	29.5	29.5
Effective Green, g (s)	51.5		51.5	51.5	29.5	29.5
Actuated g/C Ratio	0.57		0.57	0.57	0.33	0.33
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1987		259	2025	1125	518
v/s Ratio Prot	c0.27			0.14	0.10	
v/s Ratio Perm			0.24			c0.13
v/c Ratio	0.47		0.41	0.25	0.30	0.39
Uniform Delay, d1	11.2		10.8	9.6	22.6	23.3
Progression Factor	0.27		0.95	0.94	0.63	0.37
Incremental Delay, d2	0.5		4.6	0.3	0.5	1.7
Delay (s)	3.5		14.8	9.3	14.8	10.3
Level of Service	A		B	A	B	B
Approach Delay (s)	3.5			10.3	12.7	
Approach LOS	A			B	B	
Intersection Summary						
HCM 2000 Control Delay			8.1		HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.44			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	9.0
Intersection Capacity Utilization			50.1%		ICU Level of Service	A
Analysis Period (min)			15			
c Critical Lane Group						

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St



























3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	87	824	131	70	584	82	187	433	143	33	193	65
Future Volume (vph)	87	824	131	70	584	82	187	433	143	33	193	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3467		1770	3474			3398			3401	
Flt Permitted	0.30	1.00		0.17	1.00			0.76			0.82	
Satd. Flow (perm)	565	3467		318	3474			2612			2803	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	95	896	142	76	635	89	203	471	155	36	210	71
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	30	0
Lane Group Flow (vph)	95	1024	0	76	712	0	0	807	0	0	287	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.5	42.5		42.5	42.5			38.5			38.5	
Effective Green, g (s)	42.5	42.5		42.5	42.5			38.5			38.5	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.43			0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	266	1637		150	1640			1117			1199	
v/s Ratio Prot		c0.30			0.20							
v/s Ratio Perm	0.17			0.24				c0.31			0.10	
v/c Ratio	0.36	0.63		0.51	0.43			0.72			0.24	
Uniform Delay, d1	15.1	17.8		16.5	15.8			21.3			16.4	
Progression Factor	0.38	0.35		1.09	1.09			1.00			0.40	
Incremental Delay, d2	2.5	1.2		11.2	0.8			4.1			0.5	
Delay (s)	8.3	7.5		29.1	18.0			25.4			7.0	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.6			19.1			25.4			7.0	
Approach LOS		A			B			C			A	
Intersection Summary												
HCM 2000 Control Delay			15.3					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			76.5%					ICU Level of Service		D		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	445	665	309	160	621	37	234	571	83	39	567	384
Future Volume (vph)	445	665	309	160	621	37	234	571	83	39	567	384
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Flt	1.00	0.96		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3229		1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.60		0.23	1.00		0.27	1.00	1.00	0.29	1.00	1.00
Satd. Flow (perm)	273	1957		432	3510		501	3539	1583	536	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	484	723	336	174	675	40	254	621	90	42	616	417
RTOR Reduction (vph)	0	46	0	0	5	0	0	0	53	0	0	38
Lane Group Flow (vph)	382	1115	0	174	710	0	254	621	37	42	616	379
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.3	44.3		25.8	20.3		36.7	36.7	36.7	23.7	23.7	43.2
Effective Green, g (s)	44.3	44.3		25.8	20.3		36.7	36.7	36.7	23.7	23.7	43.2
Actuated g/C Ratio	0.49	0.49		0.29	0.23		0.41	0.41	0.41	0.26	0.26	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	424	1238		205	791		324	1443	645	141	931	759
v/s Ratio Prot	c0.20	c0.20		0.05	0.20		c0.07	0.18			0.17	0.11
v/s Ratio Perm	c0.25	0.25		0.19			c0.25		0.02	0.08		0.13
v/c Ratio	0.90	0.90		0.85	0.90		0.78	0.43	0.06	0.30	0.66	0.50
Uniform Delay, d1	22.8	20.8		26.0	33.8		29.4	19.1	16.2	26.5	29.6	16.0
Progression Factor	0.95	0.49		1.00	1.00		0.73	0.65	0.49	1.00	1.00	1.00
Incremental Delay, d2	15.6	6.3		26.4	12.9		6.2	0.5	0.1	5.3	3.7	0.5
Delay (s)	37.2	16.6		52.4	46.7		27.6	12.9	8.1	31.8	33.3	16.5
Level of Service	D	B		D	D		C	B	A	C	C	B
Approach Delay (s)		21.7			47.8			16.3			26.7	
Approach LOS		C			D			B			C	

Intersection Summary






















HCM 2000 Control Delay	26.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.4%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	492	414	11	6	249	167	17	319	4	97	135	211
Future Volume (vph)	492	414	11	6	249	167	17	319	4	97	135	211
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Flt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1855		1770	1750		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.61	1.00		0.23	1.00	1.00
Satd. Flow (perm)	1770	1855		1770	1750		1139	1860		425	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	535	450	12	7	271	182	18	347	4	105	147	229
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	176
Lane Group Flow (vph)	535	461	0	7	426	0	18	350	0	105	147	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	32.4	54.6		1.0	23.2		20.9	20.9		20.9	20.9	20.9
Effective Green, g (s)	32.4	54.6		1.0	23.2		20.9	20.9		20.9	20.9	20.9
Actuated g/C Ratio	0.36	0.61		0.01	0.26		0.23	0.23		0.23	0.23	0.23
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	637	1125		19	451		264	431		98	432	367
v/s Ratio Prot	c0.30	0.25		0.00	c0.24			0.19				0.08
v/s Ratio Perm							0.02			c0.25		0.03
v/c Ratio	0.84	0.41		0.37	0.95		0.07	0.81		1.07	0.34	0.14
Uniform Delay, d1	26.4	9.3		44.2	32.8		27.0	32.7		34.5	28.8	27.5
Progression Factor	0.73	0.27		1.00	1.00		1.00	1.00		0.82	0.87	1.10
Incremental Delay, d2	8.0	0.2		11.7	28.7		0.5	15.3		92.6	1.4	0.5
Delay (s)	27.3	2.7		55.9	61.5		27.5	48.0		120.8	26.4	30.7
Level of Service	C	A		E	E		C	D		F	C	C
Approach Delay (s)		15.9			61.4			47.0			49.1	
Approach LOS		B			E			D			D	

Intersection Summary

HCM 2000 Control Delay	36.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

3/2/2017

	→	↘	↙	←	↖	↗
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	738	213	108	480	260	279
Future Volume (vph)	738	213	108	480	260	279
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.22	1.00	0.95	1.00
Satd. Flow (perm)	3420		419	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	802	232	117	522	283	303
RTOR Reduction (vph)	30	0	0	0	0	143
Lane Group Flow (vph)	1004	0	117	522	283	160
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	55.5		55.5	55.5	25.5	25.5
Effective Green, g (s)	55.5		55.5	55.5	25.5	25.5
Actuated g/C Ratio	0.62		0.62	0.62	0.28	0.28
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2109		258	2182	501	448
v/s Ratio Prot	c0.29			0.15	c0.16	
v/s Ratio Perm			0.28			0.10
v/c Ratio	0.48		0.45	0.24	0.56	0.36
Uniform Delay, d1	9.4		9.2	7.8	27.5	25.7
Progression Factor	0.29		1.28	0.62	1.00	1.00
Incremental Delay, d2	0.6		5.5	0.3	4.6	2.2
Delay (s)	3.3		17.3	5.1	32.1	27.9
Level of Service	A		B	A	C	C
Approach Delay (s)	3.3			7.3	29.9	
Approach LOS	A			A	C	






















Intersection Summary

HCM 2000 Control Delay	11.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

3/2/2017

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	15	5	19	213	15	106	25	914	61	20	380	13
Future Volume (vph)	15	5	19	213	15	106	25	914	61	20	380	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Flt		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1705		1770	1617		1770	3539	1583	1770	3522	
Flt Permitted		0.89		0.73	1.00		0.50	1.00	1.00	0.25	1.00	
Satd. Flow (perm)		1548		1359	1617		937	3539	1583	469	3522	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	5	21	232	16	115	27	993	66	22	413	14
RTOR Reduction (vph)	0	16	0	0	65	0	0	0	22	0	2	0
Lane Group Flow (vph)	0	26	0	232	66	0	27	993	44	22	425	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.8		20.8	20.8		60.2	60.2	60.2	60.2	60.2	
Effective Green, g (s)		20.8		20.8	20.8		60.2	60.2	60.2	60.2	60.2	
Actuated g/C Ratio		0.23		0.23	0.23		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		357		314	373		626	2367	1058	313	2355	
v/s Ratio Prot					0.04			c0.28				0.12
v/s Ratio Perm		0.02		c0.17			0.03		0.03	0.05		
v/c Ratio		0.07		0.74	0.18		0.04	0.42	0.04	0.07	0.18	
Uniform Delay, d1		27.1		32.1	27.7		5.1	6.9	5.1	5.2	5.6	
Progression Factor		1.00		1.00	1.00		2.60	2.91	5.77	1.00	1.00	
Incremental Delay, d2		0.1		8.8	0.2		0.1	0.4	0.1	0.4	0.2	
Delay (s)		27.1		40.9	28.0		13.3	20.3	29.4	5.6	5.8	
Level of Service		C		D	C		B	C	C	A	A	
Approach Delay (s)		27.1			36.2			20.7			5.8	
Approach LOS		C			D			C			A	

Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 31: Center St/Ramirez St & Keller St

09/05/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	20	17	835	214	13	539	
Future Volume (Veh/h)	20	17	835	214	13	539	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	22	18	908	233	14	586	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	549						
pX, platoon unblocked							
vC, conflicting volume	1346	570			1141		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1346	570			1141		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	84	96			98		
cM capacity (veh/h)	139	464			608		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	18	605	536	14	293	293
Volume Left	22	0	0	0	14	0	0
Volume Right	0	18	0	233	0	0	0
cSH	139	464	1700	1700	608	1700	1700
Volume to Capacity	0.16	0.04	0.36	0.32	0.02	0.17	0.17
Queue Length 95th (ft)	14	3	0	0	2	0	0
Control Delay (s)	35.6	13.1	0.0	0.0	11.1	0.0	0.0
Lane LOS	E	B			B		
Approach Delay (s)	25.5		0.0		0.3		
Approach LOS	D						
Intersection Summary							
Average Delay			0.7				
Intersection Capacity Utilization			39.9%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

09/05/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1137	69	69	1063	125	112
Future Volume (vph)	1137	69	69	1063	125	112
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3509		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3509		257	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1236	75	75	1155	136	122
RTOR Reduction (vph)	8	0	0	0	0	32
Lane Group Flow (vph)	1303	0	75	1155	136	90
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	29.0		29.0	29.0	22.0	22.0
Effective Green, g (s)	29.0		29.0	29.0	22.0	22.0
Actuated g/C Ratio	0.48		0.48	0.48	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1696		124	1710	649	580
v/s Ratio Prot	c0.37			0.33	c0.08	
v/s Ratio Perm			0.29			0.06
v/c Ratio	0.77		0.60	0.68	0.21	0.15
Uniform Delay, d1	12.7		11.3	11.9	13.0	12.8
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1		8.1	1.1	0.7	0.6
Delay (s)	14.9		19.4	13.0	13.8	13.3
Level of Service	B		B	B	B	B
Approach Delay (s)	14.9			13.4	13.6	
Approach LOS	B			B	B	

Intersection Summary












HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

110: N Alameda St & LA Union Station

3/2/2017

						
Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations			 			 
Traffic Volume (veh/h)	42	43	900	0	0	983
Future Volume (Veh/h)	42	43	900	0	0	983
Sign Control	Stop		Free			Free
Grade	0%		0%			0%
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	46	47	978	0	0	1068
Pedestrians						
Lane Width (ft)						
Walking Speed (ft/s)						
Percent Blockage						
Right turn flare (veh)						
Median type			None			None
Median storage (veh)						
Upstream signal (ft)			304			386
pX, platoon unblocked	0.90	0.81			0.81	
vC, conflicting volume	1512	489			978	
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	415	0			492	
tC, single (s)	6.8	6.9			4.1	
tC, 2 stage (s)						
tF (s)	3.5	3.3			2.2	
p0 queue free %	91	95			100	
cM capacity (veh/h)	509	874			861	
Direction, Lane #	WB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	93	489	489	534	534	
Volume Left	46	0	0	0	0	
Volume Right	47	0	0	0	0	
cSH	645	1700	1700	1700	1700	
Volume to Capacity	0.14	0.29	0.29	0.31	0.31	
Queue Length 95th (ft)	13	0	0	0	0	
Control Delay (s)	11.5	0.0	0.0	0.0	0.0	
Lane LOS	B					
Approach Delay (s)	11.5	0.0		0.0		
Approach LOS	B					
Intersection Summary						
Average Delay			0.5			
Intersection Capacity Utilization			Err%	ICU Level of Service		H
Analysis Period (min)			15			

HCM Signalized Intersection Capacity Analysis

4: E Commercial St & Center St

12/13/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	199	107	130	427	469	222
Future Volume (vph)	199	107	130	427	469	222
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.95		1.00	1.00	0.96	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1719		1770	1863	1782	
Flt Permitted	0.97		0.25	1.00	1.00	
Satd. Flow (perm)	1719		467	1863	1782	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	216	116	141	464	510	241
RTOR Reduction (vph)	35	0	0	0	25	0
Lane Group Flow (vph)	297	0	141	464	726	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	14.6		36.4	36.4	36.4	
Effective Green, g (s)	14.6		36.4	36.4	36.4	
Actuated g/C Ratio	0.24		0.61	0.61	0.61	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	418		283	1130	1081	
v/s Ratio Prot	c0.17			0.25	c0.41	
v/s Ratio Perm			0.30			
v/c Ratio	0.71		0.50	0.41	0.67	
Uniform Delay, d1	20.8		6.7	6.2	7.8	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	5.6		6.1	1.1	3.3	
Delay (s)	26.4		12.8	7.3	11.2	
Level of Service	C		B	A	B	
Approach Delay (s)	26.4			8.6	11.2	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	74.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Center St & E Commercial St

12/13/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	252	81	149	779	313	235
Future Volume (vph)	252	81	149	779	313	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.97		1.00	1.00	0.94	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1736		1770	1863	1755	
Flt Permitted	0.96		0.35	1.00	1.00	
Satd. Flow (perm)	1736		644	1863	1755	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	88	162	847	340	255
RTOR Reduction (vph)	21	0	0	0	41	0
Lane Group Flow (vph)	341	0	162	847	554	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	15.5		35.5	35.5	35.5	
Effective Green, g (s)	15.5		35.5	35.5	35.5	
Actuated g/C Ratio	0.26		0.59	0.59	0.59	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	448		381	1102	1038	
v/s Ratio Prot	c0.20			c0.45	0.32	
v/s Ratio Perm			0.25			
v/c Ratio	0.76		0.43	0.77	0.53	
Uniform Delay, d1	20.5		6.7	9.2	7.3	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	7.5		3.4	5.2	2.0	
Delay (s)	28.0		10.1	14.3	9.3	
Level of Service	C		B	B	A	
Approach Delay (s)	28.0			13.7	9.3	
Approach LOS	C			B	A	












Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	69.2%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: E Commercial St & Center St

04/12/2018

						
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	203	109	133	435	478	226
Future Volume (vph)	203	109	133	435	478	226
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.95		1.00	1.00	0.96	
Flt Protected	0.97		0.95	1.00	1.00	
Satd. Flow (prot)	1719		1770	1863	1782	
Flt Permitted	0.97		0.24	1.00	1.00	
Satd. Flow (perm)	1719		445	1863	1782	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	221	118	145	473	520	246
RTOR Reduction (vph)	35	0	0	0	25	0
Lane Group Flow (vph)	304	0	145	473	741	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	14.8		36.2	36.2	36.2	
Effective Green, g (s)	14.8		36.2	36.2	36.2	
Actuated g/C Ratio	0.25		0.60	0.60	0.60	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	424		268	1124	1075	
v/s Ratio Prot	c0.18			0.25	c0.42	
v/s Ratio Perm			0.33			
v/c Ratio	0.72		0.54	0.42	0.69	
Uniform Delay, d1	20.7		7.0	6.3	8.1	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	5.7		7.6	1.2	3.6	
Delay (s)	26.4		14.6	7.5	11.7	
Level of Service	C		B	A	B	
Approach Delay (s)	26.4			9.2	11.7	
Approach LOS	C			A	B	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.5%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

4: Center St & E Commercial St

04/12/2018



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	256	83	152	793	319	240
Future Volume (vph)	256	83	152	793	319	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	1.00		1.00	1.00	1.00	
Frt	0.97		1.00	1.00	0.94	
Flt Protected	0.96		0.95	1.00	1.00	
Satd. Flow (prot)	1736		1770	1863	1755	
Flt Permitted	0.96		0.34	1.00	1.00	
Satd. Flow (perm)	1736		625	1863	1755	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	278	90	165	862	347	261
RTOR Reduction (vph)	21	0	0	0	41	0
Lane Group Flow (vph)	347	0	165	862	567	0
Turn Type	Prot		Perm	NA	NA	
Protected Phases	4			2	6	
Permitted Phases			2			
Actuated Green, G (s)	15.6		35.4	35.4	35.4	
Effective Green, g (s)	15.6		35.4	35.4	35.4	
Actuated g/C Ratio	0.26		0.59	0.59	0.59	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Vehicle Extension (s)	3.0		3.0	3.0	3.0	
Lane Grp Cap (vph)	451		368	1099	1035	
v/s Ratio Prot	c0.20			c0.46	0.32	
v/s Ratio Perm			0.26			
v/c Ratio	0.77		0.45	0.78	0.55	
Uniform Delay, d1	20.5		6.9	9.4	7.5	
Progression Factor	1.00		1.00	1.00	1.00	
Incremental Delay, d2	7.9		3.9	5.6	2.1	
Delay (s)	28.5		10.8	15.0	9.5	
Level of Service	C		B	B	A	
Approach Delay (s)	28.5			14.3	9.5	
Approach LOS	C			B	A	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group






























**Appendix M:
2031 plus Project Construction / Mitigation Intersection
Analysis Worksheets**

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HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 		 					 		 	   		
Traffic Volume (vph)	44	32	118	154	0	205	0	716	154	194	1211	0	
Future Volume (vph)	44	32	118	154	0	205	0	716	154	194	1211	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5		
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91		
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085		
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	48	35	128	167	0	223	0	778	167	211	1316	0	
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	101	0	0	0	
Lane Group Flow (vph)	48	35	15	167	0	223	0	778	66	211	1316	0	
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA		
Protected Phases	3	3		4		4		6	Perm	Prot	NA	2	
Permitted Phases			3						6				
Actuated Green, G (s)	10.3	10.3	10.3	21.3		21.3		26.8	26.8	13.6	44.9		
Effective Green, g (s)	10.3	10.3	10.3	21.3		21.3		26.8	26.8	13.6	44.9		
Actuated g/C Ratio	0.11	0.11	0.11	0.24		0.24		0.30	0.30	0.15	0.50		
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5		
Lane Grp Cap (vph)	392	213	181	418		374		1053	471	267	2536		
v/s Ratio Prot	0.01	c0.02		0.09		c0.14		c0.22		c0.12	0.26		
v/s Ratio Perm			0.01						0.04				
v/c Ratio	0.12	0.16	0.08	0.40		0.60		0.74	0.14	0.79	0.52		
Uniform Delay, d1	35.8	36.0	35.6	29.0		30.5		28.4	23.2	36.8	15.2		
Progression Factor	0.83	0.82	0.69	1.61		1.57		1.55	3.35	1.38	0.64		
Incremental Delay, d2	0.6	1.6	0.9	2.1		5.0		4.3	0.6	17.8	0.6		
Delay (s)	30.2	31.2	25.4	48.6		53.1		48.3	78.1	68.5	10.3		
Level of Service	C	C	C	D		D		D	E	E	B		
Approach Delay (s)		27.4			51.2			53.6			18.4		
Approach LOS		C			D			D			B		
Intersection Summary													
HCM 2000 Control Delay			34.0		HCM 2000 Level of Service				C				
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0				
Intersection Capacity Utilization			56.6%		ICU Level of Service				B				
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔	↔↔			↔↔			↔	↔
Traffic Volume (vph)	244	61	75	0	0	2	167	137	0	92	254	192
Future Volume (vph)	244	61	75	0	0	2	167	137	0	92	254	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			0.95			0.95			1.00	1.00
Frt	1.00	0.92			0.85			1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.97			0.99	1.00
Satd. Flow (prot)	3433	1708			3008			3445			1838	1583
Flt Permitted	0.95	1.00			1.00			0.97			0.99	1.00
Satd. Flow (perm)	3433	1708			3008			3445			1838	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	66	82	0	0	2	182	149	0	100	276	209
RTOR Reduction (vph)	0	40	0	0	1	0	0	0	0	0	0	128
Lane Group Flow (vph)	265	108	0	0	1	0	0	331	0	0	376	81
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	12.0	46.1			29.6			7.5			22.9	34.9
Effective Green, g (s)	12.0	46.1			29.6			7.5			22.9	34.9
Actuated g/C Ratio	0.13	0.51			0.33			0.08			0.25	0.39
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	457	874			989			287			467	693
v/s Ratio Prot	c0.08	c0.06			0.00			c0.10			c0.20	0.03
v/s Ratio Perm												0.02
v/c Ratio	0.58	0.12			0.00			1.24dl			0.81	0.12
Uniform Delay, d1	36.6	11.4			20.3			41.2			31.5	17.7
Progression Factor	1.39	0.21			1.00			1.00			1.00	1.00
Incremental Delay, d2	1.5	0.2			0.0			101.2			9.7	0.1
Delay (s)	52.3	2.7			20.3			142.4			41.2	17.7
Level of Service	D	A			C			F			D	B
Approach Delay (s)		34.5			20.3			142.4			32.8	
Approach LOS		C			C			F			C	

Intersection Summary

HCM 2000 Control Delay	60.6	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.6%	ICU Level of Service	A
Analysis Period (min)	15		

dl Defacto Left Lane. Recode with 1 though lane as a left lane.

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	166	152	25	355	41	260	722	0	30	864	442
Future Volume (vph)	106	166	152	25	355	41	260	722	0	30	864	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3285		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.24	1.00		0.54	1.00		0.22	1.00		0.95	1.00	1.00
Satd. Flow (perm)	441	3285		1014	3484		406	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	180	165	27	386	45	283	785	0	33	939	480
RTOR Reduction (vph)	0	118	0	0	0	0	0	0	0	0	0	191
Lane Group Flow (vph)	115	227	0	27	431	0	283	785	0	33	939	289
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	33.7	33.7
Effective Green, g (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	33.7	33.7
Actuated g/C Ratio	0.28	0.28		0.18	0.18		0.52	0.52		0.04	0.37	0.37
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	201	930		178	611		475	1856		74	1325	592
v/s Ratio Prot	c0.03	0.07			c0.12		c0.11	0.22		0.02	c0.27	
v/s Ratio Perm	0.13			0.03			0.20					0.18
v/c Ratio	0.57	0.24		0.15	0.71		0.60	0.42		0.45	0.71	0.49
Uniform Delay, d1	25.4	24.8		31.4	34.9		21.8	13.1		42.1	24.0	21.6
Progression Factor	0.76	0.62		1.00	1.00		0.50	0.31		1.42	0.44	0.16
Incremental Delay, d2	3.8	0.1		0.4	3.7		1.7	0.6		3.7	2.8	2.5
Delay (s)	23.3	15.4		31.8	38.6		12.7	4.6		63.4	13.5	6.0
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		17.4			38.2			6.8			12.1	
Approach LOS		B			D			A			B	


















Intersection Summary

HCM 2000 Control Delay	14.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	25	64	7	104	3	363	153	11	6	47	62
Future Volume (vph)	50	25	64	7	104	3	363	153	11	6	47	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	27	70	8	113	3	395	166	12	7	51	67
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	81	70	124	573	125							
Volume Left (vph)	54	0	8	395	7							
Volume Right (vph)	0	70	3	12	67							
Hadj (s)	0.37	-0.67	0.03	0.16	-0.28							
Departure Headway (s)	7.0	5.9	6.2	5.1	5.3							
Degree Utilization, x	0.16	0.12	0.21	0.81	0.19							
Capacity (veh/h)	476	556	530	692	614							
Control Delay (s)	10.1	8.5	10.9	26.3	9.6							
Approach Delay (s)	9.4		10.9	26.3	9.6							
Approach LOS	A		B	D	A							
Intersection Summary												
Delay			19.6									
Level of Service			C									
Intersection Capacity Utilization			53.6%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗			↖	↗	↖	↗	↗	↖	↗	↗
Traffic Volume (vph)	0	0	0	0	528	27	2	955	94	13	859	168
Future Volume (vph)	0	0	0	0	528	27	2	955	94	13	859	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted					1.00	1.00	0.24	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)					3539	1583	448	3539	1583	379	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	29	2	1038	102	14	934	183
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	46	0	0	25
Lane Group Flow (vph)	0	0	0	0	574	29	2	1038	56	14	934	158
Turn Type	pm+pt				NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Effective Green, g (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Actuated g/C Ratio					0.23	0.23	0.55	0.55	0.55	0.55	0.55	0.62
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)					825	369	247	1954	874	209	1954	1055
v/s Ratio Prot					c0.16			c0.29			0.26	c0.01
v/s Ratio Perm						0.02	0.00		0.04	0.04		0.09
v/c Ratio					0.70	0.08	0.01	0.53	0.06	0.07	0.48	0.15
Uniform Delay, d1					31.6	26.9	9.1	12.8	9.4	9.4	12.3	7.3
Progression Factor					1.63	1.69	1.00	1.00	1.00	0.42	0.32	0.10
Incremental Delay, d2					1.6	0.1	0.1	1.0	0.1	0.5	0.7	0.1
Delay (s)					53.0	45.7	9.1	13.8	9.5	4.5	4.6	0.8
Level of Service					D	D	A	B	A	A	A	A
Approach Delay (s)		0.0			52.6			13.4			4.0	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	92	117	10	184	531	406	4	19	27	27	33	20
Future Volume (vph)	92	117	10	184	531	406	4	19	27	27	33	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.95			0.93			0.97	
Flt Protected		0.98	1.00		0.99			1.00			0.98	
Satd. Flow (prot)		3463	1583		3320			1721			1770	
Flt Permitted		0.98	1.00		0.99			0.98			0.90	
Satd. Flow (perm)		3463	1583		3320			1701			1620	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	100	127	11	200	577	441	4	21	29	29	36	22
RTOR Reduction (vph)	0	0	8	0	95	0	0	23	0	0	14	0
Lane Group Flow (vph)	0	227	3	0	1123	0	0	31	0	0	73	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8			4	4
Permitted Phases			2				8			4		
Actuated Green, G (s)		22.4	22.4		36.0			18.1			18.1	
Effective Green, g (s)		22.4	22.4		36.0			18.1			18.1	
Actuated g/C Ratio		0.25	0.25		0.40			0.20			0.20	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		861	393		1328			342			325	
v/s Ratio Prot		c0.07			c0.34							
v/s Ratio Perm			0.00					0.02			c0.05	
v/c Ratio		0.26	0.01		0.85			0.09			0.23	
Uniform Delay, d1		27.2	25.4		24.5			29.3			30.1	
Progression Factor		1.07	1.00		0.70			1.00			1.00	
Incremental Delay, d2		0.7	0.0		2.9			0.5			1.6	
Delay (s)		29.8	25.5		20.1			29.8			31.7	
Level of Service		C	C		C			C			C	
Approach Delay (s)		29.6			20.1			29.8			31.7	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	C
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	61.3%	13.5
Analysis Period (min)	15	ICU Level of Service
		B

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↖ ↗	↖ ↗ ↘ ↙		↖ ↗	↖ ↗ ↘			↖ ↗ ↘		
Traffic Volume (vph)	0	0	0	480	1755	229	115	851	0	0	925	55	
Future Volume (vph)	0	0	0	480	1755	229	115	851	0	0	925	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91		
Frt				1.00	0.98		1.00	1.00			0.99		
Flt Protected				0.95	1.00		0.95	1.00			1.00		
Satd. Flow (prot)				1522	4719		1770	5085			5042		
Flt Permitted				0.95	1.00		0.18	1.00			1.00		
Satd. Flow (perm)				1522	4719		343	5085			5042		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	522	1908	249	125	925	0	0	1005	60	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0	
Lane Group Flow (vph)	0	0	0	470	2209	0	125	925	0	0	1062	0	
Turn Type				Prot	NA		Perm	NA			NA		
Protected Phases				3	8			2			6		
Permitted Phases							2						
Actuated Green, G (s)				44.5	44.5		36.5	36.5			36.5		
Effective Green, g (s)				44.5	44.5		36.5	36.5			36.5		
Actuated g/C Ratio				0.49	0.49		0.41	0.41			0.41		
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)				752	2333		139	2062			2044		
v/s Ratio Prot				0.31	c0.47			0.18			0.21		
v/s Ratio Perm							c0.36						
v/c Ratio				0.62	0.95		0.90	0.45			0.52		
Uniform Delay, d1				16.6	21.6		25.0	19.4			20.1		
Progression Factor				1.00	1.00		0.81	0.67			0.19		
Incremental Delay, d2				3.9	9.8		43.0	0.5			0.9		
Delay (s)				20.5	31.4		63.4	13.6			4.7		
Level of Service				C	C		E	B			A		
Approach Delay (s)		0.0			29.5			19.5			4.7		
Approach LOS		A			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			21.8		HCM 2000 Level of Service						C		
HCM 2000 Volume to Capacity ratio			0.93										
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0		
Intersection Capacity Utilization			73.3%		ICU Level of Service						D		
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔						↑↑↑		↔	↑↑↑	
Traffic Volume (vph)	119	53	18	0	0	0	0	537	113	64	1168	0
Future Volume (vph)	119	53	18	0	0	0	0	537	113	64	1168	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.98						0.97		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3246						4953		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.33	1.00	
Satd. Flow (perm)	1610	3246						4953		620	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	58	20	0	0	0	0	584	123	70	1270	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	36	0	0	0	0
Lane Group Flow (vph)	68	125	0	0	0	0	0	671	0	70	1270	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	25.5	25.5						37.5		55.5	55.5	
Effective Green, g (s)	25.5	25.5						37.5		55.5	55.5	
Actuated g/C Ratio	0.28	0.28						0.42		0.62	0.62	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	456	919						2063		554	3135	
v/s Ratio Prot	c0.04	0.04						0.14		0.02	c0.25	
v/s Ratio Perm										0.06		
v/c Ratio	0.15	0.14						0.33		0.13	0.41	
Uniform Delay, d1	24.1	24.0						17.7		9.3	8.8	
Progression Factor	1.00	1.00						1.57		0.25	0.26	
Incremental Delay, d2	0.7	0.3						0.4		0.5	0.4	
Delay (s)	24.8	24.3						28.1		2.8	2.7	
Level of Service	C	C						C		A	A	
Approach Delay (s)		24.5			0.0			28.1			2.7	
Approach LOS		C			A			C			A	

Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Traffic Volume (vph)	49	499	99	122	1239	46	123	445	129	76	1247	157
Future Volume (vph)	49	499	99	122	1239	46	123	445	129	76	1247	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5058		1770	4914		1770	5000	
Flt Permitted	0.14	1.00	1.00	0.29	1.00		0.16	1.00		0.26	1.00	
Satd. Flow (perm)	266	3539	1583	544	5058		307	4914		491	5000	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	542	108	133	1347	50	134	484	140	83	1355	171
RTOR Reduction (vph)	0	0	65	0	5	0	0	58	0	0	18	0
Lane Group Flow (vph)	53	542	43	133	1392	0	134	566	0	83	1508	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.5	28.5	36.0	38.5	38.5		31.8	31.8		30.5	30.5	
Effective Green, g (s)	28.5	28.5	36.0	38.5	38.5		31.8	31.8		30.5	30.5	
Actuated g/C Ratio	0.32	0.32	0.40	0.43	0.43		0.35	0.35		0.34	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	84	1120	633	307	2163		230	1736		254	1694	
v/s Ratio Prot		0.15	0.01	0.03	c0.28		c0.05	0.12		0.02	c0.30	
v/s Ratio Perm	0.20		0.02	0.16			0.16			0.09		
v/c Ratio	0.63	0.48	0.07	0.43	0.64		0.58	0.33		0.33	0.89	
Uniform Delay, d1	26.3	24.8	16.7	16.8	20.3		32.4	21.3		21.1	28.2	
Progression Factor	0.87	0.84	0.72	1.00	1.00		0.61	0.24		0.54	0.69	
Incremental Delay, d2	30.4	1.5	0.2	4.4	1.5		10.3	0.5		3.2	7.0	
Delay (s)	53.2	22.3	12.3	21.2	21.8		30.0	5.7		14.6	26.5	
Level of Service	D	C	B	C	C		C	A		B	C	
Approach Delay (s)		23.1			21.8			10.0			25.8	
Approach LOS		C			C			A			C	

Intersection Summary

HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	78.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	116	63	60	753	147	58	265	12	145	988	244
Future Volume (vph)	56	116	63	60	753	147	58	265	12	145	988	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3353		1770	3539	1583	1770	3539	1583	1770	4934	
Flt Permitted	0.18	1.00		0.63	1.00	1.00	0.15	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	331	3353		1173	3539	1583	282	3539	1583	1072	4934	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	126	68	65	818	160	63	288	13	158	1074	265
RTOR Reduction (vph)	0	51	0	0	0	68	0	0	6	0	32	0
Lane Group Flow (vph)	61	143	0	65	818	92	63	288	7	158	1307	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	22.5	22.5		31.2	31.2	31.2	49.8	49.8	49.8	49.8	49.8	
Effective Green, g (s)	22.5	22.5		31.2	31.2	31.2	49.8	49.8	49.8	49.8	49.8	
Actuated g/C Ratio	0.25	0.25		0.35	0.35	0.35	0.55	0.55	0.55	0.55	0.55	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	838		434	1226	548	156	1958	875	593	2730	
v/s Ratio Prot		0.04		0.01	c0.23			0.08			c0.26	
v/s Ratio Perm	c0.18			0.04		0.06	0.22		0.00	0.15		
v/c Ratio	0.74	0.17		0.15	0.67	0.17	0.40	0.15	0.01	0.27	0.48	
Uniform Delay, d1	31.1	26.4		20.3	25.0	20.4	11.6	9.8	9.0	10.5	12.2	
Progression Factor	1.00	1.00		0.87	0.94	0.78	0.68	0.48	1.00	0.32	0.29	
Incremental Delay, d2	30.1	0.1		0.1	1.0	0.1	7.5	0.2	0.0	1.0	0.5	
Delay (s)	61.2	26.5		17.9	24.4	16.1	15.3	4.9	9.0	4.3	4.1	
Level of Service	E	C		B	C	B	B	A	A	A	A	
Approach Delay (s)		34.8			22.8			6.8			4.1	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: N Vignes St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗	↘	↑↑	↗
Traffic Volume (vph)	52	444	199	253	1262	412	159	411	59	150	363	30
Future Volume (vph)	52	444	199	253	1262	412	159	411	59	150	363	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3498	3498
Flt Permitted	0.11	1.00	1.00	0.37	1.00	1.00	0.55	1.00	1.00	0.55	1.00	1.00
Satd. Flow (perm)	209	3539	1583	690	3539	1583	1021	3539	1583	1021	3498	3498
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	483	216	275	1372	448	173	447	64	163	395	33
RTOR Reduction (vph)	0	0	130	0	0	212	0	0	52	0	7	0
Lane Group Flow (vph)	57	483	86	275	1372	236	173	447	12	163	421	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	40.0	35.7	35.7	51.8	43.0	43.0	16.2	16.2	16.2	15.8	15.8	15.8
Effective Green, g (s)	40.0	35.7	35.7	51.8	43.0	43.0	16.2	16.2	16.2	15.8	15.8	15.8
Actuated g/C Ratio	0.44	0.40	0.40	0.58	0.48	0.48	0.18	0.18	0.18	0.18	0.18	0.18
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	167	1403	627	536	1690	756	257	637	284	249	614	614
v/s Ratio Prot	0.02	0.14		c0.07	c0.39		0.07	c0.13		0.06	c0.12	
v/s Ratio Perm	0.14		0.05	0.23		0.15	0.05		0.01	0.05		
v/c Ratio	0.34	0.34	0.14	0.51	0.81	0.31	0.67	0.70	0.04	0.65	0.68	0.68
Uniform Delay, d1	16.8	19.0	17.3	10.2	20.0	14.4	34.2	34.6	30.5	33.8	34.8	34.8
Progression Factor	1.00	1.00	1.00	0.83	0.64	0.19	0.88	0.88	1.00	0.63	0.64	0.64
Incremental Delay, d2	1.2	0.7	0.5	0.1	0.4	0.1	6.5	3.4	0.1	6.0	3.1	3.1
Delay (s)	18.0	19.6	17.8	8.5	13.2	2.8	36.6	33.9	30.5	27.2	25.4	25.4
Level of Service	B	B	B	A	B	A	D	C	C	C	C	C
Approach Delay (s)		19.0			10.4			34.2			25.9	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	18.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	68	70	106	128	338	35	214	317	432	150	234
Future Volume (vph)	115	68	70	106	128	338	35	214	317	432	150	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3154		1770	1863	1583	3433	3539	1583	3433	3216	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1133	2739		1770	1863	1583	3433	3539	1583	3433	3216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	74	76	115	139	367	38	233	345	470	163	254
RTOR Reduction (vph)	0	66	0	0	0	260	0	0	226	0	121	0
Lane Group Flow (vph)	85	124	0	115	139	107	38	233	119	470	296	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.3	12.3		9.4	26.2	26.2	3.3	31.1	31.1	19.2	47.0	
Effective Green, g (s)	12.3	12.3		9.4	26.2	26.2	3.3	31.1	31.1	19.2	47.0	
Actuated g/C Ratio	0.14	0.14		0.10	0.29	0.29	0.04	0.35	0.35	0.21	0.52	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	154	374		184	542	460	125	1222	547	732	1679	
v/s Ratio Prot				c0.06	0.07		0.01	0.07		c0.14	0.09	
v/s Ratio Perm	c0.08	0.05				0.07			c0.08			
v/c Ratio	0.55	0.33		0.62	0.26	0.23	0.30	0.19	0.22	0.64	0.18	
Uniform Delay, d1	36.3	35.1		38.6	24.4	24.3	42.2	20.6	20.8	32.3	11.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.47	
Incremental Delay, d2	4.2	0.5		6.5	0.3	0.3	1.4	0.3	0.9	1.7	0.2	
Delay (s)	40.5	35.7		45.1	24.7	24.5	43.6	21.0	21.8	24.3	5.5	
Level of Service	D	D		D	C	C	D	C	C	C	A	
Approach Delay (s)		37.2			28.4			22.8			15.5	
Approach LOS		D			C			C			B	

























Intersection Summary

HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Main St & Alpine St/N Vignes St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	61	200	5	0	411	277	1	232	42	228	538	548
Future Volume (vph)	61	200	5	0	411	277	1	232	42	228	538	548
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.94		1.00	0.98		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3527			3326		1770	3457		1770	3271	
Flt Permitted	0.95	1.00			1.00		0.15	1.00		0.57	1.00	
Satd. Flow (perm)	1770	3527			3326		285	3457		1061	3271	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	217	5	0	447	301	1	252	46	248	585	596
RTOR Reduction (vph)	0	3	0	0	134	0	0	12	0	0	156	0
Lane Group Flow (vph)	66	219	0	0	614	0	1	286	0	248	1025	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.6	32.6			20.5		48.4	48.4		48.4	48.4	
Effective Green, g (s)	7.6	32.6			20.5		48.4	48.4		48.4	48.4	
Actuated g/C Ratio	0.08	0.36			0.23		0.54	0.54		0.54	0.54	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	1277			757		153	1859		570	1759	
v/s Ratio Prot	c0.04	0.06			c0.18			0.08			c0.31	
v/s Ratio Perm							0.00			0.23		
v/c Ratio	0.44	0.17			0.81		0.01	0.15		0.44	0.58	
Uniform Delay, d1	39.2	19.5			32.9		9.6	10.5		12.6	14.0	
Progression Factor	1.27	1.34			1.21		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.1			6.5		0.1	0.2		2.4	1.4	
Delay (s)	52.0	26.1			46.4		9.7	10.7		15.0	15.4	
Level of Service	D	C			D		A	B		B	B	
Approach Delay (s)		32.1			46.4			10.7			15.3	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			25.0				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.63									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			76.1%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	81	69	167	29	153	10	190	265	12	23	1180	154
Future Volume (vph)	81	69	167	29	153	10	190	265	12	23	1180	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1845		1770	3516		1770	4997	
Flt Permitted	0.47	1.00	1.00	0.71	1.00		0.12	1.00		0.57	1.00	
Satd. Flow (perm)	871	1863	1583	1319	1845		229	3516		1058	4997	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	75	182	32	166	11	207	288	13	25	1283	167
RTOR Reduction (vph)	0	0	154	0	3	0	0	3	0	0	13	0
Lane Group Flow (vph)	88	75	28	32	174	0	207	298	0	25	1437	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Effective Green, g (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.75	0.75		0.58	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	285	242	202	282		352	2625		612	2892	
v/s Ratio Prot		0.04			0.09		c0.07	0.08			0.29	
v/s Ratio Perm	c0.10		0.02	0.02			c0.37			0.02		
v/c Ratio	0.66	0.26	0.12	0.16	0.62		0.59	0.11		0.04	0.50	
Uniform Delay, d1	35.9	33.6	32.8	33.1	35.6		7.3	3.2		8.2	11.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.74	0.49		1.00	1.00	
Incremental Delay, d2	11.7	0.5	0.2	0.4	4.0		2.5	0.1		0.1	0.6	
Delay (s)	47.6	34.1	33.1	33.4	39.6		15.1	1.6		8.3	11.8	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		37.0			38.7			7.1			11.8	
Approach LOS		D			D			A			B	

Intersection Summary




















HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	64	0	0	0	57	371	296	0	1418	229
Future Volume (Veh/h)	0	0	64	0	0	0	57	371	296	0	1418	229
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	70	0	0	0	62	403	322	0	1541	249
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type												
								None			None	
Median storage (veh)												
Upstream signal (ft)												
								206			797	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90	0.99	0.90			0.99		
vC, conflicting volume	1991	2192	638	1111	2317	202	1790			403		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1680	1904	193	701	2042	187	1477			390		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	90	100	100	100	85			100		
cM capacity (veh/h)	49	52	732	234	42	819	405			1159		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3			
Volume Total	70	0	62	202	202	322	616	616	557			
Volume Left	0	0	62	0	0	0	0	0	0			
Volume Right	70	0	0	0	0	322	0	0	249			
cSH	732	1700	405	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.10	0.00	0.15	0.12	0.12	0.19	0.36	0.36	0.33			
Queue Length 95th (ft)	8	0	13	0	0	0	0	0	0			
Control Delay (s)	10.4	0.0	15.5	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	B	A	C									
Approach Delay (s)	10.4	0.0	1.2				0.0					
Approach LOS	B	A										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			43.1%			ICU Level of Service				A		
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↖		↖		↖		↖↗↘		↖	↖↗↘	
Traffic Volume (vph)	222	37	15	20	0	11	0	491	49	37	1445	0
Future Volume (vph)	222	37	15	20	0	11	0	491	49	37	1445	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.96		1.00		0.85		0.99		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1783		1770		1583		5016		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.42	1.00	
Satd. Flow (perm)	3433	1783		1770		1583		5016		782	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	241	40	16	22	0	12	0	534	53	40	1571	0
RTOR Reduction (vph)	0	14	0	0	0	12	0	9	0	0	0	0
Lane Group Flow (vph)	241	42	0	22	0	0	0	578	0	40	1571	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	18.4	9.9		4.0		1.1		62.6		62.6	62.6	
Effective Green, g (s)	18.4	9.9		4.0		1.1		62.6		62.6	62.6	
Actuated g/C Ratio	0.20	0.11		0.04		0.01		0.70		0.70	0.70	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	701	196		78		19		3488		543	3536	
v/s Ratio Prot	c0.05	0.02		0.01				0.12			c0.31	
v/s Ratio Perm	0.02					0.00				0.05		
v/c Ratio	0.34	0.21		0.28		0.01		0.17		0.07	0.44	
Uniform Delay, d1	30.6	36.5		41.6		43.9		4.7		4.4	6.0	
Progression Factor	0.81	0.64		1.00		1.00		0.26		0.62	0.52	
Incremental Delay, d2	0.3	0.5		2.0		0.2		0.1		0.3	0.4	
Delay (s)	25.2	23.8		43.6		44.1		1.3		3.0	3.5	
Level of Service	C	C		D		D		A		A	A	
Approach Delay (s)		24.9			43.8			1.3			3.5	
Approach LOS		C			D			A			A	
























Intersection Summary

HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			  			  					
Traffic Volume (vph)	75	551	0	0	1499	20	120	179	95	0	0	0	
Future Volume (vph)	75	551	0	0	1499	20	120	179	95	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5					
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86					
Frt	1.00	1.00			1.00		1.00	0.95					
Flt Protected	0.95	1.00			1.00		0.95	1.00					
Satd. Flow (prot)	1770	3539			5075		1522	4558					
Flt Permitted	0.12	1.00			1.00		0.95	1.00					
Satd. Flow (perm)	216	3539			5075		1522	4558					
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	82	599	0	0	1629	22	130	195	103	0	0	0	
RTOR Reduction (vph)	0	0	0	0	2	0	0	81	0	0	0	0	
Lane Group Flow (vph)	82	599	0	0	1649	0	108	239	0	0	0	0	
Turn Type	Perm	NA			NA		pm+pt	NA					
Protected Phases		4			8		6	2					
Permitted Phases	4						2						
Actuated Green, G (s)	61.7	61.7			61.7		19.3	19.3					
Effective Green, g (s)	61.7	61.7			61.7		19.3	19.3					
Actuated g/C Ratio	0.69	0.69			0.69		0.21	0.21					
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5					
Lane Grp Cap (vph)	148	2426			3479		326	977					
v/s Ratio Prot		0.17			0.33		c0.07	0.05					
v/s Ratio Perm	c0.38												
v/c Ratio	0.55	0.25			0.47		0.33	0.24					
Uniform Delay, d1	7.2	5.4			6.6		29.9	29.3					
Progression Factor	1.00	1.00			0.33		1.00	1.00					
Incremental Delay, d2	14.1	0.2			0.3		2.7	0.6					
Delay (s)	21.3	5.6			2.5		32.6	29.9					
Level of Service	C	A			A		C	C					
Approach Delay (s)		7.5			2.5		30.6				0.0		
Approach LOS		A			A		C				A		
Intersection Summary													
HCM 2000 Control Delay			8.1				HCM 2000 Level of Service		A				
HCM 2000 Volume to Capacity ratio			0.50										
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0				
Intersection Capacity Utilization			50.8%				ICU Level of Service		A				
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	300	1564	60	87	275	0	0	354	41
Future Volume (vph)	0	0	0	300	1564	60	87	275	0	0	354	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Fr _t					1.00		1.00	1.00			0.98	
Fl _t Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3484	
Fl _t Permitted					0.99		0.42	1.00			1.00	
Satd. Flow (perm)					5022		782	3539			3484	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	1700	65	95	299	0	0	385	45
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	0	2087	0	95	299	0	0	420	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					53.5		27.5	27.5			27.5	
Effective Green, g (s)					53.5		27.5	27.5			27.5	
Actuated g/C Ratio					0.59		0.31	0.31			0.31	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					2985		238	1081			1064	
v/s Ratio Prot								0.08			0.12	
v/s Ratio Perm					0.42		c0.12					
v/c Ratio					0.70		0.40	0.28			0.39	
Uniform Delay, d ₁					12.7		24.7	23.7			24.7	
Progression Factor					0.11		0.60	0.61			1.00	
Incremental Delay, d ₂					0.5		4.9	0.6			1.1	
Delay (s)					1.9		19.7	15.0			25.8	
Level of Service					A		B	B			C	
Approach Delay (s)		0.0			1.9			16.2			25.8	
Approach LOS		A			A			B			C	













Intersection Summary

HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑			↑↑			↑↑	
Traffic Volume (vph)	31	133	152	0	0	0	0	331	61	16	638	0
Future Volume (vph)	31	133	152	0	0	0	0	331	61	16	638	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.93						0.98			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		3268						3457			3535	
Flt Permitted		0.93						1.00			0.94	
Satd. Flow (perm)		3056						3457			3331	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	145	165	0	0	0	0	360	66	17	693	0
RTOR Reduction (vph)	0	109	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	235	0	0	0	0	0	426	0	0	710	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		30.5						50.5			50.5	
Effective Green, g (s)		30.5						50.5			50.5	
Actuated g/C Ratio		0.34						0.56			0.56	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		1035						1939			1869	
v/s Ratio Prot								0.12				
v/s Ratio Perm		c0.08									c0.21	
v/c Ratio		0.23						0.22			0.38	
Uniform Delay, d1		21.3						9.9			11.0	
Progression Factor		1.00						0.61			0.46	
Incremental Delay, d2		0.5						0.2			0.5	
Delay (s)		21.8						6.3			5.6	
Level of Service		C						A			A	
Approach Delay (s)		21.8			0.0			6.3			5.6	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.6					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			46.1%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	33	385	172	100	743	122	70	339	52	169	917	94
Future Volume (vph)	33	385	172	100	743	122	70	339	52	169	917	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3464		1770	3468		1770	3539	1583
Flt Permitted	0.17	1.00		0.34	1.00		0.20	1.00		0.48	1.00	1.00
Satd. Flow (perm)	308	3375		628	3464		373	3468		901	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	418	187	109	808	133	76	368	57	184	997	102
RTOR Reduction (vph)	0	48	0	0	15	0	0	14	0	0	0	31
Lane Group Flow (vph)	36	557	0	109	926	0	76	411	0	184	997	71
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Effective Green, g (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.51	0.51		0.51	0.51	0.51
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	121	1331		247	1366		188	1753		455	1789	800
v/s Ratio Prot		0.17			c0.27			0.12			c0.28	
v/s Ratio Perm	0.12			0.17			0.20			0.20		0.04
v/c Ratio	0.30	0.42		0.44	0.68		0.40	0.23		0.40	0.56	0.09
Uniform Delay, d1	18.7	19.8		20.0	22.5		13.8	12.5		13.8	15.3	11.5
Progression Factor	1.00	1.00		0.75	0.76		0.74	0.65		0.70	0.68	0.54
Incremental Delay, d2	6.2	1.0		5.4	2.6		6.3	0.3		2.6	1.2	0.2
Delay (s)	24.9	20.7		20.4	19.8		16.5	8.4		12.4	11.7	6.4
Level of Service	C	C		C	B		B	A		B	B	A
Approach Delay (s)		21.0			19.8			9.7			11.4	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↵	↕↕		↵	↕↕	↵	↵	↕↕		↵	↕↕	
Traffic Volume (vph)	29	391	120	49	645	83	107	369	59	115	822	137
Future Volume (vph)	29	391	120	49	645	83	107	369	59	115	822	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3415		1770	3539	1583	1770	3466		1770	3463	
Flt Permitted	0.21	1.00		0.31	1.00	1.00	0.22	1.00		0.48	1.00	
Satd. Flow (perm)	396	3415		584	3539	1583	408	3466		885	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	425	130	53	701	90	116	401	64	125	893	149
RTOR Reduction (vph)	0	32	0	0	0	64	0	14	0	0	15	0
Lane Group Flow (vph)	32	523	0	53	701	27	116	451	0	125	1027	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Effective Green, g (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	116	1005		171	1042	466	247	2098		535	2097	
v/s Ratio Prot		0.15			c0.20			0.13			c0.30	
v/s Ratio Perm	0.08			0.09		0.02	0.28			0.14		
v/c Ratio	0.28	0.52		0.31	0.67	0.06	0.47	0.21		0.23	0.49	
Uniform Delay, d1	24.4	26.5		24.7	27.9	22.8	9.8	8.0		8.2	10.0	
Progression Factor	1.00	1.00		0.56	0.54	0.47	1.00	1.00		0.85	0.84	
Incremental Delay, d2	5.8	1.9		4.3	3.2	0.2	6.3	0.2		0.9	0.7	
Delay (s)	30.2	28.4		18.0	18.2	11.0	16.1	8.3		7.8	9.1	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		28.5			17.4			9.8			8.9	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	346	222	204	808	186	106
Future Volume (vph)	346	222	204	808	186	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3332		1770	3539	3433	1583
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3332		743	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	241	222	878	202	115
RTOR Reduction (vph)	87	0	0	0	0	85
Lane Group Flow (vph)	530	0	222	878	202	30
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	57.5		57.5	57.5	23.5	23.5
Effective Green, g (s)	57.5		57.5	57.5	23.5	23.5
Actuated g/C Ratio	0.64		0.64	0.64	0.26	0.26
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2128		474	2261	896	413
v/s Ratio Prot	0.16			0.25	c0.06	
v/s Ratio Perm			c0.30			0.02
v/c Ratio	0.25		0.47	0.39	0.23	0.07
Uniform Delay, d1	7.0		8.4	7.8	26.1	25.0
Progression Factor	0.43		0.72	0.74	0.86	0.87
Incremental Delay, d2	0.3		2.6	0.4	0.5	0.3
Delay (s)	3.2		8.7	6.2	23.0	22.2
Level of Service	A		A	A	C	C
Approach Delay (s)	3.2			6.7	22.7	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	78	319	167	105	585	65	157	225	49	25	310	34
Future Volume (vph)	78	319	167	105	585	65	157	225	49	25	310	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.98			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3357		1770	3486			3417			3479	
Flt Permitted	0.30	1.00		0.40	1.00			0.67			0.91	
Satd. Flow (perm)	565	3357		753	3486			2348			3160	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	347	182	114	636	71	171	245	53	27	337	37
RTOR Reduction (vph)	0	76	0	0	9	0	0	11	0	0	8	0
Lane Group Flow (vph)	85	453	0	114	698	0	0	458	0	0	393	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	40.5	40.5		40.5	40.5			40.5			40.5	
Effective Green, g (s)	40.5	40.5		40.5	40.5			40.5			40.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.45			0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	254	1510		338	1568			1056			1422	
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.15			0.15				c0.20			0.12	
v/c Ratio	0.33	0.30		0.34	0.44			0.43			0.28	
Uniform Delay, d1	16.0	15.7		16.0	17.0			16.9			15.5	
Progression Factor	0.55	0.46		1.31	1.35			1.00			0.53	
Incremental Delay, d2	3.2	0.5		2.6	0.9			1.3			0.5	
Delay (s)	12.0	7.6		23.6	23.9			18.2			8.8	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		8.3			23.8			18.2			8.8	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	15.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	230	131	293	960	8	226	503	91	26	1025	740
Future Volume (vph)	291	230	131	293	960	8	226	503	91	26	1025	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3212		1770	3535		1770	3539	1583	1770	3539	1583
Flt Permitted	0.17	0.56		0.45	1.00		0.13	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	285	1829		833	3535		238	3539	1583	834	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	250	142	318	1043	9	246	547	99	28	1114	804
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	57	0	0	39
Lane Group Flow (vph)	183	487	0	318	1051	0	246	547	42	28	1114	765
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	39.4	39.4		37.8	23.0		37.9	37.9	37.9	26.8	26.8	42.4
Effective Green, g (s)	39.4	39.4		37.8	23.0		37.9	37.9	37.9	26.8	26.8	42.4
Actuated g/C Ratio	0.44	0.44		0.42	0.26		0.42	0.42	0.42	0.30	0.30	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	354	1040		503	903		212	1490	666	248	1053	824
v/s Ratio Prot	0.09	0.08		0.10	c0.30		c0.08	0.15			0.31	c0.16
v/s Ratio Perm	0.14	0.12		0.16			c0.40		0.03	0.03		0.32
v/c Ratio	0.52	0.47		0.63	1.16		1.16	0.37	0.06	0.11	1.06	0.93
Uniform Delay, d1	18.5	17.9		18.5	33.5		23.0	17.8	15.5	23.0	31.6	22.4
Progression Factor	0.61	0.46		1.00	1.00		1.23	1.20	1.87	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.3		2.6	86.0		110.7	0.7	0.2	0.9	44.4	16.4
Delay (s)	12.4	8.6		21.0	119.5		139.1	22.1	29.2	23.9	76.0	38.8
Level of Service	B	A		C	F		F	C	C	C	E	D
Approach Delay (s)		9.6			96.7			55.2			59.9	
Approach LOS		A			F			E			E	

Intersection Summary		
HCM 2000 Control Delay	62.0	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.19	E
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	96.4%	18.0
Analysis Period (min)	15	ICU Level of Service
		F

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Future Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1831		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.57	1.00		0.57	1.00	1.00
Satd. Flow (perm)	1770	1831		1770	1803		1056	1860		1056	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	77	10	13	621	170	42	182	2	117	184	554
RTOR Reduction (vph)	0	4	0	0	11	0	0	1	0	0	0	235
Lane Group Flow (vph)	98	83	0	13	780	0	42	183	0	117	184	319
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Effective Green, g (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Actuated g/C Ratio	0.11	0.56		0.01	0.46		0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	202	1027		19	825		293	516		293	517	439
v/s Ratio Prot	c0.06	0.05		0.01	c0.43			0.10			0.10	
v/s Ratio Perm							0.04			0.11		c0.20
v/c Ratio	0.49	0.08		0.68	0.94		0.14	0.36		0.40	0.36	0.73
Uniform Delay, d1	37.4	9.1		44.3	23.3		24.4	26.0		26.4	26.0	29.4
Progression Factor	0.70	0.83		1.00	1.00		1.00	1.00		0.47	0.44	0.62
Incremental Delay, d2	1.8	0.0		69.9	19.1		1.0	1.9		1.6	0.8	4.2
Delay (s)	27.8	7.6		114.2	42.4		25.5	28.0		14.0	12.3	22.4
Level of Service	C	A		F	D		C	C		B	B	C
Approach Delay (s)		18.3			43.6			27.5			19.1	
Approach LOS		B			D			C			B	

Intersection Summary

HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	18	375	144	553	202	0
Future Volume (vph)	18	375	144	553	202	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.86		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3033		1770	3539	1770	
Flt Permitted	1.00		0.49	1.00	0.95	
Satd. Flow (perm)	3033		905	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	20	408	157	601	220	0
RTOR Reduction (vph)	193	0	0	0	0	0
Lane Group Flow (vph)	235	0	157	601	220	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	47.5		47.5	47.5	33.5	
Effective Green, g (s)	47.5		47.5	47.5	33.5	
Actuated g/C Ratio	0.53		0.53	0.53	0.37	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1600		477	1867	658	
v/s Ratio Prot	0.08			0.17	c0.12	
v/s Ratio Perm			c0.17			
v/c Ratio	0.15		0.33	0.32	0.33	
Uniform Delay, d1	10.9		12.1	12.1	20.3	
Progression Factor	0.86		0.28	0.29	1.00	
Incremental Delay, d2	0.2		1.6	0.4	1.4	
Delay (s)	9.5		5.1	3.9	21.6	
Level of Service	A		A	A	C	
Approach Delay (s)	9.5			4.1	21.6	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	43.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	4	6	100	4	24	24	692	169	62	422	12
Future Volume (vph)	8	4	6	100	4	24	24	692	169	62	422	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.95		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1736		1770	1621		1770	3539	1583	1770	3525	
Flt Permitted		0.89		0.74	1.00		0.48	1.00	1.00	0.36	1.00	
Satd. Flow (perm)		1580		1386	1621		897	3539	1583	671	3525	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	9	4	7	109	4	26	26	752	184	67	459	13
RTOR Reduction (vph)	0	6	0	0	23	0	0	0	41	0	1	0
Lane Group Flow (vph)	0	14	0	109	7	0	26	752	143	67	471	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9	
Effective Green, g (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		194		170	199		696	2748	1229	521	2737	
v/s Ratio Prot					0.00			c0.21			0.13	
v/s Ratio Perm		0.01		c0.08			0.03		0.09	0.10		
v/c Ratio		0.07		0.64	0.04		0.04	0.27	0.12	0.13	0.17	
Uniform Delay, d1		34.9		37.6	34.7		2.3	2.9	2.5	2.5	2.6	
Progression Factor		1.00		1.00	1.00		2.28	2.66	8.14	1.66	1.59	
Incremental Delay, d2		0.2		8.0	0.1		0.1	0.2	0.2	0.5	0.1	
Delay (s)		35.0		45.6	34.8		5.4	7.8	20.3	4.6	4.2	
Level of Service		D		D	C		A	A	C	A	A	
Approach Delay (s)		35.0			43.2			10.1			4.3	
Approach LOS		D			D			B			A	
Intersection Summary												
HCM 2000 Control Delay			11.3			HCM 2000 Level of Service			B			
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			9.0			
Intersection Capacity Utilization			45.4%			ICU Level of Service			A			
Analysis Period (min)			15									

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/11/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	54	42	436	135	45	760	
Future Volume (Veh/h)	54	42	436	135	45	760	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	59	46	474	147	49	826	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	543						
pX, platoon unblocked							
vC, conflicting volume	1058	310			621		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1058	310			621		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	72	93			95		
cM capacity (veh/h)	208	685			956		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	59	46	316	305	49	413	413
Volume Left	59	0	0	0	49	0	0
Volume Right	0	46	0	147	0	0	0
cSH	208	685	1700	1700	956	1700	1700
Volume to Capacity	0.28	0.07	0.19	0.18	0.05	0.24	0.24
Queue Length 95th (ft)	28	5	0	0	4	0	0
Control Delay (s)	29.0	10.6	0.0	0.0	9.0	0.0	0.0
Lane LOS	D	B			A		
Approach Delay (s)	20.9		0.0		0.5		
Approach LOS	C						
Intersection Summary							
Average Delay			1.6				
Intersection Capacity Utilization			33.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	639	57	81	1306	79	55
Future Volume (vph)	639	57	81	1306	79	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3496		1770	3539	1770	1583
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3496		586	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	695	62	88	1420	86	60
RTOR Reduction (vph)	12	0	0	0	0	39
Lane Group Flow (vph)	745	0	88	1420	86	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	26.4		26.4	26.4	19.6	19.6
Effective Green, g (s)	26.4		26.4	26.4	19.6	19.6
Actuated g/C Ratio	0.48		0.48	0.48	0.36	0.36
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1678		281	1698	630	564
v/s Ratio Prot	0.21			c0.40	c0.05	
v/s Ratio Perm			0.15			0.01
v/c Ratio	0.44		0.31	0.84	0.14	0.04
Uniform Delay, d1	9.4		8.8	12.4	12.0	11.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	3.8	0.5	0.1
Delay (s)	9.6		9.4	16.2	12.4	11.7
Level of Service	A		A	B	B	B
Approach Delay (s)	9.6			15.8	12.1	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↖	↑	↗		↑↑↑			↑↑↑	↗
Traffic Volume (vph)	0	0	0	110	61	39	0	658	0	0	1121	346
Future Volume (vph)	0	0	0	110	61	39	0	658	0	0	1121	346
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.96	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6181	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6181	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	120	66	42	0	715	0	0	1218	376
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	120	66	5	0	715	0	0	1560	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				11.5	11.5	11.5		69.5			69.5	
Effective Green, g (s)				11.5	11.5	11.5		69.5			69.5	
Actuated g/C Ratio				0.13	0.13	0.13		0.77			0.77	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				226	238	202		3926			4773	
v/s Ratio Prot				c0.07	0.04			0.14			c0.25	
v/s Ratio Perm						0.00						
v/c Ratio				0.53	0.28	0.03		0.18			0.33	
Uniform Delay, d1				36.7	35.5	34.4		2.7			3.1	
Progression Factor				1.00	1.00	1.00		0.25			0.22	
Incremental Delay, d2				2.4	0.6	0.1		0.1			0.1	
Delay (s)				39.1	36.1	34.4		0.8			0.8	
Level of Service				D	D	C		A			A	
Approach Delay (s)		0.0			37.4			0.8			0.8	
Approach LOS		A			D			A			A	


























Intersection Summary

HCM 2000 Control Delay	4.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: N Alameda St & E Aliso St/E Commercial St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			  	
Traffic Volume (vph)	361	65	49	91	0	189	0	1249	169	137	772	0
Future Volume (vph)	361	65	49	91	0	189	0	1249	169	137	772	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	71	53	99	0	205	0	1358	184	149	839	0
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	392	71	7	99	0	205	0	1358	111	149	839	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Effective Green, g (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.14		0.14		0.43	0.43	0.11	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	438	238	202	245		219		1513	677	186	2966	
v/s Ratio Prot	c0.11	0.04		0.06		c0.13		c0.38		c0.08	0.16	
v/s Ratio Perm			0.00						0.07			
v/c Ratio	0.89	0.30	0.03	0.40		0.94		0.90	0.16	0.80	0.28	
Uniform Delay, d1	38.7	35.6	34.4	35.4		38.4		23.9	15.8	39.3	9.4	
Progression Factor	1.16	1.15	1.00	1.16		1.15		1.37	2.39	1.27	0.79	
Incremental Delay, d2	20.4	2.7	0.3	4.6		44.6		6.9	0.4	28.4	0.2	
Delay (s)	65.1	43.7	34.6	45.8		88.5		39.7	38.3	78.3	7.7	
Level of Service	E	D	C	D		F		D	D	E	A	
Approach Delay (s)		59.1			74.6			39.6			18.3	
Approach LOS		E			E			D			B	
Intersection Summary												
HCM 2000 Control Delay			39.5		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.89									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			67.8%		ICU Level of Service				C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	0	62	0	12	86	65	746	0	0	133	169
Future Volume (vph)	351	0	62	0	12	86	65	746	0	0	133	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			0.95			0.95			1.00	1.00
Frt	1.00	0.85			0.87			1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	3433	1583			3073			3525			1863	1583
Flt Permitted	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	3433	1583			3073			3525			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	382	0	67	0	13	93	71	811	0	0	145	184
RTOR Reduction (vph)	0	40	0	0	73	0	0	0	0	0	0	138
Lane Group Flow (vph)	382	27	0	0	33	0	0	882	0	0	145	46
Turn Type	Prot	NA		Perm	NA		Split	NA			NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	12.5	36.7			19.7			29.7			10.1	22.6
Effective Green, g (s)	12.5	36.7			19.7			29.7			10.1	22.6
Actuated g/C Ratio	0.14	0.41			0.22			0.33			0.11	0.25
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	476	645			672			1163			209	476
v/s Ratio Prot	c0.11	0.02			c0.01			c0.25			c0.08	0.01
v/s Ratio Perm												0.02
v/c Ratio	0.80	0.04			0.05			0.76			0.69	0.10
Uniform Delay, d1	37.6	16.1			27.8			26.9			38.5	25.9
Progression Factor	1.37	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	8.8	0.1			0.0			4.7			9.6	0.1
Delay (s)	60.4	16.2			27.8			31.6			48.0	26.0
Level of Service	E	B			C			C			D	C
Approach Delay (s)		53.8			27.8			31.6			35.7	
Approach LOS		D			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	37.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	450	196	30	159	94	90	999	0	75	765	311
Future Volume (vph)	252	450	196	30	159	94	90	999	0	75	765	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.35	1.00		0.38	1.00		0.34	1.00		0.95	1.00	1.00
Satd. Flow (perm)	659	3378		717	3342		631	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	489	213	33	173	102	98	1086	0	82	832	338
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	177
Lane Group Flow (vph)	274	642	0	33	275	0	98	1086	0	82	832	161
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Effective Green, g (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.45	0.45		0.08	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	350	1073		101	471		344	1584		149	1690	756
v/s Ratio Prot	c0.10	0.19			0.08		0.02	c0.31		0.05	c0.24	
v/s Ratio Perm	c0.15			0.05			0.11					0.10
v/c Ratio	0.78	0.60		0.33	0.58		0.28	0.69		0.55	0.49	0.21
Uniform Delay, d1	25.1	25.9		34.8	36.2		16.2	19.8		39.6	16.0	13.7
Progression Factor	0.60	0.48		1.00	1.00		0.62	0.64		1.37	0.53	0.05
Incremental Delay, d2	9.8	0.8		1.9	1.8		0.4	2.0		4.3	1.0	0.6
Delay (s)	25.0	13.1		36.7	38.0		10.5	14.6		58.7	9.6	1.3
Level of Service	C	B		D	D		B	B		E	A	A
Approach Delay (s)		16.4			37.9			14.3			10.5	
Approach LOS		B			D			B			B	


















Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	65	41	109	13	65	28	95	165	20	12	56	26
Future Volume (vph)	65	41	109	13	65	28	95	165	20	12	56	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	45	118	14	71	30	103	179	22	13	61	28
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	116	118	115	304	102							
Volume Left (vph)	71	0	14	103	13							
Volume Right (vph)	0	118	30	22	28							
Hadj (s)	0.34	-0.67	-0.10	0.06	-0.11							
Departure Headway (s)	6.1	5.1	5.3	5.0	5.2							
Degree Utilization, x	0.20	0.17	0.17	0.42	0.15							
Capacity (veh/h)	555	662	614	685	636							
Control Delay (s)	9.3	7.9	9.4	11.7	9.1							
Approach Delay (s)	8.6		9.4	11.7	9.1							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			10.0									
Level of Service			B									
Intersection Capacity Utilization			41.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↘			↗↘	↗	↘	↗↘	↗	↘	↗↘	↗
Traffic Volume (vph)	322	484	116	17	281	14	68	752	147	41	826	124
Future Volume (vph)	322	484	116	17	281	14	68	752	147	41	826	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3529	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.38	1.00			0.90	1.00	0.20	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	717	3437			3183	1583	374	3539	1583	442	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	526	126	18	305	15	74	817	160	45	898	135
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	92	0	0	49
Lane Group Flow (vph)	350	629	0	0	323	15	74	817	68	45	898	86
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	42.9	42.9			19.4	19.4	38.1	38.1	38.1	38.1	38.1	57.1
Effective Green, g (s)	42.9	42.9			19.4	19.4	38.1	38.1	38.1	38.1	38.1	57.1
Actuated g/C Ratio	0.48	0.48			0.22	0.22	0.42	0.42	0.42	0.42	0.42	0.63
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	564	1638			686	341	158	1498	670	187	1498	1083
v/s Ratio Prot	c0.13	0.18						0.23			c0.25	0.02
v/s Ratio Perm	c0.16				0.10	0.01	0.20		0.04	0.10		0.04
v/c Ratio	0.62	0.38			0.47	0.04	0.47	0.55	0.10	0.24	0.60	0.08
Uniform Delay, d1	15.8	15.1			30.8	28.0	18.7	19.5	15.6	16.7	20.1	6.3
Progression Factor	0.55	0.51			1.50	1.62	1.00	1.00	1.00	0.86	0.84	0.14
Incremental Delay, d2	1.9	0.1			0.4	0.0	9.6	1.4	0.3	2.7	1.6	0.0
Delay (s)	10.6	7.9			46.6	45.4	28.3	20.9	15.9	17.1	18.5	0.9
Level of Service	B	A			D	D	C	C	B	B	B	A
Approach Delay (s)		8.8			46.6			20.7			16.3	
Approach LOS		A			D			C			B	

Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	71	589	23	80	312	77	6	78	231	99	28	37
Future Volume (vph)	71	589	23	80	312	77	6	78	231	99	28	37
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.98			0.90			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.97	
Satd. Flow (prot)		3520	1583		3423			1677			1753	
Flt Permitted		0.99	1.00		0.99			0.99			0.47	
Satd. Flow (perm)		3520	1583		3423			1669			846	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	640	25	87	339	84	7	85	251	108	30	40
RTOR Reduction (vph)	0	0	16	0	19	0	0	109	0	0	11	0
Lane Group Flow (vph)	0	717	9	0	491	0	0	234	0	0	167	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8			4	
Permitted Phases			2				8			4		
Actuated Green, G (s)		32.7	32.7		17.3			26.5			26.5	
Effective Green, g (s)		32.7	32.7		17.3			26.5			26.5	
Actuated g/C Ratio		0.36	0.36		0.19			0.29			0.29	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		1278	575		657			491			249	
v/s Ratio Prot		c0.20			c0.14							
v/s Ratio Perm			0.01					0.14			c0.20	
v/c Ratio		0.56	0.02		0.75			0.48			0.67	
Uniform Delay, d1		22.9	18.3		34.3			26.1			27.9	
Progression Factor		0.66	1.00		0.84			1.00			1.00	
Incremental Delay, d2		1.7	0.0		3.6			3.3			13.4	
Delay (s)		16.8	18.4		32.2			29.3			41.3	
Level of Service		B	B		C			C			D	
Approach Delay (s)		16.8			32.2			29.3			41.3	
Approach LOS		B			C			C			D	

Intersection Summary

HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↖ ↗	↖ ↗		↖ ↗	↖ ↗			↖ ↗	↖ ↗	
Traffic Volume (vph)	0	0	0	269	568	180	20	1780	0	0	640	25	
Future Volume (vph)	0	0	0	269	568	180	20	1780	0	0	640	25	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91		
Frt				1.00	0.97		1.00	1.00			0.99		
Flt Protected				0.95	1.00		0.95	1.00			1.00		
Satd. Flow (prot)				1522	4630		1770	5085			5057		
Flt Permitted				0.95	1.00		0.35	1.00			1.00		
Satd. Flow (perm)				1522	4630		643	5085			5057		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	292	617	196	22	1935	0	0	696	27	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	5	0	
Lane Group Flow (vph)	0	0	0	263	842	0	22	1935	0	0	718	0	
Turn Type				Prot	NA		Perm	NA			NA		
Protected Phases				3	8			2			6		
Permitted Phases							2						
Actuated Green, G (s)				32.5	32.5		48.5	48.5			48.5		
Effective Green, g (s)				32.5	32.5		48.5	48.5			48.5		
Actuated g/C Ratio				0.36	0.36		0.54	0.54			0.54		
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)				549	1671		346	2740			2725		
v/s Ratio Prot				0.17	c0.18			c0.38			0.14		
v/s Ratio Perm							0.03						
v/c Ratio				0.48	0.50		0.06	0.71			0.26		
Uniform Delay, d1				22.2	22.5		9.9	15.4			11.2		
Progression Factor				1.00	1.00		0.94	0.69			1.00		
Incremental Delay, d2				3.0	1.1		0.1	0.7			0.2		
Delay (s)				25.2	23.5		9.4	11.3			11.4		
Level of Service				C	C		A	B			B		
Approach Delay (s)		0.0			23.9			11.3			11.4		
Approach LOS		A			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			15.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			57.2%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↔			↑			↑↑↑		↖	↑↑↑	
Traffic Volume (vph)	243	57	84	0	0	0	0	635	79	60	969	0
Future Volume (vph)	243	57	84	0	0	0	0	635	79	60	969	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.95						0.98		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3152						5001		1770	5085	
Flt Permitted	0.95	0.79						1.00		0.22	1.00	
Satd. Flow (perm)	1610	2539						5001		414	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	62	91	0	0	0	0	690	86	65	1053	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	143	264	0	0	0	0	0	762	0	65	1053	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	39.5	62.0						27.5		41.5	41.5	
Effective Green, g (s)	39.5	62.0						27.5		41.5	41.5	
Actuated g/C Ratio	0.35	0.55						0.24		0.37	0.37	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	565	1614						1222		267	1875	
v/s Ratio Prot	c0.09	0.06						c0.15		0.02	c0.21	
v/s Ratio Perm		c0.03								0.07		
v/c Ratio	0.25	0.16						0.62		0.24	0.56	
Uniform Delay, d1	26.0	12.5						37.9		33.6	28.3	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.2						2.4		2.2	1.2	
Delay (s)	27.1	12.7						40.3		35.8	29.5	
Level of Service	C	B						D		D	C	
Approach Delay (s)		17.6			0.0			40.3			29.8	
Approach LOS		B			A			D			C	

Intersection Summary

HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	91	968	193	116	936	118	98	726	120	98	677	134
Future Volume (vph)	91	968	193	116	936	118	98	726	120	98	677	134
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5000		1770	4977		1770	4959	
Flt Permitted	0.24	1.00	1.00	0.11	1.00		0.18	1.00		0.17	1.00	
Satd. Flow (perm)	439	3539	1583	200	5000		333	4977		317	4959	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	1052	210	126	1017	128	107	789	130	107	736	146
RTOR Reduction (vph)	0	0	41	0	17	0	0	25	0	0	33	0
Lane Group Flow (vph)	99	1052	169	126	1128	0	107	894	0	107	849	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	35.5	35.5	42.2	46.3	46.3		30.4	23.7		30.0	23.5	
Effective Green, g (s)	35.5	35.5	42.2	46.3	46.3		30.4	23.7		30.0	23.5	
Actuated g/C Ratio	0.39	0.39	0.47	0.51	0.51		0.34	0.26		0.33	0.26	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	173	1395	742	212	2572		219	1310		210	1294	
v/s Ratio Prot		c0.30	0.02	c0.04	0.23		0.04	c0.18		c0.04	0.17	
v/s Ratio Perm	0.23		0.09	0.26			0.13			0.13		
v/c Ratio	0.57	0.75	0.23	0.59	0.44		0.49	0.68		0.51	0.66	
Uniform Delay, d1	21.3	23.5	14.2	15.8	13.7		32.3	29.8		33.0	29.6	
Progression Factor	0.60	0.59	0.56	1.00	1.00		0.85	0.87		0.73	0.63	
Incremental Delay, d2	10.5	3.1	0.6	11.7	0.5		7.5	2.8		8.3	2.5	
Delay (s)	23.3	16.9	8.6	27.4	14.2		35.0	28.6		32.4	21.1	
Level of Service	C	B	A	C	B		D	C		C	C	
Approach Delay (s)		16.1			15.6			29.3			22.3	
Approach LOS		B			B			C			C	



























Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 		  		
Traffic Volume (vph)	103	336	70	60	426	356	177	993	50	96	406	57
Future Volume (vph)	103	336	70	60	426	356	177	993	50	96	406	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3448		1770	3539	1583	1770	3539	1583	1770	4991	
Flt Permitted	0.35	1.00		0.37	1.00	1.00	0.46	1.00	1.00	0.20	1.00	
Satd. Flow (perm)	655	3448		688	3539	1583	852	3539	1583	378	4991	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	365	76	65	463	387	192	1079	54	104	441	62
RTOR Reduction (vph)	0	21	0	0	0	50	0	0	22	0	18	0
Lane Group Flow (vph)	112	420	0	65	463	337	192	1079	32	104	485	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Effective Green, g (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Actuated g/C Ratio	0.21	0.21		0.31	0.31	0.31	0.59	0.59	0.59	0.59	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	138	727		264	1093	488	503	2091	935	223	2950	
v/s Ratio Prot		0.12		0.01	0.13			c0.30			0.10	
v/s Ratio Perm	c0.17			0.06		c0.21	0.23		0.02	0.28		
v/c Ratio	0.81	0.58		0.25	0.42	0.69	0.38	0.52	0.03	0.47	0.16	
Uniform Delay, d1	33.8	31.9		27.8	24.7	27.3	9.7	10.8	7.7	10.4	8.3	
Progression Factor	1.00	1.00		0.37	0.51	0.36	0.79	0.81	1.43	0.55	0.39	
Incremental Delay, d2	29.1	1.1		0.0	0.0	0.4	1.8	0.8	0.1	6.6	0.1	
Delay (s)	62.9	33.0		10.4	12.6	10.2	9.5	9.5	11.0	12.3	3.4	
Level of Service	E	C		B	B	B	A	A	B	B	A	
Approach Delay (s)		39.1			11.4			9.6			4.9	
Approach LOS		D			B			A			A	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 13: N Vignes St & E Cesar E Chavez Ave

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	952	265	118	871	305	288	702	150	283	338	49
Future Volume (vph)	47	952	265	118	871	305	288	702	150	283	338	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3472	3472
Flt Permitted	0.15	1.00	1.00	0.15	1.00	1.00	0.37	1.00	1.00	0.19	1.00	1.00
Satd. Flow (perm)	281	3539	1583	281	3539	1583	681	3539	1583	362	3472	3472
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1035	288	128	947	332	313	763	163	308	367	53
RTOR Reduction (vph)	0	0	193	0	0	209	0	0	124	0	12	0
Lane Group Flow (vph)	51	1035	95	128	947	123	313	763	39	308	408	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	29.6	29.6	29.6	33.3	33.3	33.3	36.3	21.3	21.3	34.9	20.6	20.6
Effective Green, g (s)	29.6	29.6	29.6	33.3	33.3	33.3	36.3	21.3	21.3	34.9	20.6	20.6
Actuated g/C Ratio	0.33	0.33	0.33	0.37	0.37	0.37	0.40	0.24	0.24	0.39	0.23	0.23
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	1163	520	216	1309	585	456	837	374	364	794	794
v/s Ratio Prot	0.01	c0.29		0.04	c0.27		0.11	c0.22		c0.13	0.12	0.12
v/s Ratio Perm	0.10		0.06	0.17		0.08	0.16		0.02	0.19		
v/c Ratio	0.36	0.89	0.18	0.59	0.72	0.21	0.69	0.91	0.10	0.85	0.51	0.51
Uniform Delay, d1	23.6	28.7	21.6	33.1	24.4	19.4	19.8	33.4	26.9	22.0	30.3	30.3
Progression Factor	1.00	1.00	1.00	0.77	0.71	0.21	0.91	0.68	0.32	0.75	0.74	0.74
Incremental Delay, d2	1.5	10.4	0.8	3.1	2.5	0.6	3.8	12.7	0.1	16.0	0.5	0.5
Delay (s)	25.1	39.0	22.3	28.7	19.8	4.6	21.7	35.6	8.6	32.6	22.9	22.9
Level of Service	C	D	C	C	B	A	C	D	A	C	C	C
Approach Delay (s)		35.0			17.0			28.5			27.0	
Approach LOS		C			B			C			C	
Intersection Summary												
HCM 2000 Control Delay			26.7			HCM 2000 Level of Service			C			
HCM 2000 Volume to Capacity ratio			0.90									
Actuated Cycle Length (s)			90.0			Sum of lost time (s)			18.0			
Intersection Capacity Utilization			82.9%			ICU Level of Service			E			
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	76	92	194	154	524	52	453	70	304	233	153
Future Volume (vph)	155	76	92	194	154	524	52	453	70	304	233	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3142		1770	1863	1583	3433	3539	1583	3433	3329	
Flt Permitted	0.65	0.83		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1104	2642		1770	1863	1583	3433	3539	1583	3433	3329	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	83	100	211	167	570	57	492	76	330	253	166
RTOR Reduction (vph)	0	85	0	0	0	359	0	0	53	0	96	0
Lane Group Flow (vph)	108	158	0	211	167	211	57	492	23	330	323	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	13.8	13.8		15.0	33.3	33.3	5.1	26.8	26.8	16.4	38.1	
Effective Green, g (s)	13.8	13.8		15.0	33.3	33.3	5.1	26.8	26.8	16.4	38.1	
Actuated g/C Ratio	0.15	0.15		0.17	0.37	0.37	0.06	0.30	0.30	0.18	0.42	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	169	405		295	689	585	194	1053	471	625	1409	
v/s Ratio Prot				c0.12	0.09		0.02	c0.14		c0.10	0.10	
v/s Ratio Perm	c0.10	0.06				0.13			0.01			
v/c Ratio	0.64	0.39		0.72	0.24	0.36	0.29	0.47	0.05	0.53	0.23	
Uniform Delay, d1	35.8	34.3		35.5	19.6	20.6	40.7	25.8	22.5	33.3	16.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.50	
Incremental Delay, d2	7.7	0.6		8.0	0.2	0.4	0.8	1.5	0.2	0.7	0.3	
Delay (s)	43.5	34.9		43.5	19.8	21.0	41.6	27.3	22.7	23.8	8.6	
Level of Service	D	C		D	B	C	D	C	C	C	A	
Approach Delay (s)		37.6			25.8			28.0			15.3	
Approach LOS		D			C			C			B	

Intersection Summary

























HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	229	251	1	24	649	364	5	677	35	238	276	188	
Future Volume (vph)	229	251	1	24	649	364	5	677	35	238	276	188	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5		
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95		
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94		
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	3537			3349		1770	3513		1770	3324		
Flt Permitted	0.95	1.00			0.94		0.41	1.00		0.25	1.00		
Satd. Flow (perm)	1770	3537			3156		755	3513		462	3324		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	249	273	1	26	705	396	5	736	38	259	300	204	
RTOR Reduction (vph)	0	1	0	0	81	0	0	4	0	0	122	0	
Lane Group Flow (vph)	249	273	0	0	1046	0	5	770	0	259	382	0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases	7	4			8			2			6		
Permitted Phases				8			2			6			
Actuated Green, G (s)	16.2	44.7			24.0		36.3	36.3		36.3	36.3		
Effective Green, g (s)	16.2	44.7			24.0		36.3	36.3		36.3	36.3		
Actuated g/C Ratio	0.18	0.50			0.27		0.40	0.40		0.40	0.40		
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	318	1756			841		304	1416		186	1340		
v/s Ratio Prot	c0.14	0.08						0.22			0.11		
v/s Ratio Perm					c0.33		0.01			c0.56			
v/c Ratio	0.78	0.16			1.24		0.02	0.54		1.39	0.29		
Uniform Delay, d1	35.2	12.4			33.0		16.1	20.5		26.9	18.1		
Progression Factor	0.81	0.57			1.53		1.00	1.00		1.00	1.00		
Incremental Delay, d2	11.0	0.0			119.3		0.1	1.5		206.0	0.5		
Delay (s)	39.5	7.1			169.7		16.2	22.0		232.9	18.6		
Level of Service	D	A			F		B	C		F	B		
Approach Delay (s)		22.5			169.7			22.0			91.4		
Approach LOS		C			F			C			F		
Intersection Summary													
HCM 2000 Control Delay			90.8									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.22										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			91.0%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	108	95	179	32	196	32	533	892	28	9	349	101
Future Volume (vph)	108	95	179	32	196	32	533	892	28	9	349	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1823		1770	3523		1770	4914	
Flt Permitted	0.36	1.00	1.00	0.69	1.00		0.43	1.00		0.22	1.00	
Satd. Flow (perm)	678	1863	1583	1286	1823		793	3523		401	4914	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	103	195	35	213	35	579	970	30	10	379	110
RTOR Reduction (vph)	0	0	157	0	7	0	0	2	0	0	53	0
Lane Group Flow (vph)	117	103	38	35	241	0	579	998	0	10	436	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.7	17.7	17.7	17.7	17.7		63.3	63.3		26.3	26.3	
Effective Green, g (s)	17.7	17.7	17.7	17.7	17.7		63.3	63.3		26.3	26.3	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20		0.70	0.70		0.29	0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	366	311	252	358		910	2477		117	1435	
v/s Ratio Prot		0.06			0.13		c0.23	0.28			0.09	
v/s Ratio Perm	c0.17		0.02	0.03			c0.22			0.02		
v/c Ratio	0.88	0.28	0.12	0.14	0.67		0.64	0.40		0.09	0.30	
Uniform Delay, d1	35.1	30.7	29.8	29.9	33.5		10.1	5.5		23.1	24.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.61	0.51		1.00	1.00	
Incremental Delay, d2	43.5	0.4	0.2	0.3	4.9		1.2	0.4		1.4	0.5	
Delay (s)	78.6	31.2	29.9	30.1	38.4		7.4	3.2		24.6	25.3	
Level of Service	E	C	C	C	D		A	A		C	C	
Approach Delay (s)		44.0			37.4			4.8			25.3	
Approach LOS		D			D			A			C	

Intersection Summary




















HCM 2000 Control Delay	17.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St


























12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	81	0	0	0	100	1125	663	0	736	51	
Future Volume (Veh/h)	0	0	81	0	0	0	100	1125	663	0	736	51	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	88	0	0	0	109	1223	721	0	800	55	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
								None			None		
Median storage (veh)													
Upstream signal (ft)													
								206			797		
pX, platoon unblocked	0.71	0.71		0.71	0.71	0.71					0.71		
vC, conflicting volume	1657	2268	294	1796	2296	612	855			1223			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1110	1970	294	1305	2009	0	855				499		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1				4.1		
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2				2.2		
p0 queue free %	100	100	87	100	100	100	86				100		
cM capacity (veh/h)	104	38	702	65	36	770	781				754		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	88	0	109	612	612	721	320	320	215				
Volume Left	0	0	109	0	0	0	0	0	0				
Volume Right	88	0	0	0	0	721	0	0	55				
cSH	702	1700	781	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.13	0.00	0.14	0.36	0.36	0.42	0.19	0.19	0.13				
Queue Length 95th (ft)	11	0	12	0	0	0	0	0	0				
Control Delay (s)	10.9	0.0	10.4	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	A	B										
Approach Delay (s)	10.9	0.0	0.6										
Approach LOS	B	A											
Intersection Summary													
Average Delay			0.7										
Intersection Capacity Utilization			44.4%	ICU Level of Service					A				
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	930	22	33	63	0	39	0	919	15	3	813	0
Future Volume (vph)	930	22	33	63	0	39	0	919	15	3	813	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1695		1770		1583		5073		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.24	1.00	
Satd. Flow (perm)	3433	1695		1770		1583		5073		446	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1011	24	36	68	0	42	0	999	16	3	884	0
RTOR Reduction (vph)	0	29	0	0	0	40	0	1	0	0	0	0
Lane Group Flow (vph)	1011	31	0	68	0	2	0	1014	0	3	884	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	30.3	18.5		7.3		3.3		50.7		50.7	50.7	
Effective Green, g (s)	30.3	18.5		7.3		3.3		50.7		50.7	50.7	
Actuated g/C Ratio	0.34	0.21		0.08		0.04		0.56		0.56	0.56	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	1155	348		143		58		2857		251	2864	
v/s Ratio Prot	c0.22	0.02		0.04				c0.20			0.17	
v/s Ratio Perm	0.08					0.00				0.01		
v/c Ratio	0.88	0.09		0.48		0.03		0.35		0.01	0.31	
Uniform Delay, d1	28.1	28.9		39.5		41.8		10.7		8.6	10.4	
Progression Factor	0.41	0.31		1.00		1.00		0.26		0.78	0.72	
Incremental Delay, d2	5.4	0.1		2.5		0.2		0.3		0.1	0.3	
Delay (s)	16.9	8.9		42.0		42.0		3.1		6.9	7.7	
Level of Service	B	A		D		D		A		A	A	
Approach Delay (s)		16.5			42.0			3.1			7.7	
Approach LOS		B			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.5					HCM 2000 Level of Service		B		
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		13.5		
Intersection Capacity Utilization			60.0%					ICU Level of Service		B		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	1011	0	0	1220	23	415	884	242	0	0	0
Future Volume (vph)	78	1011	0	0	1220	23	415	884	242	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5071		1522	4648				
Flt Permitted	0.15	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	272	3539			5071		1522	4648				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	1099	0	0	1326	25	451	961	263	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	46	0	0	0	0
Lane Group Flow (vph)	85	1099	0	0	1349	0	406	1223	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	48.5	48.5			48.5		32.5	32.5				
Effective Green, g (s)	48.5	48.5			48.5		32.5	32.5				
Actuated g/C Ratio	0.54	0.54			0.54		0.36	0.36				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	146	1907			2732		549	1678				
v/s Ratio Prot		0.31			0.27		c0.27	0.26				
v/s Ratio Perm	c0.31											
v/c Ratio	0.58	0.58			0.49		0.74	0.73				
Uniform Delay, d1	13.9	13.9			13.0		25.1	24.9				
Progression Factor	1.00	1.00			0.87		1.00	1.00				
Incremental Delay, d2	15.8	1.3			0.6		8.7	2.8				
Delay (s)	29.8	15.2			11.9		33.7	27.7				
Level of Service	C	B			B		C	C				
Approach Delay (s)		16.2			11.9		29.2				0.0	
Approach LOS		B			B		C				A	
Intersection Summary												
HCM 2000 Control Delay			20.0				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			62.8%				ICU Level of Service				B	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	97	495	21	190	1082	0	0	165	39
Future Volume (vph)	0	0	0	97	495	21	190	1082	0	0	165	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5019		1770	3539			3438	
Flt Permitted					0.99		0.61	1.00			1.00	
Satd. Flow (perm)					5019		1143	3539			3438	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	105	538	23	207	1176	0	0	179	42
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	0	662	0	207	1176	0	0	205	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					24.5		56.5	56.5			56.5	
Effective Green, g (s)					24.5		56.5	56.5			56.5	
Actuated g/C Ratio					0.27		0.63	0.63			0.63	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					1366		717	2221			2158	
v/s Ratio Prot								c0.33			0.06	
v/s Ratio Perm					0.13		0.18					
v/c Ratio					0.48		0.29	0.53			0.10	
Uniform Delay, d1					27.5		7.6	9.3			6.6	
Progression Factor					0.28		0.23	0.21			1.00	
Incremental Delay, d2					1.1		0.8	0.7			0.1	
Delay (s)					8.7		2.5	2.7			6.7	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			8.7			2.6			6.7	
Approach LOS		A			A			A			A	

Intersection Summary

HCM 2000 Control Delay	4.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	82	289	21	0	0	0	0	1190	186	6	256	0
Future Volume (vph)	82	289	21	0	0	0	0	1190	186	6	256	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3474						3467			3535	
Flt Permitted		0.99						1.00			0.92	
Satd. Flow (perm)		3474						3467			3259	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	314	23	0	0	0	0	1293	202	7	278	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	421	0	0	0	0	0	1495	0	0	285	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		21.5						59.5			59.5	
Effective Green, g (s)		21.5						59.5			59.5	
Actuated g/C Ratio		0.24						0.66			0.66	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		829						2292			2154	
v/s Ratio Prot								c0.43				
v/s Ratio Perm		0.12									0.09	
v/c Ratio		0.51						0.65			0.13	
Uniform Delay, d1		29.7						9.1			5.7	
Progression Factor		1.00						0.66			1.23	
Incremental Delay, d2		2.2						1.1			0.1	
Delay (s)		31.9						7.1			7.1	
Level of Service		C						A			A	
Approach Delay (s)		31.9			0.0			7.1			7.1	
Approach LOS		C			A			A			A	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	124	695	114	72	414	245	150	1115	73	87	405	163
Future Volume (vph)	124	695	114	72	414	245	150	1115	73	87	405	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3507		1770	3539	1583
Flt Permitted	0.25	1.00		0.17	1.00		0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	474	3464		317	3342		894	3507		229	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	755	124	78	450	266	163	1212	79	95	440	177
RTOR Reduction (vph)	0	15	0	0	34	0	0	5	0	0	0	82
Lane Group Flow (vph)	135	864	0	78	682	0	163	1286	0	95	440	95
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	171	1250		114	1206		481	1889		123	1907	853
v/s Ratio Prot		0.25			0.20			0.37			0.12	
v/s Ratio Perm	c0.29			0.25			0.18			c0.41		0.06
v/c Ratio	0.79	0.69		0.68	0.57		0.34	0.68		0.77	0.23	0.11
Uniform Delay, d1	25.7	24.5		24.4	23.1		11.7	15.1		16.4	10.9	10.2
Progression Factor	1.00	1.00		0.71	0.68		0.52	0.45		0.85	0.81	0.42
Incremental Delay, d2	30.0	3.2		27.9	1.9		1.5	1.6		36.6	0.3	0.3
Delay (s)	55.7	27.6		45.2	17.6		7.6	8.4		50.5	9.1	4.5
Level of Service	E	C		D	B		A	A		D	A	A
Approach Delay (s)		31.4			20.3			8.3			13.5	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗	↗	↘	↗↗		↘	↗↗	
Traffic Volume (vph)	112	828	127	101	484	236	137	1037	85	86	467	176
Future Volume (vph)	112	828	127	101	484	236	137	1037	85	86	467	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3394	
Flt Permitted	0.40	1.00		0.14	1.00	1.00	0.32	1.00		0.12	1.00	
Satd. Flow (perm)	737	3469		262	3539	1583	596	3499		219	3394	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	900	138	110	526	257	149	1127	92	93	508	191
RTOR Reduction (vph)	0	13	0	0	0	28	0	7	0	0	43	0
Lane Group Flow (vph)	122	1025	0	110	526	229	149	1212	0	93	656	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Effective Green, g (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	307	1445		109	1474	659	288	1691		105	1640	
v/s Ratio Prot		0.30			0.15			0.35			0.19	
v/s Ratio Perm	0.17			c0.42		0.14	0.25			c0.42		
v/c Ratio	0.40	0.71		1.01	0.36	0.35	0.52	0.72		0.89	0.40	
Uniform Delay, d1	18.4	21.7		26.2	18.0	17.9	16.0	18.4		21.0	14.9	
Progression Factor	1.00	1.00		0.57	0.57	0.50	1.00	1.00		0.86	0.84	
Incremental Delay, d2	3.8	3.0		83.8	0.6	1.3	6.5	2.6		59.6	0.7	
Delay (s)	22.2	24.7		98.7	10.8	10.3	22.5	21.0		77.5	13.3	
Level of Service	C	C		F	B	B	C	C		E	B	
Approach Delay (s)		24.4			21.5			21.2			20.8	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

25: Judge John Aiso St & E Temple St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	748	105	96	464	309	280
Future Volume (vph)	748	105	96	464	309	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.25	1.00	0.95	1.00
Satd. Flow (perm)	3474		458	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	813	114	104	504	336	304
RTOR Reduction (vph)	12	0	0	0	0	108
Lane Group Flow (vph)	915	0	104	504	336	196
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	50.5		50.5	50.5	30.5	30.5
Effective Green, g (s)	50.5		50.5	50.5	30.5	30.5
Actuated g/C Ratio	0.56		0.56	0.56	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1949		256	1985	1163	536
v/s Ratio Prot	c0.26			0.14	0.10	
v/s Ratio Perm			0.23			c0.12
v/c Ratio	0.47		0.41	0.25	0.29	0.37
Uniform Delay, d1	11.8		11.2	10.1	21.8	22.5
Progression Factor	0.26		0.92	0.90	0.63	0.37
Incremental Delay, d2	0.6		4.5	0.3	0.5	1.5
Delay (s)	3.7		14.8	9.4	14.1	9.9
Level of Service	A		B	A	B	A
Approach Delay (s)	3.7			10.3	12.1	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	86	809	129	69	581	81	184	425	140	32	190	64
Future Volume (vph)	86	809	129	69	581	81	184	425	140	32	190	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3466		1770	3474			3398			3401	
Flt Permitted	0.31	1.00		0.18	1.00			0.76			0.82	
Satd. Flow (perm)	570	3466		332	3474			2619			2819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	879	140	75	632	88	200	462	152	35	207	70
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	30	0
Lane Group Flow (vph)	93	1005	0	75	708	0	0	792	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.6	42.6		42.6	42.6			38.4			38.4	
Effective Green, g (s)	42.6	42.6		42.6	42.6			38.4			38.4	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.43			0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	269	1640		157	1644			1117			1202	
v/s Ratio Prot		c0.29			0.20							
v/s Ratio Perm	0.16			0.23				c0.30			0.10	
v/c Ratio	0.35	0.61		0.48	0.43			0.71			0.23	
Uniform Delay, d1	14.9	17.6		16.1	15.7			21.2			16.4	
Progression Factor	0.39	0.36		0.87	0.87			1.00			0.39	
Incremental Delay, d2	2.4	1.2		9.6	0.8			3.8			0.4	
Delay (s)	8.2	7.5		23.7	14.5			25.0			6.8	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.5			15.4			25.0			6.8	
Approach LOS		A			B			C			A	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	650	341	157	608	36	235	561	82	38	557	377
Future Volume (vph)	437	650	341	157	608	36	235	561	82	38	557	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3216		1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.65		0.23	1.00		0.26	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	276	2110		431	3510		478	3539	1583	525	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	707	371	171	661	39	255	610	89	41	605	410
RTOR Reduction (vph)	0	57	0	0	5	0	0	0	53	0	0	42
Lane Group Flow (vph)	389	1107	0	171	695	0	255	610	36	41	605	368
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.5	44.5		26.5	20.1		36.5	36.5	36.5	21.5	21.5	41.4
Effective Green, g (s)	44.5	44.5		26.5	20.1		36.5	36.5	36.5	21.5	21.5	41.4
Actuated g/C Ratio	0.49	0.49		0.29	0.22		0.41	0.41	0.41	0.24	0.24	0.46
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	431	1287		222	783		344	1435	641	125	845	728
v/s Ratio Prot	c0.20	c0.19		0.05	0.20		c0.09	0.17			0.17	0.11
v/s Ratio Perm	c0.25	0.24		0.17			c0.21		0.02	0.08		0.12
v/c Ratio	0.90	0.86		0.77	0.89		0.74	0.43	0.06	0.33	0.72	0.51
Uniform Delay, d1	22.8	20.0		24.8	33.9		29.1	19.2	16.3	28.3	31.4	17.1
Progression Factor	1.14	0.47		1.00	1.00		0.73	0.65	0.45	1.00	1.00	1.00
Incremental Delay, d2	15.3	4.0		15.1	11.9		4.6	0.5	0.1	6.9	5.2	0.6
Delay (s)	41.2	13.5		40.0	45.8		25.9	13.0	7.4	35.2	36.6	17.7
Level of Service	D	B		D	D		C	B	A	D	D	B
Approach Delay (s)		20.4			44.6			15.9			29.2	
Approach LOS		C			D			B			C	

Intersection Summary		
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.90	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	89.1%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Future Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1856		1770	1751		1770	1859		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1770	1856		1770	1751		1157	1859		464	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	443	11	7	266	178	18	340	4	103	143	226
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	173
Lane Group Flow (vph)	525	453	0	7	417	0	18	343	0	103	143	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Effective Green, g (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Actuated g/C Ratio	0.36	0.60		0.01	0.26		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	633	1117		19	447		273	439		109	440	374
v/s Ratio Prot	c0.30	0.24		0.00	c0.24			0.18				0.08
v/s Ratio Perm							0.02			c0.22		0.03
v/c Ratio	0.83	0.41		0.37	0.93		0.07	0.78		0.94	0.33	0.14
Uniform Delay, d1	26.4	9.4		44.2	32.8		26.6	32.2		33.8	28.4	27.1
Progression Factor	0.71	0.40		1.00	1.00		1.00	1.00		0.71	0.74	0.79
Incremental Delay, d2	7.4	0.2		11.7	26.6		0.5	13.0		54.7	1.2	0.5
Delay (s)	26.2	4.0		55.9	59.3		27.1	45.2		78.6	22.2	21.8
Level of Service	C	A		E	E		C	D		E	C	C
Approach Delay (s)		15.9			59.3			44.3			34.3	
Approach LOS		B			E			D			C	

Intersection Summary

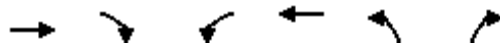
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	725	210	106	479	255	274
Future Volume (vph)	725	210	106	479	255	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.23	1.00	0.95	1.00
Satd. Flow (perm)	3420		424	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	788	228	115	521	277	298
RTOR Reduction (vph)	30	0	0	0	0	140
Lane Group Flow (vph)	986	0	115	521	277	158
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	54.5		54.5	54.5	26.5	26.5
Effective Green, g (s)	54.5		54.5	54.5	26.5	26.5
Actuated g/C Ratio	0.61		0.61	0.61	0.29	0.29
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2071		256	2143	521	466
v/s Ratio Prot	c0.29			0.15	c0.16	
v/s Ratio Perm			0.27			0.10
v/c Ratio	0.48		0.45	0.24	0.53	0.34
Uniform Delay, d1	9.8		9.6	8.2	26.6	24.9
Progression Factor	0.30		1.30	1.18	1.00	1.00
Incremental Delay, d2	0.6		4.5	0.2	3.9	2.0
Delay (s)	3.6		17.1	9.9	30.4	26.9
Level of Service	A		B	A	C	C
Approach Delay (s)	3.6			11.2	28.6	
Approach LOS	A			B	C	

Intersection Summary

HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	16	5	19	210	14	104	27	901	60	20	437	12
Future Volume (vph)	16	5	19	210	14	104	27	901	60	20	437	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Fr _t		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1706		1770	1616		1770	3539	1583	1770	3525	
Fl _t Permitted		0.89		0.73	1.00		0.47	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1542		1358	1616		877	3539	1583	479	3525	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	5	21	228	15	113	29	979	65	22	475	13
RTOR Reduction (vph)	0	16	0	0	68	0	0	0	21	0	1	0
Lane Group Flow (vph)	0	27	0	228	60	0	29	979	44	22	487	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Effective Green, g (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Actuated g/C Ratio		0.23		0.23	0.23		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		352		310	369		588	2375	1062	321	2365	
v/s Ratio Prot					0.04			c0.28			0.14	
v/s Ratio Perm		0.02		c0.17			0.03		0.03	0.05		
v/c Ratio		0.08		0.74	0.16		0.05	0.41	0.04	0.07	0.21	
Uniform Delay, d ₁		27.2		32.2	27.8		5.0	6.7	5.0	5.1	5.6	
Progression Factor		1.00		1.00	1.00		2.53	2.73	5.47	1.09	1.15	
Incremental Delay, d ₂		0.1		8.8	0.2		0.1	0.4	0.0	0.3	0.1	
Delay (s)		27.3		40.9	28.0		12.9	18.7	27.4	5.8	6.6	
Level of Service		C		D	C		B	B	C	A	A	
Approach Delay (s)		27.3			36.3			19.1			6.6	
Approach LOS		C			D			B			A	

Intersection Summary

HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/11/2018

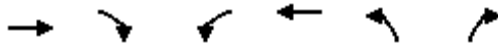


Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	20	17	884	56	12	481	
Future Volume (Veh/h)	20	17	884	56	12	481	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	22	18	961	61	13	523	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	595						
pX, platoon unblocked							
vC, conflicting volume	1279	511			1022		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1279	511			1022		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	86	96			98		
cM capacity (veh/h)	155	508			675		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	18	641	381	13	262	262
Volume Left	22	0	0	0	13	0	0
Volume Right	0	18	0	61	0	0	0
cSH	155	508	1700	1700	675	1700	1700
Volume to Capacity	0.14	0.04	0.38	0.22	0.02	0.15	0.15
Queue Length 95th (ft)	12	3	0	0	1	0	0
Control Delay (s)	32.1	12.4	0.0	0.0	10.4	0.0	0.0
Lane LOS	D	B			B		
Approach Delay (s)	23.2		0.0		0.3		
Approach LOS	C						
Intersection Summary							
Average Delay			0.7				
Intersection Capacity Utilization			36.2%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1110	62	67	1038	116	109
Future Volume (vph)	1110	62	67	1038	116	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3511		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3511		260	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1207	67	73	1128	126	118
RTOR Reduction (vph)	8	0	0	0	0	35
Lane Group Flow (vph)	1266	0	73	1128	126	83
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	28.7		28.7	28.7	22.3	22.3
Effective Green, g (s)	28.7		28.7	28.7	22.3	22.3
Actuated g/C Ratio	0.48		0.48	0.48	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1679		124	1692	657	588
v/s Ratio Prot	c0.36			0.32	c0.07	
v/s Ratio Perm			0.28			0.05
v/c Ratio	0.75		0.59	0.67	0.19	0.14
Uniform Delay, d1	12.8		11.4	12.0	12.8	12.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0		7.0	1.0	0.6	0.5
Delay (s)	14.7		18.3	13.0	13.4	13.0
Level of Service	B		B	B	B	B
Approach Delay (s)	14.7			13.3	13.2	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	165	55	66	0	878	0	0	864	123
Future Volume (vph)	0	0	0	165	55	66	0	878	0	0	864	123
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.98	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6288	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6288	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	179	60	72	0	954	0	0	939	134
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	179	60	12	0	954	0	0	1057	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				14.5	14.5	14.5		66.5			66.5	
Effective Green, g (s)				14.5	14.5	14.5		66.5			66.5	
Actuated g/C Ratio				0.16	0.16	0.16		0.74			0.74	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				285	300	255		3757			4646	
v/s Ratio Prot				c0.10	0.03			c0.19			0.17	
v/s Ratio Perm						0.01						
v/c Ratio				0.63	0.20	0.05		0.25			0.23	
Uniform Delay, d1				35.2	32.7	31.9		3.8			3.7	
Progression Factor				1.00	1.00	1.00		1.00			0.23	
Incremental Delay, d2				4.3	0.3	0.1		0.2			0.1	
Delay (s)				39.5	33.1	32.0		3.9			1.0	
Level of Service				D	C	C		A			A	
Approach Delay (s)		0.0			36.5			3.9			1.0	
Approach LOS		A			D			A			A	




























Intersection Summary

HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	33.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 1: N Alameda St & E Aliso St/E Commercial St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 					 		 	  	
Traffic Volume (vph)	44	32	118	154	0	205	0	705	154	156	1211	0
Future Volume (vph)	44	32	118	154	0	205	0	705	154	156	1211	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	35	128	167	0	223	0	766	167	170	1316	0
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	103	0	0	0
Lane Group Flow (vph)	48	35	15	167	0	223	0	766	64	170	1316	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6	Perm	Prot	NA	2
Permitted Phases			3						6			
Actuated Green, G (s)	10.3	10.3	10.3	21.3		21.3		26.8	26.8	13.6	44.9	
Effective Green, g (s)	10.3	10.3	10.3	21.3		21.3		26.8	26.8	13.6	44.9	
Actuated g/C Ratio	0.11	0.11	0.11	0.24		0.24		0.30	0.30	0.15	0.50	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	392	213	181	418		374		1053	471	267	2536	
v/s Ratio Prot	0.01	c0.02		0.09		c0.14		c0.22		c0.10	0.26	
v/s Ratio Perm			0.01						0.04			
v/c Ratio	0.12	0.16	0.08	0.40		0.60		0.73	0.14	0.64	0.52	
Uniform Delay, d1	35.8	36.0	35.6	29.0		30.5		28.3	23.1	35.9	15.2	
Progression Factor	0.83	0.83	0.68	1.61		1.58		1.55	3.42	1.37	0.64	
Incremental Delay, d2	0.6	1.6	0.9	2.1		5.0		4.1	0.6	9.4	0.6	
Delay (s)	30.2	31.6	25.1	48.6		53.1		47.9	79.6	58.7	10.4	
Level of Service	C	C	C	D		D		D	E	E	B	
Approach Delay (s)		27.4			51.2			53.6			15.9	
Approach LOS		C			D			D			B	
Intersection Summary												
HCM 2000 Control Delay			32.9		HCM 2000 Level of Service				C			
HCM 2000 Volume to Capacity ratio			0.59									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			54.2%		ICU Level of Service				A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↗	↗		↖	↖↗			↖↗			↖	↗
Traffic Volume (vph)	244	23	75	0	0	1	167	137	0	35	254	192
Future Volume (vph)	244	23	75	0	0	1	167	137	0	35	254	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			0.95			0.95			1.00	1.00
Frt	1.00	0.89			0.85			1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.97			0.99	1.00
Satd. Flow (prot)	3433	1649			3008			3445			1852	1583
Flt Permitted	0.95	1.00			1.00			0.97			0.99	1.00
Satd. Flow (perm)	3433	1649			3008			3445			1852	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	25	82	0	0	1	182	149	0	38	276	209
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	0	0	0	134
Lane Group Flow (vph)	265	69	0	0	0	0	0	331	0	0	314	75
Turn Type	Prot	NA		Perm	NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	12.0	48.5			32.0			7.5			20.5	32.5
Effective Green, g (s)	12.0	48.5			32.0			7.5			20.5	32.5
Actuated g/C Ratio	0.13	0.54			0.36			0.08			0.23	0.36
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	457	888			1069			287			421	650
v/s Ratio Prot	c0.08	c0.04			0.00			c0.10			c0.17	0.03
v/s Ratio Perm												0.02
v/c Ratio	0.58	0.08			0.00			1.24dl			0.75	0.12
Uniform Delay, d1	36.6	10.0			18.7			41.2			32.3	19.2
Progression Factor	1.40	0.25			1.00			1.00			1.00	1.00
Incremental Delay, d2	1.6	0.2			0.0			101.2			7.0	0.1
Delay (s)	53.1	2.6			18.7			142.4			39.4	19.3
Level of Service	D	A			B			F			D	B
Approach Delay (s)		38.6			18.7			142.4			31.3	
Approach LOS		D			B			F			C	

Intersection Summary		
HCM 2000 Control Delay	63.5	HCM 2000 Level of Service E
HCM 2000 Volume to Capacity ratio	0.47	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	49.4%	ICU Level of Service A
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	166	152	25	355	41	260	711	0	30	864	442
Future Volume (vph)	106	166	152	25	355	41	260	711	0	30	864	442
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.98		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3285		1770	3484		1770	3539		1770	3539	1583
Flt Permitted	0.24	1.00		0.54	1.00		0.22	1.00		0.95	1.00	1.00
Satd. Flow (perm)	441	3285		1014	3484		406	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	180	165	27	386	45	283	773	0	33	939	480
RTOR Reduction (vph)	0	118	0	0	0	0	0	0	0	0	0	191
Lane Group Flow (vph)	115	227	0	27	431	0	283	773	0	33	939	289
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	33.7	33.7
Effective Green, g (s)	25.5	25.5		15.8	15.8		47.2	47.2		3.8	33.7	33.7
Actuated g/C Ratio	0.28	0.28		0.18	0.18		0.52	0.52		0.04	0.37	0.37
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	201	930		178	611		475	1856		74	1325	592
v/s Ratio Prot	c0.03	0.07			c0.12		c0.11	0.22		0.02	c0.27	
v/s Ratio Perm	0.13			0.03			0.20					0.18
v/c Ratio	0.57	0.24		0.15	0.71		0.60	0.42		0.45	0.71	0.49
Uniform Delay, d1	25.4	24.8		31.4	34.9		21.8	13.0		42.1	24.0	21.6
Progression Factor	0.77	0.62		1.00	1.00		0.51	0.31		1.43	0.42	0.13
Incremental Delay, d2	3.8	0.1		0.4	3.7		1.8	0.6		3.7	2.8	2.5
Delay (s)	23.3	15.5		31.8	38.6		12.8	4.6		63.7	12.9	5.3
Level of Service	C	B		C	D		B	A		E	B	A
Approach Delay (s)		17.4			38.2			6.8			11.5	
Approach LOS		B			D			A			B	


















Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	25	64	7	104	3	363	115	11	6	47	62
Future Volume (vph)	50	25	64	7	104	3	363	115	11	6	47	62
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	54	27	70	8	113	3	395	125	12	7	51	67
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	81	70	124	532	125							
Volume Left (vph)	54	0	8	395	7							
Volume Right (vph)	0	70	3	12	67							
Hadj (s)	0.37	-0.67	0.03	0.17	-0.28							
Departure Headway (s)	6.9	5.8	6.1	5.1	5.3							
Degree Utilization, x	0.15	0.11	0.21	0.75	0.18							
Capacity (veh/h)	473	552	523	689	624							
Control Delay (s)	9.9	8.3	10.7	21.9	9.4							
Approach Delay (s)	9.2		10.7	21.9	9.4							
Approach LOS	A		B	C	A							
Intersection Summary												
Delay			16.7									
Level of Service			C									
Intersection Capacity Utilization			51.6%		ICU Level of Service		A					
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↙	↕			↕	↙	↙	↕	↙	↙	↕	↙
Traffic Volume (vph)	0	0	0	0	528	27	2	944	67	13	859	168
Future Volume (vph)	0	0	0	0	528	27	2	944	67	13	859	168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor					0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt					1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected					1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)					3539	1583	1770	3539	1583	1770	3539	1583
Flt Permitted					1.00	1.00	0.24	1.00	1.00	0.21	1.00	1.00
Satd. Flow (perm)					3539	1583	448	3539	1583	387	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	0	574	29	2	1026	73	14	934	183
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	33	0	0	25
Lane Group Flow (vph)	0	0	0	0	574	29	2	1026	40	14	934	158
Turn Type	pm+pt				NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Effective Green, g (s)					21.0	21.0	49.7	49.7	49.7	49.7	49.7	55.5
Actuated g/C Ratio					0.23	0.23	0.55	0.55	0.55	0.55	0.55	0.62
Clearance Time (s)					4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)					3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)					825	369	247	1954	874	213	1954	1055
v/s Ratio Prot					c0.16			c0.29			0.26	c0.01
v/s Ratio Perm						0.02	0.00		0.03	0.04		0.09
v/c Ratio					0.70	0.08	0.01	0.53	0.05	0.07	0.48	0.15
Uniform Delay, d1					31.6	26.9	9.1	12.7	9.3	9.4	12.3	7.3
Progression Factor					1.63	1.69	1.00	1.00	1.00	0.42	0.31	0.10
Incremental Delay, d2					1.6	0.1	0.1	1.0	0.1	0.5	0.7	0.1
Delay (s)					53.0	45.7	9.1	13.7	9.4	4.4	4.5	0.8
Level of Service					D	D	A	B	A	A	A	A
Approach Delay (s)		0.0			52.6			13.4			3.9	
Approach LOS		A			D			B			A	

Intersection Summary

HCM 2000 Control Delay	18.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	48.2%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕			↕	
Traffic Volume (vph)	54	117	10	184	531	406	4	19	27	27	33	20
Future Volume (vph)	54	117	10	184	531	406	4	19	27	27	33	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.95			0.93			0.97	
Flt Protected		0.98	1.00		0.99			1.00			0.98	
Satd. Flow (prot)		3484	1583		3320			1721			1770	
Flt Permitted		0.98	1.00		0.99			0.98			0.90	
Satd. Flow (perm)		3484	1583		3320			1701			1620	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	127	11	200	577	441	4	21	29	29	36	22
RTOR Reduction (vph)	0	0	8	0	95	0	0	23	0	0	14	0
Lane Group Flow (vph)	0	186	3	0	1123	0	0	31	0	0	73	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8			4	4
Permitted Phases			2				8			4		
Actuated Green, G (s)		22.4	22.4		36.0			18.1			18.1	
Effective Green, g (s)		22.4	22.4		36.0			18.1			18.1	
Actuated g/C Ratio		0.25	0.25		0.40			0.20			0.20	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		867	393		1328			342			325	
v/s Ratio Prot		c0.05			c0.34							
v/s Ratio Perm			0.00					0.02			c0.05	
v/c Ratio		0.21	0.01		0.85			0.09			0.23	
Uniform Delay, d1		26.8	25.4		24.5			29.3			30.1	
Progression Factor		1.07	1.00		0.70			1.00			1.00	
Incremental Delay, d2		0.6	0.0		2.9			0.5			1.6	
Delay (s)		29.3	25.5		20.1			29.8			31.7	
Level of Service		C	C		C			C			C	
Approach Delay (s)		29.1			20.1			29.8			31.7	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	22.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	60.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↖ ↗	↖ ↗		↖ ↗	↖ ↗			↖ ↗		
Traffic Volume (vph)	0	0	0	480	1755	229	115	840	0	0	887	55	
Future Volume (vph)	0	0	0	480	1755	229	115	840	0	0	887	55	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91		
Frt				1.00	0.98		1.00	1.00			0.99		
Flt Protected				0.95	1.00		0.95	1.00			1.00		
Satd. Flow (prot)				1522	4719		1770	5085			5041		
Flt Permitted				0.95	1.00		0.20	1.00			1.00		
Satd. Flow (perm)				1522	4719		368	5085			5041		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	522	1908	249	125	913	0	0	964	60	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	3	0	
Lane Group Flow (vph)	0	0	0	470	2209	0	125	913	0	0	1021	0	
Turn Type				Prot	NA		Perm	NA			NA		
Protected Phases				3	8			2			6		
Permitted Phases							2						
Actuated Green, G (s)				44.5	44.5		36.5	36.5			36.5		
Effective Green, g (s)				44.5	44.5		36.5	36.5			36.5		
Actuated g/C Ratio				0.49	0.49		0.41	0.41			0.41		
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)				752	2333		149	2062			2044		
v/s Ratio Prot				0.31	c0.47			0.18			0.20		
v/s Ratio Perm							c0.34						
v/c Ratio				0.62	0.95		0.84	0.44			0.50		
Uniform Delay, d1				16.6	21.6		24.1	19.4			19.9		
Progression Factor				1.00	1.00		0.79	0.66			0.19		
Incremental Delay, d2				3.9	9.8		32.1	0.5			0.8		
Delay (s)				20.5	31.4		51.1	13.2			4.7		
Level of Service				C	C		D	B			A		
Approach Delay (s)		0.0			29.5			17.8			4.7		
Approach LOS		A			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			21.6	HCM 2000 Level of Service					C				
HCM 2000 Volume to Capacity ratio			0.90										
Actuated Cycle Length (s)			90.0	Sum of lost time (s)					9.0				
Intersection Capacity Utilization			72.5%	ICU Level of Service					C				
Analysis Period (min)			15										
c Critical Lane Group													

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔	↔↔						↑↑↑		↔	↑↑↑	
Traffic Volume (vph)	112	53	18	0	0	0	0	526	113	64	1130	0
Future Volume (vph)	112	53	18	0	0	0	0	526	113	64	1130	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.98						0.97		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3247						4950		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.34	1.00	
Satd. Flow (perm)	1610	3247						4950		631	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	58	20	0	0	0	0	572	123	70	1228	0
RTOR Reduction (vph)	0	14	0	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	67	119	0	0	0	0	0	658	0	70	1228	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	25.5	25.5						37.5		55.5	55.5	
Effective Green, g (s)	25.5	25.5						37.5		55.5	55.5	
Actuated g/C Ratio	0.28	0.28						0.42		0.62	0.62	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	456	919						2062		559	3135	
v/s Ratio Prot	c0.04	0.04						0.13		0.02	c0.24	
v/s Ratio Perm										0.06		
v/c Ratio	0.15	0.13						0.32		0.13	0.39	
Uniform Delay, d1	24.1	24.0						17.7		9.2	8.7	
Progression Factor	1.00	1.00						1.56		0.26	0.27	
Incremental Delay, d2	0.7	0.3						0.3		0.4	0.4	
Delay (s)	24.8	24.3						28.0		2.9	2.7	
Level of Service	C	C						C		A	A	
Approach Delay (s)		24.5			0.0			28.0			2.7	
Approach LOS		C			A			C			A	

Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑	↗	↘	↑↑↑		↘	↑↑↑		↘	↑↑↑	
Traffic Volume (vph)	49	499	99	119	1239	46	123	426	129	76	1205	157
Future Volume (vph)	49	499	99	119	1239	46	123	426	129	76	1205	157
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.97		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5058		1770	4908		1770	4997	
Flt Permitted	0.14	1.00	1.00	0.29	1.00		0.16	1.00		0.27	1.00	
Satd. Flow (perm)	266	3539	1583	544	5058		307	4908		512	4997	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	53	542	108	129	1347	50	134	463	140	83	1310	171
RTOR Reduction (vph)	0	0	65	0	5	0	0	61	0	0	19	0
Lane Group Flow (vph)	53	542	43	129	1392	0	134	542	0	83	1462	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.5	28.5	36.0	38.5	38.5		31.8	31.8		30.5	30.5	
Effective Green, g (s)	28.5	28.5	36.0	38.5	38.5		31.8	31.8		30.5	30.5	
Actuated g/C Ratio	0.32	0.32	0.40	0.43	0.43		0.35	0.35		0.34	0.34	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	84	1120	633	307	2163		230	1734		260	1693	
v/s Ratio Prot		0.15	0.01	0.03	c0.28		c0.05	0.11		0.02	c0.29	
v/s Ratio Perm	0.20		0.02	0.15			0.16			0.09		
v/c Ratio	0.63	0.48	0.07	0.42	0.64		0.58	0.31		0.32	0.86	
Uniform Delay, d1	26.3	24.8	16.7	16.8	20.3		31.9	21.2		21.0	27.8	
Progression Factor	0.87	0.84	0.73	1.00	1.00		0.61	0.23		0.55	0.69	
Incremental Delay, d2	30.4	1.5	0.2	4.2	1.5		10.3	0.5		3.0	5.8	
Delay (s)	53.1	22.3	12.3	21.0	21.8		29.8	5.3		14.6	25.0	
Level of Service	D	C	B	C	C		C	A		B	C	
Approach Delay (s)		23.1			21.8			9.8			24.5	
Approach LOS		C			C			A			C	

Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	56	116	63	56	753	147	58	265	12	145	977	244
Future Volume (vph)	56	116	63	56	753	147	58	265	12	145	977	244
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.95		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3353		1770	3539	1583	1770	3539	1583	1770	4933	
Flt Permitted	0.18	1.00		0.63	1.00	1.00	0.15	1.00	1.00	0.58	1.00	
Satd. Flow (perm)	331	3353		1173	3539	1583	287	3539	1583	1072	4933	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	61	126	68	61	818	160	63	288	13	158	1062	265
RTOR Reduction (vph)	0	51	0	0	0	68	0	0	6	0	32	0
Lane Group Flow (vph)	61	143	0	61	818	92	63	288	7	158	1295	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	22.5	22.5		31.2	31.2	31.2	49.8	49.8	49.8	49.8	49.8	
Effective Green, g (s)	22.5	22.5		31.2	31.2	31.2	49.8	49.8	49.8	49.8	49.8	
Actuated g/C Ratio	0.25	0.25		0.35	0.35	0.35	0.55	0.55	0.55	0.55	0.55	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	82	838		434	1226	548	158	1958	875	593	2729	
v/s Ratio Prot		0.04		0.01	c0.23			0.08			c0.26	
v/s Ratio Perm	c0.18			0.04		0.06	0.22		0.00	0.15		
v/c Ratio	0.74	0.17		0.14	0.67	0.17	0.40	0.15	0.01	0.27	0.47	
Uniform Delay, d1	31.1	26.4		20.3	25.0	20.4	11.5	9.8	9.0	10.5	12.2	
Progression Factor	1.00	1.00		0.86	0.92	0.77	0.69	0.50	1.00	0.32	0.29	
Incremental Delay, d2	30.1	0.1		0.1	1.1	0.1	7.3	0.2	0.0	1.0	0.5	
Delay (s)	61.2	26.5		17.6	24.1	15.9	15.2	5.1	9.0	4.4	4.1	
Level of Service	E	C		B	C	B	B	A	A	A	A	
Approach Delay (s)		34.8			22.5			7.0			4.1	
Approach LOS		C			C			A			A	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↰	↕↕	↱	↰	↕↕	↱	↰	↕↕	↱	↰	↕↕	↱
Traffic Volume (vph)	52	444	199	253	1259	371	159	389	59	150	362	30
Future Volume (vph)	52	444	199	253	1259	371	159	389	59	150	362	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99	0.99
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3498	3498
Flt Permitted	0.11	1.00	1.00	0.37	1.00	1.00	0.56	1.00	1.00	0.56	1.00	1.00
Satd. Flow (perm)	207	3539	1583	693	3539	1583	1035	3539	1583	1035	3498	3498
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	483	216	275	1368	403	173	423	64	163	393	33
RTOR Reduction (vph)	0	0	130	0	0	190	0	0	53	0	7	0
Lane Group Flow (vph)	57	483	86	275	1368	213	173	423	11	163	419	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	40.3	36.0	36.0	52.0	43.2	43.2	16.0	16.0	16.0	15.7	15.7	
Effective Green, g (s)	40.3	36.0	36.0	52.0	43.2	43.2	16.0	16.0	16.0	15.7	15.7	
Actuated g/C Ratio	0.45	0.40	0.40	0.58	0.48	0.48	0.18	0.18	0.18	0.17	0.17	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	167	1415	633	538	1698	759	255	629	281	249	610	
v/s Ratio Prot	0.02	0.14		c0.07	c0.39		0.07	c0.12		0.06	c0.12	
v/s Ratio Perm	0.14		0.05	0.23		0.13	0.05		0.01	0.05		
v/c Ratio	0.34	0.34	0.14	0.51	0.81	0.28	0.68	0.67	0.04	0.65	0.69	
Uniform Delay, d1	16.6	18.8	17.1	10.1	19.8	14.1	34.3	34.6	30.6	33.8	34.8	
Progression Factor	1.00	1.00	1.00	0.82	0.65	0.22	0.89	0.89	1.00	0.63	0.64	
Incremental Delay, d2	1.2	0.7	0.4	0.1	0.4	0.1	6.7	2.7	0.1	6.0	3.2	
Delay (s)	17.8	19.4	17.6	8.3	13.3	3.2	37.3	33.6	30.7	27.4	25.6	
Level of Service	B	B	B	A	B	A	D	C	C	C	C	
Approach Delay (s)		18.8			10.6			34.3			26.1	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	73.7%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	68	70	106	128	337	35	193	184	431	150	234
Future Volume (vph)	115	68	70	106	128	337	35	193	184	431	150	234
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3154		1770	1863	1583	3433	3539	1583	3433	3216	
Flt Permitted	0.67	0.86		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1133	2739		1770	1863	1583	3433	3539	1583	3433	3216	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	125	74	76	115	139	366	38	210	200	468	163	254
RTOR Reduction (vph)	0	66	0	0	0	259	0	0	131	0	121	0
Lane Group Flow (vph)	85	124	0	115	139	107	38	210	69	468	296	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	12.3	12.3		9.4	26.2	26.2	3.3	31.1	31.1	19.2	47.0	
Effective Green, g (s)	12.3	12.3		9.4	26.2	26.2	3.3	31.1	31.1	19.2	47.0	
Actuated g/C Ratio	0.14	0.14		0.10	0.29	0.29	0.04	0.35	0.35	0.21	0.52	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	154	374		184	542	460	125	1222	547	732	1679	
v/s Ratio Prot				c0.06	0.07		0.01	0.06		c0.14	c0.09	
v/s Ratio Perm	c0.08	0.05				0.07			0.04			
v/c Ratio	0.55	0.33		0.62	0.26	0.23	0.30	0.17	0.13	0.64	0.18	
Uniform Delay, d1	36.3	35.1		38.6	24.4	24.2	42.2	20.5	20.2	32.2	11.3	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.70	0.47	
Incremental Delay, d2	4.2	0.5		6.5	0.3	0.3	1.4	0.3	0.5	1.7	0.2	
Delay (s)	40.5	35.7		45.1	24.7	24.5	43.6	20.8	20.6	24.3	5.5	
Level of Service	D	D		D	C	C	D	C	C	C	A	
Approach Delay (s)		37.2			28.4			22.7			15.5	
Approach LOS		D			C			C			B	

Intersection Summary

























HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	44.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	61	200	5	0	407	219	1	194	42	227	511	547
Future Volume (vph)	61	200	5	0	407	219	1	194	42	227	511	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.95		1.00	0.97		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3527			3353		1770	3444		1770	3265	
Flt Permitted	0.95	1.00			1.00		0.16	1.00		0.59	1.00	
Satd. Flow (perm)	1770	3527			3353		303	3444		1104	3265	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	217	5	0	442	238	1	211	46	247	555	595
RTOR Reduction (vph)	0	3	0	0	82	0	0	16	0	0	164	0
Lane Group Flow (vph)	66	219	0	0	598	0	1	241	0	247	986	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	7.6	32.5			20.4		48.5	48.5		48.5	48.5	
Effective Green, g (s)	7.6	32.5			20.4		48.5	48.5		48.5	48.5	
Actuated g/C Ratio	0.08	0.36			0.23		0.54	0.54		0.54	0.54	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	149	1273			760		163	1855		594	1759	
v/s Ratio Prot	c0.04	0.06			c0.18			0.07			c0.30	
v/s Ratio Perm							0.00			0.22		
v/c Ratio	0.44	0.17			0.79		0.01	0.13		0.42	0.56	
Uniform Delay, d1	39.2	19.6			32.8		9.6	10.3		12.3	13.7	
Progression Factor	1.27	1.33			1.18		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.1	0.1			5.3		0.1	0.1		2.1	1.3	
Delay (s)	51.7	26.2			43.8		9.7	10.4		14.5	15.0	
Level of Service	D	C			D		A	B		B	B	
Approach Delay (s)		32.0			43.8			10.4			14.9	
Approach LOS		C			D			B			B	
Intersection Summary												
HCM 2000 Control Delay			23.9				HCM 2000 Level of Service			C		
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			73.3%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	81	69	167	29	153	10	190	265	12	16	1169	154
Future Volume (vph)	81	69	167	29	153	10	190	265	12	16	1169	154
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1845		1770	3516		1770	4997	
Flt Permitted	0.47	1.00	1.00	0.71	1.00		0.13	1.00		0.57	1.00	
Satd. Flow (perm)	871	1863	1583	1319	1845		233	3516		1058	4997	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	88	75	182	32	166	11	207	288	13	17	1271	167
RTOR Reduction (vph)	0	0	154	0	3	0	0	3	0	0	13	0
Lane Group Flow (vph)	88	75	28	32	174	0	207	298	0	17	1425	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Effective Green, g (s)	13.8	13.8	13.8	13.8	13.8		67.2	67.2		52.1	52.1	
Actuated g/C Ratio	0.15	0.15	0.15	0.15	0.15		0.75	0.75		0.58	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	133	285	242	202	282		354	2625		612	2892	
v/s Ratio Prot		0.04			0.09		c0.07	0.08			0.29	
v/s Ratio Perm	c0.10		0.02	0.02			c0.37			0.02		
v/c Ratio	0.66	0.26	0.12	0.16	0.62		0.58	0.11		0.03	0.49	
Uniform Delay, d1	35.9	33.6	32.8	33.1	35.6		7.1	3.2		8.1	11.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.77	0.46		1.00	1.00	
Incremental Delay, d2	11.7	0.5	0.2	0.4	4.0		2.4	0.1		0.1	0.6	
Delay (s)	47.6	34.1	33.1	33.4	39.6		15.0	1.5		8.2	11.8	
Level of Service	D	C	C	C	D		B	A		A	B	
Approach Delay (s)		37.0			38.7			7.0			11.7	
Approach LOS		D			D			A			B	

Intersection Summary




















HCM 2000 Control Delay	16.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

























17: N Alameda St & Ord St/Main St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	0	64	0	0	0	57	371	258	0	1376	229
Future Volume (Veh/h)	0	0	64	0	0	0	57	371	258	0	1376	229
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	0	0	70	0	0	0	62	403	280	0	1496	249
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type								None			None	
Median storage (veh)												
Upstream signal (ft)								206			797	
pX, platoon unblocked	0.90	0.90	0.90	0.90	0.90	0.99	0.90			0.99		
vC, conflicting volume	1946	2148	623	1096	2272	202	1745			403		
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	1624	1847	190	683	1984	177	1437			380		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)												
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	100	100	91	100	100	100	85			100		
cM capacity (veh/h)	55	57	737	243	47	828	421			1165		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3			
Volume Total	70	0	62	202	202	280	598	598	548			
Volume Left	0	0	62	0	0	0	0	0	0			
Volume Right	70	0	0	0	0	280	0	0	249			
cSH	737	1700	421	1700	1700	1700	1700	1700	1700			
Volume to Capacity	0.09	0.00	0.15	0.12	0.12	0.16	0.35	0.35	0.32			
Queue Length 95th (ft)	8	0	13	0	0	0	0	0	0			
Control Delay (s)	10.4	0.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0			
Lane LOS	B	A	C									
Approach Delay (s)	10.4	0.0	1.2				0.0					
Approach LOS	B	A										
Intersection Summary												
Average Delay			0.6									
Intersection Capacity Utilization			42.3%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis
 18: N Alameda St & Main St/Bauchet St























12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	 							  			  		
Traffic Volume (vph)	203	37	15	20	0	11	0	472	49	37	1403	0	
Future Volume (vph)	203	37	15	20	0	11	0	472	49	37	1403	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91		
Frt	1.00	0.96		1.00		0.85		0.99		1.00	1.00		
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00		
Satd. Flow (prot)	3433	1783		1770		1583		5014		1770	5085		
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.43	1.00		
Satd. Flow (perm)	3433	1783		1770		1583		5014		799	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	221	40	16	22	0	12	0	513	53	40	1525	0	
RTOR Reduction (vph)	0	14	0	0	0	12	0	9	0	0	0	0	
Lane Group Flow (vph)	221	42	0	22	0	0	0	557	0	40	1525	0	
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA		
Protected Phases	7	4		3				2			6		
Permitted Phases	4					8				6			
Actuated Green, G (s)	18.2	9.6		4.1		1.1		62.8		62.8	62.8		
Effective Green, g (s)	18.2	9.6		4.1		1.1		62.8		62.8	62.8		
Actuated g/C Ratio	0.20	0.11		0.05		0.01		0.70		0.70	0.70		
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0		
Lane Grp Cap (vph)	694	190		80		19		3498		557	3548		
v/s Ratio Prot	c0.04	0.02		0.01				0.11			c0.30		
v/s Ratio Perm	0.02					0.00				0.05			
v/c Ratio	0.32	0.22		0.28		0.01		0.16		0.07	0.43		
Uniform Delay, d1	30.6	36.8		41.5		43.9		4.6		4.3	5.9		
Progression Factor	0.82	0.65		1.00		1.00		0.26		0.61	0.52		
Incremental Delay, d2	0.3	0.6		1.9		0.2		0.1		0.2	0.4		
Delay (s)	25.3	24.3		43.4		44.1		1.3		2.9	3.4		
Level of Service	C	C		D		D		A		A	A		
Approach Delay (s)		25.1			43.6			1.3			3.4		
Approach LOS		C			D			A			A		
Intersection Summary													
HCM 2000 Control Delay			5.9									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.43										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			46.7%									ICU Level of Service	A
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			  				
Traffic Volume (vph)	68	551	0	0	1499	20	120	168	95	0	0	0
Future Volume (vph)	68	551	0	0	1499	20	120	168	95	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.95				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5075		1522	4549				
Flt Permitted	0.12	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	216	3539			5075		1522	4549				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	74	599	0	0	1629	22	130	183	103	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	81	0	0	0	0
Lane Group Flow (vph)	74	599	0	0	1649	0	105	230	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	61.7	61.7			61.7		19.3	19.3				
Effective Green, g (s)	61.7	61.7			61.7		19.3	19.3				
Actuated g/C Ratio	0.69	0.69			0.69		0.21	0.21				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	148	2426			3479		326	975				
v/s Ratio Prot		0.17			0.33		c0.07	0.05				
v/s Ratio Perm	c0.34											
v/c Ratio	0.50	0.25			0.47		0.32	0.24				
Uniform Delay, d1	6.8	5.4			6.6		29.8	29.2				
Progression Factor	1.00	1.00			0.33		1.00	1.00				
Incremental Delay, d2	11.6	0.2			0.3		2.6	0.6				
Delay (s)	18.3	5.6			2.5		32.4	29.8				
Level of Service	B	A			A		C	C				
Approach Delay (s)		7.0			2.5		30.5				0.0	
Approach LOS		A			A		C				A	
Intersection Summary												
HCM 2000 Control Delay			7.9				HCM 2000 Level of Service		A			
HCM 2000 Volume to Capacity ratio			0.46									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			50.7%				ICU Level of Service		A			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	300	1564	60	87	268	0	0	347	41
Future Volume (vph)	0	0	0	300	1564	60	87	268	0	0	347	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Fr _t					1.00		1.00	1.00			0.98	
Fl _t Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5022		1770	3539			3483	
Fl _t Permitted					0.99		0.43	1.00			1.00	
Satd. Flow (perm)					5022		794	3539			3483	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	326	1700	65	95	291	0	0	377	45
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	10	0
Lane Group Flow (vph)	0	0	0	0	2087	0	95	291	0	0	412	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					53.5		27.5	27.5			27.5	
Effective Green, g (s)					53.5		27.5	27.5			27.5	
Actuated g/C Ratio					0.59		0.31	0.31			0.31	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					2985		242	1081			1064	
v/s Ratio Prot								0.08			0.12	
v/s Ratio Perm					0.42		c0.12					
v/c Ratio					0.70		0.39	0.27			0.39	
Uniform Delay, d ₁					12.7		24.7	23.6			24.6	
Progression Factor					0.11		0.60	0.61			1.00	
Incremental Delay, d ₂					0.5		4.7	0.6			1.1	
Delay (s)					2.0		19.4	15.0			25.7	
Level of Service					A		B	B			C	
Approach Delay (s)		0.0			2.0			16.1			25.7	
Approach LOS		A			A			B			C	













Intersection Summary

HCM 2000 Control Delay	7.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	64.6%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑			↑			↑↑			↑↑	
Traffic Volume (vph)	31	133	152	0	0	0	0	324	61	9	638	0
Future Volume (vph)	31	133	152	0	0	0	0	324	61	9	638	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.93						0.98			1.00	
Flt Protected		1.00						1.00			1.00	
Satd. Flow (prot)		3268						3455			3537	
Flt Permitted		0.93						1.00			0.95	
Satd. Flow (perm)		3056						3455			3358	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	34	145	165	0	0	0	0	352	66	10	693	0
RTOR Reduction (vph)	0	109	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	235	0	0	0	0	0	418	0	0	703	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		30.5						50.5			50.5	
Effective Green, g (s)		30.5						50.5			50.5	
Actuated g/C Ratio		0.34						0.56			0.56	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		1035						1938			1884	
v/s Ratio Prot								0.12				
v/s Ratio Perm		c0.08									c0.21	
v/c Ratio		0.23						0.22			0.37	
Uniform Delay, d1		21.3						9.9			11.0	
Progression Factor		1.00						0.60			0.46	
Incremental Delay, d2		0.5						0.2			0.5	
Delay (s)		21.8						6.1			5.6	
Level of Service		C						A			A	
Approach Delay (s)		21.8			0.0			6.1			5.6	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			9.5					HCM 2000 Level of Service			A	
HCM 2000 Volume to Capacity ratio			0.32									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			41.0%					ICU Level of Service		A		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑		↘	↑↑		↘	↑↑	↘
Traffic Volume (vph)	33	385	172	100	743	122	70	332	52	169	917	94
Future Volume (vph)	33	385	172	100	743	122	70	332	52	169	917	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3375		1770	3464		1770	3467		1770	3539	1583
Flt Permitted	0.17	1.00		0.34	1.00		0.20	1.00		0.49	1.00	1.00
Satd. Flow (perm)	308	3375		628	3464		373	3467		910	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	418	187	109	808	133	76	361	57	184	997	102
RTOR Reduction (vph)	0	48	0	0	15	0	0	14	0	0	0	31
Lane Group Flow (vph)	36	557	0	109	926	0	76	404	0	184	997	71
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Effective Green, g (s)	35.5	35.5		35.5	35.5		45.5	45.5		45.5	45.5	45.5
Actuated g/C Ratio	0.39	0.39		0.39	0.39		0.51	0.51		0.51	0.51	0.51
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	121	1331		247	1366		188	1752		460	1789	800
v/s Ratio Prot		0.17			c0.27			0.12			c0.28	
v/s Ratio Perm	0.12			0.17			0.20			0.20		0.04
v/c Ratio	0.30	0.42		0.44	0.68		0.40	0.23		0.40	0.56	0.09
Uniform Delay, d1	18.7	19.8		20.0	22.5		13.8	12.5		13.8	15.3	11.5
Progression Factor	1.00	1.00		0.75	0.76		0.74	0.65		0.70	0.68	0.52
Incremental Delay, d2	6.2	1.0		5.4	2.6		6.3	0.3		2.5	1.2	0.2
Delay (s)	24.9	20.7		20.4	19.7		16.6	8.4		12.2	11.6	6.2
Level of Service	C	C		C	B		B	A		B	B	A
Approach Delay (s)		21.0			19.8			9.7			11.3	
Approach LOS		C			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	73.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑	↗	↘	↑↑		↘	↑↑	
Traffic Volume (vph)	29	391	120	49	645	83	107	362	48	115	822	137
Future Volume (vph)	29	391	120	49	645	83	107	362	48	115	822	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3415		1770	3539	1583	1770	3477		1770	3463	
Flt Permitted	0.21	1.00		0.31	1.00	1.00	0.22	1.00		0.49	1.00	
Satd. Flow (perm)	396	3415		584	3539	1583	408	3477		907	3463	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	32	425	130	53	701	90	116	393	52	125	893	149
RTOR Reduction (vph)	0	32	0	0	0	64	0	11	0	0	15	0
Lane Group Flow (vph)	32	523	0	53	701	27	116	434	0	125	1027	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Effective Green, g (s)	26.5	26.5		26.5	26.5	26.5	54.5	54.5		54.5	54.5	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.61	0.61		0.61	0.61	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	116	1005		171	1042	466	247	2105		549	2097	
v/s Ratio Prot		0.15			c0.20			0.12			c0.30	
v/s Ratio Perm	0.08			0.09		0.02	0.28			0.14		
v/c Ratio	0.28	0.52		0.31	0.67	0.06	0.47	0.21		0.23	0.49	
Uniform Delay, d1	24.4	26.5		24.7	27.9	22.8	9.8	8.0		8.1	10.0	
Progression Factor	1.00	1.00		0.56	0.54	0.47	1.00	1.00		0.85	0.84	
Incremental Delay, d2	5.8	1.9		4.3	3.2	0.2	6.3	0.2		0.8	0.7	
Delay (s)	30.2	28.4		18.0	18.2	11.0	16.1	8.2		7.8	9.1	
Level of Service	C	C		B	B	B	B	A		A	A	
Approach Delay (s)		28.5			17.4			9.8			8.9	
Approach LOS		C			B			A			A	

Intersection Summary

HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 25: Judge John Aiso St & E Temple St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	346	222	204	808	186	106
Future Volume (vph)	346	222	204	808	186	106
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.94		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3332		1770	3539	3433	1583
Flt Permitted	1.00		0.40	1.00	0.95	1.00
Satd. Flow (perm)	3332		743	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	376	241	222	878	202	115
RTOR Reduction (vph)	87	0	0	0	0	85
Lane Group Flow (vph)	530	0	222	878	202	30
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	57.5		57.5	57.5	23.5	23.5
Effective Green, g (s)	57.5		57.5	57.5	23.5	23.5
Actuated g/C Ratio	0.64		0.64	0.64	0.26	0.26
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2128		474	2261	896	413
v/s Ratio Prot	0.16			0.25	c0.06	
v/s Ratio Perm			c0.30			0.02
v/c Ratio	0.25		0.47	0.39	0.23	0.07
Uniform Delay, d1	7.0		8.4	7.8	26.1	25.0
Progression Factor	0.42		0.72	0.74	0.86	0.87
Incremental Delay, d2	0.3		2.6	0.4	0.5	0.3
Delay (s)	3.2		8.7	6.2	23.1	22.1
Level of Service	A		A	A	C	C
Approach Delay (s)	3.2			6.7	22.7	
Approach LOS	A			A	C	

Intersection Summary			
HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	44.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	78	308	167	105	585	65	157	225	49	25	310	34
Future Volume (vph)	78	308	167	105	585	65	157	225	49	25	310	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.95		1.00	0.98			0.98			0.99	
Flt Protected	0.95	1.00		0.95	1.00			0.98			1.00	
Satd. Flow (prot)	1770	3352		1770	3486			3417			3479	
Flt Permitted	0.30	1.00		0.41	1.00			0.67			0.91	
Satd. Flow (perm)	565	3352		767	3486			2348			3160	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	335	182	114	636	71	171	245	53	27	337	37
RTOR Reduction (vph)	0	81	0	0	9	0	0	11	0	0	8	0
Lane Group Flow (vph)	85	436	0	114	698	0	0	458	0	0	393	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	40.5	40.5		40.5	40.5			40.5			40.5	
Effective Green, g (s)	40.5	40.5		40.5	40.5			40.5			40.5	
Actuated g/C Ratio	0.45	0.45		0.45	0.45			0.45			0.45	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	254	1508		345	1568			1056			1422	
v/s Ratio Prot		0.13			c0.20							
v/s Ratio Perm	0.15			0.15				c0.20			0.12	
v/c Ratio	0.33	0.29		0.33	0.44			0.43			0.28	
Uniform Delay, d1	16.0	15.6		16.0	17.0			16.9			15.5	
Progression Factor	0.53	0.42		1.31	1.35			1.00			0.53	
Incremental Delay, d2	3.2	0.4		2.5	0.9			1.3			0.5	
Delay (s)	11.7	7.0		23.4	23.9			18.2			8.8	
Level of Service	B	A		C	C			B			A	
Approach Delay (s)		7.7			23.8			18.2			8.8	
Approach LOS		A			C			B			A	

Intersection Summary

HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 27: N Mission Rd & E Cesar E Chavez Ave

12/11/2018

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	291	230	131	293	922	8	221	503	91	26	1025	740
Future Volume (vph)	291	230	131	293	922	8	221	503	91	26	1025	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3212		1770	3534		1770	3539	1583	1770	3539	1583
Flt Permitted	0.17	0.56		0.45	1.00		0.13	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	285	1829		833	3534		238	3539	1583	834	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	250	142	318	1002	9	240	547	99	28	1114	804
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	57	0	0	39
Lane Group Flow (vph)	183	487	0	318	1010	0	240	547	42	28	1114	765
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	39.4	39.4		37.8	23.0		37.9	37.9	37.9	26.8	26.8	42.4
Effective Green, g (s)	39.4	39.4		37.8	23.0		37.9	37.9	37.9	26.8	26.8	42.4
Actuated g/C Ratio	0.44	0.44		0.42	0.26		0.42	0.42	0.42	0.30	0.30	0.47
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	354	1040		503	903		212	1490	666	248	1053	824
v/s Ratio Prot	0.09	0.08		0.10	c0.29		c0.08	0.15			0.31	c0.16
v/s Ratio Perm	0.14	0.12		0.16			c0.39		0.03	0.03		0.32
v/c Ratio	0.52	0.47		0.63	1.12		1.13	0.37	0.06	0.11	1.06	0.93
Uniform Delay, d1	18.5	17.9		18.5	33.5		23.0	17.8	15.5	23.0	31.6	22.4
Progression Factor	0.61	0.46		1.00	1.00		1.23	1.21	1.89	1.00	1.00	1.00
Incremental Delay, d2	1.2	0.3		2.6	68.2		100.8	0.7	0.2	0.9	44.4	16.4
Delay (s)	12.4	8.6		21.0	101.7		129.2	22.2	29.5	23.9	76.0	38.8
Level of Service	B	A		C	F		F	C	C	C	E	D
Approach Delay (s)		9.6			82.4			52.0			59.9	
Approach LOS		A			F			D			E	
Intersection Summary												
HCM 2000 Control Delay			57.3	HCM 2000 Level of Service				E				
HCM 2000 Volume to Capacity ratio			1.16									
Actuated Cycle Length (s)			90.0	Sum of lost time (s)				18.0				
Intersection Capacity Utilization			95.1%	ICU Level of Service				F				
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑		↖	↗	↖
Traffic Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Future Volume (vph)	90	71	9	12	571	156	39	167	2	108	169	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.97		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1831		1770	1803		1770	1860		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.57	1.00		0.57	1.00	1.00
Satd. Flow (perm)	1770	1831		1770	1803		1056	1860		1056	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	98	77	10	13	621	170	42	182	2	117	184	554
RTOR Reduction (vph)	0	4	0	0	11	0	0	1	0	0	0	235
Lane Group Flow (vph)	98	83	0	13	780	0	42	183	0	117	184	319
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Effective Green, g (s)	10.3	50.5		1.0	41.2		25.0	25.0		25.0	25.0	25.0
Actuated g/C Ratio	0.11	0.56		0.01	0.46		0.28	0.28		0.28	0.28	0.28
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	202	1027		19	825		293	516		293	517	439
v/s Ratio Prot	c0.06	0.05		0.01	c0.43			0.10			0.10	
v/s Ratio Perm							0.04			0.11		c0.20
v/c Ratio	0.49	0.08		0.68	0.94		0.14	0.36		0.40	0.36	0.73
Uniform Delay, d1	37.4	9.1		44.3	23.3		24.4	26.0		26.4	26.0	29.4
Progression Factor	0.71	0.83		1.00	1.00		1.00	1.00		0.47	0.44	0.62
Incremental Delay, d2	1.8	0.0		69.9	19.1		1.0	1.9		1.6	0.8	4.2
Delay (s)	28.2	7.6		114.2	42.4		25.5	28.0		14.0	12.3	22.4
Level of Service	C	A		F	D		C	C		B	B	C
Approach Delay (s)		18.5			43.6			27.5			19.1	
Approach LOS		B			D			C			B	

Intersection Summary

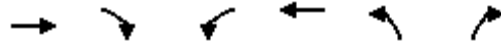
HCM 2000 Control Delay	29.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.5%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	7	375	144	553	202	0
Future Volume (vph)	7	375	144	553	202	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	
Lane Util. Factor	0.95		1.00	0.95	1.00	
Frt	0.85		1.00	1.00	1.00	
Flt Protected	1.00		0.95	1.00	0.95	
Satd. Flow (prot)	3019		1770	3539	1770	
Flt Permitted	1.00		0.49	1.00	0.95	
Satd. Flow (perm)	3019		919	3539	1770	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	8	408	157	601	220	0
RTOR Reduction (vph)	193	0	0	0	0	0
Lane Group Flow (vph)	223	0	157	601	220	0
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	47.5		47.5	47.5	33.5	
Effective Green, g (s)	47.5		47.5	47.5	33.5	
Actuated g/C Ratio	0.53		0.53	0.53	0.37	
Clearance Time (s)	4.5		4.5	4.5	4.5	
Lane Grp Cap (vph)	1593		485	1867	658	
v/s Ratio Prot	0.07			0.17	c0.12	
v/s Ratio Perm			c0.17			
v/c Ratio	0.14		0.32	0.32	0.33	
Uniform Delay, d1	10.8		12.1	12.1	20.3	
Progression Factor	0.74		0.28	0.29	1.00	
Incremental Delay, d2	0.2		1.6	0.4	1.4	
Delay (s)	8.2		5.0	3.9	21.6	
Level of Service	A		A	A	C	
Approach Delay (s)	8.2			4.1	21.6	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	8.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	42.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	6	4	6	100	4	24	22	631	169	62	421	12
Future Volume (vph)	6	4	6	100	4	24	22	631	169	62	421	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Fr _t		0.95		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Fl _t Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1731		1770	1621		1770	3539	1583	1770	3525	
Fl _t Permitted		0.91		0.75	1.00		0.48	1.00	1.00	0.39	1.00	
Satd. Flow (perm)		1603		1389	1621		898	3539	1583	722	3525	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	7	4	7	109	4	26	24	686	184	67	458	13
RTOR Reduction (vph)	0	6	0	0	23	0	0	0	41	0	1	0
Lane Group Flow (vph)	0	12	0	109	7	0	24	686	143	67	470	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9	
Effective Green, g (s)		11.1		11.1	11.1		69.9	69.9	69.9	69.9	69.9	
Actuated g/C Ratio		0.12		0.12	0.12		0.78	0.78	0.78	0.78	0.78	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		197		171	199		697	2748	1229	560	2737	
v/s Ratio Prot					0.00			c0.19			0.13	
v/s Ratio Perm		0.01		c0.08			0.03		0.09	0.09		
v/c Ratio		0.06		0.64	0.04		0.03	0.25	0.12	0.12	0.17	
Uniform Delay, d ₁		34.8		37.5	34.7		2.3	2.8	2.5	2.5	2.6	
Progression Factor		1.00		1.00	1.00		2.37	2.72	8.49	1.64	1.56	
Incremental Delay, d ₂		0.1		7.6	0.1		0.1	0.2	0.2	0.4	0.1	
Delay (s)		35.0		45.1	34.8		5.5	7.8	21.1	4.5	4.2	
Level of Service		C		D	C		A	A	C	A	A	
Approach Delay (s)		35.0			42.9			10.5			4.2	
Approach LOS		C			D			B			A	

Intersection Summary

HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	45.1%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/11/2018



Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	54	42	435	135	45	626	
Future Volume (Veh/h)	54	42	435	135	45	626	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	59	46	473	147	49	680	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	543						
pX, platoon unblocked							
vC, conflicting volume	984	310			620		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	984	310			620		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	75	93			95		
cM capacity (veh/h)	233	686			956		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	59	46	315	305	49	340	340
Volume Left	59	0	0	0	49	0	0
Volume Right	0	46	0	147	0	0	0
cSH	233	686	1700	1700	956	1700	1700
Volume to Capacity	0.25	0.07	0.19	0.18	0.05	0.20	0.20
Queue Length 95th (ft)	24	5	0	0	4	0	0
Control Delay (s)	25.6	10.6	0.0	0.0	9.0	0.0	0.0
Lane LOS	D	B			A		
Approach Delay (s)	19.1	0.0		0.6			
Approach LOS	C						
Intersection Summary							
Average Delay			1.7				
Intersection Capacity Utilization			33.0%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	639	57	81	1306	79	55
Future Volume (vph)	639	57	81	1306	79	55
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3496		1770	3539	1770	1583
Flt Permitted	1.00		0.31	1.00	0.95	1.00
Satd. Flow (perm)	3496		586	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	695	62	88	1420	86	60
RTOR Reduction (vph)	12	0	0	0	0	39
Lane Group Flow (vph)	745	0	88	1420	86	21
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	26.4		26.4	26.4	19.6	19.6
Effective Green, g (s)	26.4		26.4	26.4	19.6	19.6
Actuated g/C Ratio	0.48		0.48	0.48	0.36	0.36
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1678		281	1698	630	564
v/s Ratio Prot	0.21			c0.40	c0.05	
v/s Ratio Perm			0.15			0.01
v/c Ratio	0.44		0.31	0.84	0.14	0.04
Uniform Delay, d1	9.4		8.8	12.4	12.0	11.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2		0.6	3.8	0.5	0.1
Delay (s)	9.6		9.4	16.2	12.4	11.7
Level of Service	A		A	B	B	B
Approach Delay (s)	9.6			15.8	12.1	
Approach LOS	A			B	B	

Intersection Summary

HCM 2000 Control Delay	13.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	48.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	↘
Traffic Volume (vph)	0	0	0	110	61	39	0	639	0	0	1083	339
Future Volume (vph)	0	0	0	110	61	39	0	639	0	0	1083	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.96	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6179	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6179	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	120	66	42	0	695	0	0	1177	368
RTOR Reduction (vph)	0	0	0	0	0	37	0	0	0	0	34	0
Lane Group Flow (vph)	0	0	0	120	66	5	0	695	0	0	1511	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				11.5	11.5	11.5		69.5			69.5	
Effective Green, g (s)				11.5	11.5	11.5		69.5			69.5	
Actuated g/C Ratio				0.13	0.13	0.13		0.77			0.77	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				226	238	202		3926			4771	
v/s Ratio Prot				c0.07	0.04			0.14			c0.24	
v/s Ratio Perm						0.00						
v/c Ratio				0.53	0.28	0.03		0.18			0.32	
Uniform Delay, d1				36.7	35.5	34.4		2.7			3.1	
Progression Factor				1.00	1.00	1.00		0.25			0.22	
Incremental Delay, d2				2.4	0.6	0.1		0.1			0.1	
Delay (s)				39.1	36.1	34.4		0.8			0.8	
Level of Service				D	D	C		A			A	
Approach Delay (s)		0.0			37.4			0.8			0.8	
Approach LOS		A			D			A			A	

Intersection Summary


























HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.6%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							 			  	
Traffic Volume (vph)	361	65	49	91	0	174	0	1249	169	137	768	0
Future Volume (vph)	361	65	49	91	0	174	0	1249	169	137	768	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	392	71	53	99	0	189	0	1358	184	149	835	0
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	73	0	0	0
Lane Group Flow (vph)	392	71	7	99	0	189	0	1358	111	149	835	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6		5	2	
Permitted Phases			3						6			
Actuated Green, G (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Effective Green, g (s)	11.5	11.5	11.5	12.5		12.5		38.5	38.5	9.5	52.5	
Actuated g/C Ratio	0.13	0.13	0.13	0.14		0.14		0.43	0.43	0.11	0.58	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Grp Cap (vph)	438	238	202	245		219		1513	677	186	2966	
v/s Ratio Prot	c0.11	0.04		0.06		c0.12		c0.38		c0.08	0.16	
v/s Ratio Perm			0.00						0.07			
v/c Ratio	0.89	0.30	0.03	0.40		0.86		0.90	0.16	0.80	0.28	
Uniform Delay, d1	38.7	35.6	34.4	35.4		37.9		23.9	15.8	39.3	9.3	
Progression Factor	1.16	1.16	1.00	1.18		1.16		1.37	2.39	1.27	0.80	
Incremental Delay, d2	20.4	2.7	0.3	4.6		32.0		6.9	0.4	28.4	0.2	
Delay (s)	65.2	43.8	34.6	46.3		76.0		39.7	38.3	78.2	7.7	
Level of Service	E	D	C	D		E		D	D	E	A	
Approach Delay (s)		59.1			65.8			39.6			18.4	
Approach LOS		E			E			D			B	
Intersection Summary												
HCM 2000 Control Delay			38.6		HCM 2000 Level of Service				D			
HCM 2000 Volume to Capacity ratio			0.88									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)				18.0			
Intersection Capacity Utilization			66.8%		ICU Level of Service				C			
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↔↔	↔		↔	↔↔			↔↔			↔	↔
Traffic Volume (vph)	351	0	62	0	5	33	65	746	0	0	133	169
Future Volume (vph)	351	0	62	0	5	33	65	746	0	0	133	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			0.95			0.95			1.00	1.00
Frt	1.00	0.85			0.87			1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	3433	1583			3073			3525			1863	1583
Flt Permitted	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	3433	1583			3073			3525			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	382	0	67	0	5	36	71	811	0	0	145	184
RTOR Reduction (vph)	0	40	0	0	28	0	0	0	0	0	0	138
Lane Group Flow (vph)	382	27	0	0	13	0	0	882	0	0	145	46
Turn Type	Prot	NA		Perm	NA		Split	NA			NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	12.5	36.7			19.7			29.7			10.1	22.6
Effective Green, g (s)	12.5	36.7			19.7			29.7			10.1	22.6
Actuated g/C Ratio	0.14	0.41			0.22			0.33			0.11	0.25
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	476	645			672			1163			209	476
v/s Ratio Prot	c0.11	c0.02			0.00			c0.25			c0.08	0.01
v/s Ratio Perm												0.02
v/c Ratio	0.80	0.04			0.02			0.76			0.69	0.10
Uniform Delay, d1	37.6	16.1			27.6			26.9			38.5	25.9
Progression Factor	1.38	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	8.8	0.1			0.0			4.7			9.6	0.1
Delay (s)	60.5	16.2			27.6			31.6			48.0	26.0
Level of Service	E	B			C			C			D	C
Approach Delay (s)		53.9			27.6			31.6			35.7	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	38.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

5: N Alameda St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	252	450	196	30	159	94	90	999	0	75	761	311
Future Volume (vph)	252	450	196	30	159	94	90	999	0	75	761	311
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3378		1770	3342		1770	3539		1770	3539	1583
Flt Permitted	0.35	1.00		0.38	1.00		0.34	1.00		0.95	1.00	1.00
Satd. Flow (perm)	659	3378		717	3342		634	3539		1770	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	274	489	213	33	173	102	98	1086	0	82	827	338
RTOR Reduction (vph)	0	60	0	0	0	0	0	0	0	0	0	177
Lane Group Flow (vph)	274	642	0	33	275	0	98	1086	0	82	827	161
Turn Type	pm+pt	NA		Perm	NA		pm+pt	NA		Prot	NA	Perm
Protected Phases	3	8			4		1	6		5	2	
Permitted Phases	8			4			6					2
Actuated Green, G (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Effective Green, g (s)	28.6	28.6		12.7	12.7		40.3	40.3		7.6	43.0	43.0
Actuated g/C Ratio	0.32	0.32		0.14	0.14		0.45	0.45		0.08	0.48	0.48
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	350	1073		101	471		345	1584		149	1690	756
v/s Ratio Prot	c0.10	0.19			0.08		0.02	c0.31		0.05	c0.23	
v/s Ratio Perm	c0.15			0.05			0.11					0.10
v/c Ratio	0.78	0.60		0.33	0.58		0.28	0.69		0.55	0.49	0.21
Uniform Delay, d1	25.1	25.9		34.8	36.2		16.2	19.8		39.6	16.0	13.7
Progression Factor	0.60	0.47		1.00	1.00		0.62	0.64		1.37	0.53	0.04
Incremental Delay, d2	9.8	0.8		1.9	1.8		0.4	2.1		4.3	1.0	0.6
Delay (s)	25.0	13.1		36.7	38.0		10.5	14.6		58.6	9.6	1.2
Level of Service	C	B		D	D		B	B		E	A	A
Approach Delay (s)		16.4			37.9			14.3			10.5	
Approach LOS		B			D			B			B	


















Intersection Summary

HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	69.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
 6: N Vignes St & E Temple St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	65	41	109	13	65	28	95	165	20	12	41	26
Future Volume (vph)	65	41	109	13	65	28	95	165	20	12	41	26
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	71	45	118	14	71	30	103	179	22	13	45	28
Direction, Lane #	EB 1	EB 2	WB 1	NB 1	SB 1							
Volume Total (vph)	116	118	115	304	86							
Volume Left (vph)	71	0	14	103	13							
Volume Right (vph)	0	118	30	22	28							
Hadj (s)	0.34	-0.67	-0.10	0.06	-0.13							
Departure Headway (s)	6.0	5.0	5.3	5.0	5.1							
Degree Utilization, x	0.19	0.16	0.17	0.42	0.12							
Capacity (veh/h)	560	671	622	690	639							
Control Delay (s)	9.2	7.8	9.3	11.5	8.8							
Approach Delay (s)	8.5		9.3	11.5	8.8							
Approach LOS	A		A	B	A							
Intersection Summary												
Delay			9.9									
Level of Service			A									
Intersection Capacity Utilization			41.0%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Signalized Intersection Capacity Analysis

7: N Alameda St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↘			↗↘	↗	↘	↗↘	↗	↘	↗↘	↗
Traffic Volume (vph)	322	484	116	7	277	14	68	752	147	41	822	124
Future Volume (vph)	322	484	116	7	277	14	68	752	147	41	822	124
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.97			1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3437			3535	1583	1770	3539	1583	1770	3539	1583
Flt Permitted	0.40	1.00			0.93	1.00	0.20	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	742	3437			3307	1583	378	3539	1583	442	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	350	526	126	8	301	15	74	817	160	45	893	135
RTOR Reduction (vph)	0	23	0	0	0	0	0	0	92	0	0	49
Lane Group Flow (vph)	350	629	0	0	309	15	74	817	68	45	893	86
Turn Type	pm+pt	NA			NA	Perm	Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4			8			2			6	7
Permitted Phases	4					8	2		2	6		6
Actuated Green, G (s)	42.9	42.9			19.4	19.4	38.1	38.1	38.1	38.1	38.1	57.1
Effective Green, g (s)	42.9	42.9			19.4	19.4	38.1	38.1	38.1	38.1	38.1	57.1
Actuated g/C Ratio	0.48	0.48			0.22	0.22	0.42	0.42	0.42	0.42	0.42	0.63
Clearance Time (s)	4.5	4.5			4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	570	1638			712	341	160	1498	670	187	1498	1083
v/s Ratio Prot	c0.13	0.18						0.23			c0.25	0.02
v/s Ratio Perm	c0.16				0.09	0.01	0.20		0.04	0.10		0.04
v/c Ratio	0.61	0.38			0.43	0.04	0.46	0.55	0.10	0.24	0.60	0.08
Uniform Delay, d1	15.8	15.1			30.5	28.0	18.6	19.5	15.6	16.7	20.0	6.3
Progression Factor	0.55	0.51			1.51	1.60	1.00	1.00	1.00	0.86	0.84	0.15
Incremental Delay, d2	1.7	0.1			0.3	0.0	9.3	1.4	0.3	2.7	1.6	0.0
Delay (s)	10.4	7.9			46.4	44.9	27.9	20.9	15.9	17.0	18.4	1.0
Level of Service	B	A			D	D	C	C	B	B	B	A
Approach Delay (s)		8.7			46.3			20.6			16.1	
Approach LOS		A			D			C			B	

Intersection Summary

HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	67.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

8: N Vignes St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕↕	↗		↕↕			↕↕			↕↕	
Traffic Volume (vph)	71	589	23	80	312	77	6	78	231	89	28	33
Future Volume (vph)	71	589	23	80	312	77	6	78	231	89	28	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5	4.5		4.5			4.5			4.5	
Lane Util. Factor		0.95	1.00		0.95			1.00			1.00	
Frt		1.00	0.85		0.98			0.90			0.97	
Flt Protected		0.99	1.00		0.99			1.00			0.97	
Satd. Flow (prot)		3520	1583		3423			1677			1755	
Flt Permitted		0.99	1.00		0.99			0.99			0.49	
Satd. Flow (perm)		3520	1583		3423			1670			893	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	77	640	25	87	339	84	7	85	251	97	30	36
RTOR Reduction (vph)	0	0	16	0	19	0	0	109	0	0	11	0
Lane Group Flow (vph)	0	717	9	0	491	0	0	234	0	0	152	0
Turn Type	Split	NA	Perm	Split	NA		Perm	NA		Perm	NA	
Protected Phases	2	2		1	1			8			4	4
Permitted Phases			2				8			4		
Actuated Green, G (s)		32.7	32.7		17.3			26.5			26.5	
Effective Green, g (s)		32.7	32.7		17.3			26.5			26.5	
Actuated g/C Ratio		0.36	0.36		0.19			0.29			0.29	
Clearance Time (s)		4.5	4.5		4.5			4.5			4.5	
Vehicle Extension (s)		3.0	3.0		3.0			3.0			3.0	
Lane Grp Cap (vph)		1278	575		657			491			262	
v/s Ratio Prot		c0.20			c0.14							
v/s Ratio Perm			0.01					0.14			c0.17	
v/c Ratio		0.56	0.02		0.75			0.48			0.58	
Uniform Delay, d1		22.9	18.3		34.3			26.1			27.0	
Progression Factor		0.66	1.00		0.83			1.00			1.00	
Incremental Delay, d2		1.7	0.0		3.6			3.3			9.0	
Delay (s)		16.8	18.4		32.0			29.3			36.0	
Level of Service		B	B		C			C			D	
Approach Delay (s)		16.8			32.0			29.3			36.0	
Approach LOS		B			C			C			D	

Intersection Summary

HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	73.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

9: N Alameda St & Arcadia St/El Monte Busway Off-Ramp

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations				↶ ↷	↶ ↷		↶ ↷	↶ ↷			↶ ↷		
Traffic Volume (vph)	0	0	0	269	568	180	20	1765	0	0	636	25	
Future Volume (vph)	0	0	0	269	568	180	20	1765	0	0	636	25	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Util. Factor				0.86	0.86		1.00	0.91			0.91		
Fr _t				1.00	0.97		1.00	1.00			0.99		
Fl _t Protected				0.95	1.00		0.95	1.00			1.00		
Satd. Flow (prot)				1522	4630		1770	5085			5057		
Fl _t Permitted				0.95	1.00		0.35	1.00			1.00		
Satd. Flow (perm)				1522	4630		647	5085			5057		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	0	0	0	292	617	196	22	1918	0	0	691	27	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	5	0	
Lane Group Flow (vph)	0	0	0	263	842	0	22	1918	0	0	713	0	
Turn Type				Prot	NA		Perm	NA			NA		
Protected Phases				3	8			2			6		
Permitted Phases							2						
Actuated Green, G (s)				32.5	32.5		48.5	48.5			48.5		
Effective Green, g (s)				32.5	32.5		48.5	48.5			48.5		
Actuated g/C Ratio				0.36	0.36		0.54	0.54			0.54		
Clearance Time (s)				4.5	4.5		4.5	4.5			4.5		
Lane Grp Cap (vph)				549	1671		348	2740			2725		
v/s Ratio Prot				0.17	c0.18			c0.38			0.14		
v/s Ratio Perm							0.03						
v/c Ratio				0.48	0.50		0.06	0.70			0.26		
Uniform Delay, d ₁				22.2	22.5		9.9	15.4			11.1		
Progression Factor				1.00	1.00		0.93	0.69			1.00		
Incremental Delay, d ₂				3.0	1.1		0.1	0.7			0.2		
Delay (s)				25.2	23.5		9.3	11.2			11.4		
Level of Service				C	C		A	B			B		
Approach Delay (s)		0.0			23.9			11.2			11.4		
Approach LOS		A			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			15.0									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.62										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			56.9%									ICU Level of Service	B
Analysis Period (min)			15										
c	Critical Lane Group												

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↔↔			↑			↑↑↑		↖	↑↑↑	
Traffic Volume (vph)	243	57	84	0	0	0	0	620	79	60	965	0
Future Volume (vph)	243	57	84	0	0	0	0	620	79	60	965	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.95						0.98		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3152						4999		1770	5085	
Flt Permitted	0.95	0.79						1.00		0.23	1.00	
Satd. Flow (perm)	1610	2539						4999		429	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	62	91	0	0	0	0	674	86	65	1049	0
RTOR Reduction (vph)	0	10	0	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	143	264	0	0	0	0	0	746	0	65	1049	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	39.5	62.0						27.5		41.5	41.5	
Effective Green, g (s)	39.5	62.0						27.5		41.5	41.5	
Actuated g/C Ratio	0.35	0.55						0.24		0.37	0.37	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Grp Cap (vph)	565	1614						1221		271	1875	
v/s Ratio Prot	c0.09	0.06						c0.15		0.02	c0.21	
v/s Ratio Perm		c0.03								0.07		
v/c Ratio	0.25	0.16						0.61		0.24	0.56	
Uniform Delay, d1	26.0	12.5						37.7		33.2	28.2	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	1.1	0.2						2.3		2.1	1.2	
Delay (s)	27.1	12.7						40.0		35.3	29.4	
Level of Service	C	B						D		D	C	
Approach Delay (s)		17.6			0.0			40.0			29.8	
Approach LOS		B			A			D			C	

Intersection Summary			
HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	112.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	36.7%	ICU Level of Service	A
Analysis Period (min)	15		
c	Critical Lane Group		

HCM Signalized Intersection Capacity Analysis

11: N Alameda St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗		↖	↗		↖	↗	
Traffic Volume (vph)	91	968	193	115	936	118	98	711	120	98	668	127
Future Volume (vph)	91	968	193	115	936	118	98	711	120	98	668	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.91		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.98		1.00	0.98	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3539	1583	1770	5000		1770	4975		1770	4963	
Flt Permitted	0.24	1.00	1.00	0.11	1.00		0.19	1.00		0.17	1.00	
Satd. Flow (perm)	439	3539	1583	200	5000		348	4975		317	4963	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	99	1052	210	125	1017	128	107	773	130	107	726	138
RTOR Reduction (vph)	0	0	42	0	17	0	0	26	0	0	31	0
Lane Group Flow (vph)	99	1052	168	125	1128	0	107	877	0	107	833	0
Turn Type	Perm	NA	pm+ov	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4	5	3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	35.5	35.5	42.2	46.3	46.3		30.4	23.7		30.0	23.5	
Effective Green, g (s)	35.5	35.5	42.2	46.3	46.3		30.4	23.7		30.0	23.5	
Actuated g/C Ratio	0.39	0.39	0.47	0.51	0.51		0.34	0.26		0.33	0.26	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	173	1395	742	212	2572		223	1310		210	1295	
v/s Ratio Prot		c0.30	0.02	c0.04	0.23		0.04	c0.18		c0.04	0.17	
v/s Ratio Perm	0.23		0.09	0.26			0.13			0.13		
v/c Ratio	0.57	0.75	0.23	0.59	0.44		0.48	0.67		0.51	0.64	
Uniform Delay, d1	21.3	23.5	14.2	15.7	13.7		32.2	29.6		32.8	29.5	
Progression Factor	0.60	0.59	0.56	1.00	1.00		0.85	0.86		0.73	0.63	
Incremental Delay, d2	10.5	3.1	0.6	11.5	0.5		7.1	2.7		8.3	2.4	
Delay (s)	23.3	16.9	8.5	27.2	14.2		34.3	28.3		32.4	20.9	
Level of Service	C	B	A	C	B		C	C		C	C	
Approach Delay (s)		16.1			15.5			28.9			22.2	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

12: N Alameda St & Alpine St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	103	336	70	58	426	356	177	989	50	96	406	57
Future Volume (vph)	103	336	70	58	426	356	177	989	50	96	406	57
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.91	
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1770	3448		1770	3539	1583	1770	3539	1583	1770	4991	
Flt Permitted	0.35	1.00		0.37	1.00	1.00	0.46	1.00	1.00	0.20	1.00	
Satd. Flow (perm)	655	3448		688	3539	1583	852	3539	1583	380	4991	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	112	365	76	63	463	387	192	1075	54	104	441	62
RTOR Reduction (vph)	0	21	0	0	0	51	0	0	22	0	18	0
Lane Group Flow (vph)	112	420	0	63	463	336	192	1075	32	104	485	0
Turn Type	Perm	NA		pm+pt	NA	Perm	Perm	NA	Perm	Perm	NA	
Protected Phases		4		3	8			2			6	
Permitted Phases	4			8		8	2		2	6		
Actuated Green, G (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Effective Green, g (s)	19.0	19.0		27.8	27.8	27.8	53.2	53.2	53.2	53.2	53.2	
Actuated g/C Ratio	0.21	0.21		0.31	0.31	0.31	0.59	0.59	0.59	0.59	0.59	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	138	727		264	1093	488	503	2091	935	224	2950	
v/s Ratio Prot		0.12		0.01	0.13			c0.30			0.10	
v/s Ratio Perm	c0.17			0.06		c0.21	0.23		0.02	0.27		
v/c Ratio	0.81	0.58		0.24	0.42	0.69	0.38	0.51	0.03	0.46	0.16	
Uniform Delay, d1	33.8	31.9		27.7	24.7	27.3	9.7	10.8	7.7	10.4	8.3	
Progression Factor	1.00	1.00		0.37	0.51	0.36	0.79	0.80	1.41	0.55	0.39	
Incremental Delay, d2	29.1	1.1		0.1	0.1	1.0	1.8	0.7	0.1	6.5	0.1	
Delay (s)	62.9	33.0		10.5	12.6	10.7	9.5	9.4	10.9	12.2	3.4	
Level of Service	E	C		B	B	B	A	A	B	B	A	
Approach Delay (s)		39.1			11.6			9.5			4.9	
Approach LOS		D			B			A			A	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

13: N Vignes St & E Cesar E Chavez Ave

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	47	952	265	118	870	304	288	700	150	260	337	49
Future Volume (vph)	47	952	265	118	870	304	288	700	150	260	337	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.95
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	1770	3539	1583	1770	3539	1583	1770	3472	3472
Flt Permitted	0.15	1.00	1.00	0.15	1.00	1.00	0.36	1.00	1.00	0.20	1.00	1.00
Satd. Flow (perm)	278	3539	1583	278	3539	1583	666	3539	1583	369	3472	3472
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	51	1035	288	128	946	330	313	761	163	283	366	53
RTOR Reduction (vph)	0	0	192	0	0	206	0	0	125	0	12	0
Lane Group Flow (vph)	51	1035	96	128	946	124	313	761	38	283	407	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	NA
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		
Actuated Green, G (s)	29.9	29.9	29.9	33.7	33.7	33.7	36.2	21.2	21.2	34.2	20.2	20.2
Effective Green, g (s)	29.9	29.9	29.9	33.7	33.7	33.7	36.2	21.2	21.2	34.2	20.2	20.2
Actuated g/C Ratio	0.33	0.33	0.33	0.37	0.37	0.37	0.40	0.24	0.24	0.38	0.22	0.22
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	143	1175	525	218	1325	592	451	833	372	358	779	779
v/s Ratio Prot	0.01	c0.29		0.04	c0.27		0.12	c0.22		c0.12	0.12	0.12
v/s Ratio Perm	0.11		0.06	0.17		0.08	0.16		0.02	0.18		
v/c Ratio	0.36	0.88	0.18	0.59	0.71	0.21	0.69	0.91	0.10	0.79	0.52	0.52
Uniform Delay, d1	23.3	28.4	21.4	32.8	24.0	19.1	19.9	33.5	27.0	22.0	30.7	30.7
Progression Factor	1.00	1.00	1.00	0.77	0.70	0.20	0.91	0.69	0.33	0.74	0.75	0.75
Incremental Delay, d2	1.5	9.6	0.8	2.9	2.4	0.6	4.1	13.0	0.1	11.0	0.6	0.6
Delay (s)	24.9	38.0	22.1	28.1	19.3	4.4	22.2	36.3	8.9	27.4	23.5	23.5
Level of Service	C	D	C	C	B	A	C	D	A	C	C	C
Approach Delay (s)		34.2			16.6			29.1			25.1	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

14: N Vignes St & Gateway Plaza/Ramirez St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	155	76	92	171	154	523	52	452	69	303	233	153
Future Volume (vph)	155	76	92	171	154	523	52	452	69	303	233	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor	0.91	0.91		1.00	1.00	1.00	0.97	0.95	1.00	0.97	0.95	
Frt	1.00	0.94		1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.94	
Flt Protected	0.95	0.99		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1610	3142		1770	1863	1583	3433	3539	1583	3433	3329	
Flt Permitted	0.65	0.83		0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (perm)	1104	2643		1770	1863	1583	3433	3539	1583	3433	3329	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	168	83	100	186	167	568	57	491	75	329	253	166
RTOR Reduction (vph)	0	85	0	0	0	364	0	0	52	0	94	0
Lane Group Flow (vph)	108	158	0	186	167	204	57	491	23	329	325	0
Turn Type	Perm	NA		Prot	NA	Perm	Prot	NA	Perm	Prot	NA	
Protected Phases		4		3	8		5	2		1	6	
Permitted Phases	4					8			2			
Actuated Green, G (s)	13.7	13.7		14.2	32.4	32.4	5.1	27.7	27.7	16.4	39.0	
Effective Green, g (s)	13.7	13.7		14.2	32.4	32.4	5.1	27.7	27.7	16.4	39.0	
Actuated g/C Ratio	0.15	0.15		0.16	0.36	0.36	0.06	0.31	0.31	0.18	0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	168	402		279	670	569	194	1089	487	625	1442	
v/s Ratio Prot				c0.11	0.09		0.02	c0.14		c0.10	0.10	
v/s Ratio Perm	c0.10	0.06				0.13			0.01			
v/c Ratio	0.64	0.39		0.67	0.25	0.36	0.29	0.45	0.05	0.53	0.23	
Uniform Delay, d1	35.9	34.4		35.7	20.2	21.2	40.7	25.0	21.9	33.3	16.0	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00	0.69	0.50	
Incremental Delay, d2	8.1	0.6		5.9	0.2	0.4	0.8	1.3	0.2	0.7	0.3	
Delay (s)	44.0	35.0		41.6	20.4	21.6	41.6	26.4	22.1	23.8	8.4	
Level of Service	D	D		D	C	C	D	C	C	C	A	
Approach Delay (s)		37.8			25.4			27.3			15.2	
Approach LOS		D			C			C			B	

Intersection Summary

























HCM 2000 Control Delay	24.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	229	251	1	9	648	363	5	667	35	214	276	187	
Future Volume (vph)	229	251	1	9	648	363	5	667	35	214	276	187	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5		
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95		
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94		
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	3537			3349		1770	3513		1770	3325		
Flt Permitted	0.95	1.00			0.95		0.41	1.00		0.25	1.00		
Satd. Flow (perm)	1770	3537			3187		756	3513		472	3325		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	249	273	1	10	704	395	5	725	38	233	300	203	
RTOR Reduction (vph)	0	1	0	0	84	0	0	4	0	0	121	0	
Lane Group Flow (vph)	249	273	0	0	1025	0	5	759	0	233	382	0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases	7	4			8			2			6		
Permitted Phases				8			2			6			
Actuated Green, G (s)	16.2	44.7			24.0		36.3	36.3		36.3	36.3		
Effective Green, g (s)	16.2	44.7			24.0		36.3	36.3		36.3	36.3		
Actuated g/C Ratio	0.18	0.50			0.27		0.40	0.40		0.40	0.40		
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	318	1756			849		304	1416		190	1341		
v/s Ratio Prot	c0.14	0.08						0.22			0.11		
v/s Ratio Perm					c0.32		0.01			c0.49			
v/c Ratio	0.78	0.16			1.21		0.02	0.54		1.23	0.28		
Uniform Delay, d1	35.2	12.4			33.0		16.1	20.4		26.9	18.1		
Progression Factor	0.81	0.57			1.51		1.00	1.00		1.00	1.00		
Incremental Delay, d2	11.0	0.0			103.9		0.1	1.5		139.4	0.5		
Delay (s)	39.6	7.1			153.9		16.2	21.9		166.2	18.6		
Level of Service	D	A			F		B	C		F	B		
Approach Delay (s)		22.6			153.9			21.9			65.4		
Approach LOS		C			F			C			E		
Intersection Summary													
HCM 2000 Control Delay			78.9									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.12										
Actuated Cycle Length (s)			90.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			88.9%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 16: N Alameda St/N Spring St & W College St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑	↗	↘	↑		↘	↑↑		↘	↑↑↑	
Traffic Volume (vph)	108	95	179	32	196	29	533	888	28	9	349	101
Future Volume (vph)	108	95	179	32	196	29	533	888	28	9	349	101
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00		1.00	0.97	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1863	1583	1770	1826		1770	3523		1770	4914	
Flt Permitted	0.37	1.00	1.00	0.69	1.00		0.43	1.00		0.22	1.00	
Satd. Flow (perm)	687	1863	1583	1286	1826		793	3523		406	4914	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	117	103	195	35	213	32	579	965	30	10	379	110
RTOR Reduction (vph)	0	0	157	0	6	0	0	2	0	0	53	0
Lane Group Flow (vph)	117	103	38	35	239	0	579	993	0	10	436	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	17.6	17.6	17.6	17.6	17.6		63.4	63.4		26.4	26.4	
Effective Green, g (s)	17.6	17.6	17.6	17.6	17.6		63.4	63.4		26.4	26.4	
Actuated g/C Ratio	0.20	0.20	0.20	0.20	0.20		0.70	0.70		0.29	0.29	
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	364	309	251	357		911	2481		119	1441	
v/s Ratio Prot		0.06			0.13		c0.23	0.28			0.09	
v/s Ratio Perm	c0.17		0.02	0.03			c0.22			0.02		
v/c Ratio	0.87	0.28	0.12	0.14	0.67		0.64	0.40		0.08	0.30	
Uniform Delay, d1	35.1	30.8	29.8	29.9	33.5		10.1	5.5		23.0	24.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		0.61	0.51		1.00	1.00	
Incremental Delay, d2	42.1	0.4	0.2	0.3	4.7		1.2	0.4		1.4	0.5	
Delay (s)	77.2	31.3	30.0	30.2	38.2		7.4	3.2		24.4	25.2	
Level of Service	E	C	C	C	D		A	A		C	C	
Approach Delay (s)		43.6			37.2			4.8			25.2	
Approach LOS		D			D			A			C	

Intersection Summary




















HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	71.6%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

17: N Alameda St & Ord St/Main St


























12/11/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (veh/h)	0	0	81	0	0	0	100	1121	653	0	719	51	
Future Volume (Veh/h)	0	0	81	0	0	0	100	1121	653	0	719	51	
Sign Control		Stop			Stop			Free			Free		
Grade		0%			0%			0%			0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	0	0	88	0	0	0	109	1218	710	0	782	55	
Pedestrians													
Lane Width (ft)													
Walking Speed (ft/s)													
Percent Blockage													
Right turn flare (veh)													
Median type													
Median storage veh													
Upstream signal (ft)													
pX, platoon unblocked	0.71	0.71		0.71	0.71	0.71					0.71		
vC, conflicting volume	1636	2246	288	1785	2273	609	837			1218			
vC1, stage 1 conf vol													
vC2, stage 2 conf vol													
vCu, unblocked vol	1086	1941	288	1294	1979	0	837			498			
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1			
tC, 2 stage (s)													
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2			
p0 queue free %	100	100	88	100	100	100	86			100			
cM capacity (veh/h)	109	40	708	67	37	772	793			757			
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	NB 3	NB 4	SB 1	SB 2	SB 3				
Volume Total	88	0	109	609	609	710	313	313	211				
Volume Left	0	0	109	0	0	0	0	0	0				
Volume Right	88	0	0	0	0	710	0	0	55				
cSH	708	1700	793	1700	1700	1700	1700	1700	1700				
Volume to Capacity	0.12	0.00	0.14	0.36	0.36	0.42	0.18	0.18	0.12				
Queue Length 95th (ft)	11	0	12	0	0	0	0	0	0				
Control Delay (s)	10.8	0.0	10.3	0.0	0.0	0.0	0.0	0.0	0.0				
Lane LOS	B	A	B										
Approach Delay (s)	10.8	0.0	0.5										
Approach LOS	B	A											
Intersection Summary													
Average Delay			0.7										
Intersection Capacity Utilization			43.8%	ICU Level of Service									A
Analysis Period (min)			15										

HCM Signalized Intersection Capacity Analysis

18: N Alameda St & Main St/Bauchet St























12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 							  			  	
Traffic Volume (vph)	930	22	33	63	0	39	0	904	15	3	796	0
Future Volume (vph)	930	22	33	63	0	39	0	904	15	3	796	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Lane Util. Factor	0.97	1.00		1.00		1.00		0.91		1.00	0.91	
Frt	1.00	0.91		1.00		0.85		1.00		1.00	1.00	
Flt Protected	0.95	1.00		0.95		1.00		1.00		0.95	1.00	
Satd. Flow (prot)	3433	1695		1770		1583		5073		1770	5085	
Flt Permitted	0.95	1.00		0.95		1.00		1.00		0.24	1.00	
Satd. Flow (perm)	3433	1695		1770		1583		5073		456	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1011	24	36	68	0	42	0	983	16	3	865	0
RTOR Reduction (vph)	0	29	0	0	0	40	0	1	0	0	0	0
Lane Group Flow (vph)	1011	31	0	68	0	2	0	998	0	3	865	0
Turn Type	pm+pt	NA		Prot		Perm		NA		Perm	NA	
Protected Phases	7	4		3				2			6	
Permitted Phases	4					8				6		
Actuated Green, G (s)	30.3	18.5		7.3		3.3		50.7		50.7	50.7	
Effective Green, g (s)	30.3	18.5		7.3		3.3		50.7		50.7	50.7	
Actuated g/C Ratio	0.34	0.21		0.08		0.04		0.56		0.56	0.56	
Clearance Time (s)	4.5	4.5		4.5		4.5		4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0		3.0		3.0		3.0		3.0	3.0	
Lane Grp Cap (vph)	1155	348		143		58		2857		256	2864	
v/s Ratio Prot	c0.22	0.02		0.04				c0.20			0.17	
v/s Ratio Perm	0.08					0.00				0.01		
v/c Ratio	0.88	0.09		0.48		0.03		0.35		0.01	0.30	
Uniform Delay, d1	28.1	28.9		39.5		41.8		10.7		8.6	10.3	
Progression Factor	0.41	0.31		1.00		1.00		0.26		0.78	0.71	
Incremental Delay, d2	5.4	0.1		2.5		0.2		0.3		0.1	0.3	
Delay (s)	16.9	8.9		42.0		42.0		3.1		6.8	7.6	
Level of Service	B	A		D		D		A		A	A	
Approach Delay (s)		16.5			42.0			3.1			7.6	
Approach LOS		B			D			A			A	
Intersection Summary												
HCM 2000 Control Delay			10.5								HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.58									
Actuated Cycle Length (s)			90.0								Sum of lost time (s)	13.5
Intersection Capacity Utilization			59.7%								ICU Level of Service	B
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 19: Main St & W Cesar E Chavez Ave/E Cesar E Chavez Ave













12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			  			  				
Traffic Volume (vph)	78	1011	0	0	1213	23	415	884	242	0	0	0
Future Volume (vph)	78	1011	0	0	1213	23	415	884	242	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Util. Factor	1.00	0.95			0.91		0.86	0.86				
Frt	1.00	1.00			1.00		1.00	0.97				
Flt Protected	0.95	1.00			1.00		0.95	1.00				
Satd. Flow (prot)	1770	3539			5071		1522	4648				
Flt Permitted	0.15	1.00			1.00		0.95	1.00				
Satd. Flow (perm)	275	3539			5071		1522	4648				
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	85	1099	0	0	1318	25	451	961	263	0	0	0
RTOR Reduction (vph)	0	0	0	0	2	0	0	46	0	0	0	0
Lane Group Flow (vph)	85	1099	0	0	1341	0	406	1223	0	0	0	0
Turn Type	Perm	NA			NA		pm+pt	NA				
Protected Phases		4			8		6	2				
Permitted Phases	4						2					
Actuated Green, G (s)	48.5	48.5			48.5		32.5	32.5				
Effective Green, g (s)	48.5	48.5			48.5		32.5	32.5				
Actuated g/C Ratio	0.54	0.54			0.54		0.36	0.36				
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5				
Lane Grp Cap (vph)	148	1907			2732		549	1678				
v/s Ratio Prot		c0.31			0.26		c0.27	0.26				
v/s Ratio Perm	0.31											
v/c Ratio	0.57	0.58			0.49		0.74	0.73				
Uniform Delay, d1	13.9	13.9			13.0		25.1	24.9				
Progression Factor	1.00	1.00			0.86		1.00	1.00				
Incremental Delay, d2	15.2	1.3			0.6		8.7	2.8				
Delay (s)	29.1	15.2			11.7		33.7	27.7				
Level of Service	C	B			B		C	C				
Approach Delay (s)		16.2			11.7		29.2				0.0	
Approach LOS		B			B		C				A	
Intersection Summary												
HCM 2000 Control Delay			19.9				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			90.0				Sum of lost time (s)			9.0		
Intersection Capacity Utilization			62.7%				ICU Level of Service				B	
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

21: N Los Angeles St & Arcadia St













12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					↑↑↑		↑	↑↑			↑↑	
Traffic Volume (vph)	0	0	0	97	495	21	190	1082	0	0	159	39
Future Volume (vph)	0	0	0	97	495	21	190	1082	0	0	159	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)					4.5		4.5	4.5			4.5	
Lane Util. Factor					0.91		1.00	0.95			0.95	
Frt					0.99		1.00	1.00			0.97	
Flt Protected					0.99		0.95	1.00			1.00	
Satd. Flow (prot)					5019		1770	3539			3436	
Flt Permitted					0.99		0.62	1.00			1.00	
Satd. Flow (perm)					5019		1150	3539			3436	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	105	538	23	207	1176	0	0	173	42
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	0	0	16	0
Lane Group Flow (vph)	0	0	0	0	662	0	207	1176	0	0	199	0
Turn Type				Perm	NA		Perm	NA			NA	
Protected Phases					8			2			6	
Permitted Phases				8			2					
Actuated Green, G (s)					24.5		56.5	56.5			56.5	
Effective Green, g (s)					24.5		56.5	56.5			56.5	
Actuated g/C Ratio					0.27		0.63	0.63			0.63	
Clearance Time (s)					4.5		4.5	4.5			4.5	
Lane Grp Cap (vph)					1366		721	2221			2157	
v/s Ratio Prot								c0.33			0.06	
v/s Ratio Perm					0.13		0.18					
v/c Ratio					0.48		0.29	0.53			0.09	
Uniform Delay, d1					27.5		7.6	9.3			6.6	
Progression Factor					0.28		0.23	0.21			1.00	
Incremental Delay, d2					1.1		0.8	0.7			0.1	
Delay (s)					8.7		2.5	2.7			6.7	
Level of Service					A		A	A			A	
Approach Delay (s)		0.0			8.7			2.6			6.7	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			4.8		HCM 2000 Level of Service						A	
HCM 2000 Volume to Capacity ratio			0.52									
Actuated Cycle Length (s)			90.0		Sum of lost time (s)						9.0	
Intersection Capacity Utilization			49.4%		ICU Level of Service						A	
Analysis Period (min)			15									
c Critical Lane Group												

HCM Signalized Intersection Capacity Analysis

22: N Los Angeles St & E Aliso St

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑						↑↑			↑↑	
Traffic Volume (vph)	82	289	21	0	0	0	0	1190	186	3	253	0
Future Volume (vph)	82	289	21	0	0	0	0	1190	186	3	253	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5						4.5			4.5	
Lane Util. Factor		0.95						0.95			0.95	
Frt		0.99						0.98			1.00	
Flt Protected		0.99						1.00			1.00	
Satd. Flow (prot)		3474						3467			3537	
Flt Permitted		0.99						1.00			0.94	
Satd. Flow (perm)		3474						3467			3340	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	89	314	23	0	0	0	0	1293	202	3	275	0
RTOR Reduction (vph)	0	5	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	421	0	0	0	0	0	1495	0	0	278	0
Turn Type	Perm	NA						NA		Perm	NA	
Protected Phases		4						2			6	
Permitted Phases	4									6		
Actuated Green, G (s)		21.5						59.5			59.5	
Effective Green, g (s)		21.5						59.5			59.5	
Actuated g/C Ratio		0.24						0.66			0.66	
Clearance Time (s)		4.5						4.5			4.5	
Lane Grp Cap (vph)		829						2292			2208	
v/s Ratio Prot								c0.43				
v/s Ratio Perm		0.12									0.08	
v/c Ratio		0.51						0.65			0.13	
Uniform Delay, d1		29.7						9.1			5.6	
Progression Factor		1.00						0.66			1.25	
Incremental Delay, d2		2.2						1.1			0.1	
Delay (s)		31.9						7.1			7.2	
Level of Service		C						A			A	
Approach Delay (s)		31.9			0.0			7.1			7.2	
Approach LOS		C			A			A			A	
Intersection Summary												
HCM 2000 Control Delay			11.9					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.61									
Actuated Cycle Length (s)			90.0					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			57.4%					ICU Level of Service		B		
Analysis Period (min)			15									
c	Critical Lane Group											

HCM Signalized Intersection Capacity Analysis

23: N Los Angeles St & E Temple St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗		↘	↗↗		↘	↗↗	↘
Traffic Volume (vph)	124	695	114	72	414	245	150	1115	73	87	402	163
Future Volume (vph)	124	695	114	72	414	245	150	1115	73	87	402	163
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	0.95		1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	0.98		1.00	0.94		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	3464		1770	3342		1770	3507		1770	3539	1583
Flt Permitted	0.25	1.00		0.17	1.00		0.48	1.00		0.12	1.00	1.00
Satd. Flow (perm)	474	3464		317	3342		898	3507		229	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	135	755	124	78	450	266	163	1212	79	95	437	177
RTOR Reduction (vph)	0	15	0	0	34	0	0	5	0	0	0	82
Lane Group Flow (vph)	135	864	0	78	682	0	163	1286	0	95	437	95
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Effective Green, g (s)	32.5	32.5		32.5	32.5		48.5	48.5		48.5	48.5	48.5
Actuated g/C Ratio	0.36	0.36		0.36	0.36		0.54	0.54		0.54	0.54	0.54
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Grp Cap (vph)	171	1250		114	1206		483	1889		123	1907	853
v/s Ratio Prot		0.25			0.20			0.37			0.12	
v/s Ratio Perm	c0.29			0.25			0.18			c0.41		0.06
v/c Ratio	0.79	0.69		0.68	0.57		0.34	0.68		0.77	0.23	0.11
Uniform Delay, d1	25.7	24.5		24.4	23.1		11.7	15.1		16.4	10.9	10.2
Progression Factor	1.00	1.00		0.71	0.68		0.52	0.45		0.84	0.81	0.40
Incremental Delay, d2	30.0	3.2		27.9	1.9		1.5	1.6		36.6	0.3	0.3
Delay (s)	55.7	27.6		45.2	17.6		7.6	8.4		50.4	9.1	4.4
Level of Service	E	C		D	B		A	A		D	A	A
Approach Delay (s)		31.4			20.3			8.3			13.4	
Approach LOS		C			C			A			B	

Intersection Summary

HCM 2000 Control Delay	17.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	80.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

24: N Los Angeles St & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗		↘	↗↗	↗	↘	↗↗		↘	↗↗	
Traffic Volume (vph)	112	828	127	97	484	236	137	1037	85	86	464	176
Future Volume (vph)	112	828	127	97	484	236	137	1037	85	86	464	176
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.98		1.00	1.00	0.85	1.00	0.99		1.00	0.96	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3469		1770	3539	1583	1770	3499		1770	3393	
Flt Permitted	0.40	1.00		0.14	1.00	1.00	0.32	1.00		0.12	1.00	
Satd. Flow (perm)	737	3469		262	3539	1583	599	3499		219	3393	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	122	900	138	105	526	257	149	1127	92	93	504	191
RTOR Reduction (vph)	0	13	0	0	0	28	0	7	0	0	43	0
Lane Group Flow (vph)	122	1025	0	105	526	229	149	1212	0	93	652	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Effective Green, g (s)	37.5	37.5		37.5	37.5	37.5	43.5	43.5		43.5	43.5	
Actuated g/C Ratio	0.42	0.42		0.42	0.42	0.42	0.48	0.48		0.48	0.48	
Clearance Time (s)	4.5	4.5		4.5	4.5	4.5	4.5	4.5		4.5	4.5	
Lane Grp Cap (vph)	307	1445		109	1474	659	289	1691		105	1639	
v/s Ratio Prot		0.30			0.15			0.35			0.19	
v/s Ratio Perm	0.17			c0.40		0.14	0.25			c0.42		
v/c Ratio	0.40	0.71		0.96	0.36	0.35	0.52	0.72		0.89	0.40	
Uniform Delay, d1	18.4	21.7		25.6	18.0	17.9	16.0	18.4		21.0	14.9	
Progression Factor	1.00	1.00		0.55	0.56	0.50	1.00	1.00		0.86	0.84	
Incremental Delay, d2	3.8	3.0		72.0	0.6	1.3	6.4	2.6		59.6	0.7	
Delay (s)	22.2	24.7		86.2	10.7	10.2	22.4	21.0		77.6	13.3	
Level of Service	C	C		F	B	B	C	C		E	B	
Approach Delay (s)		24.4			19.5			21.2			20.9	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 25: Judge John Aiso St & E Temple St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵↵	↵
Traffic Volume (vph)	748	105	96	464	309	280
Future Volume (vph)	748	105	96	464	309	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	0.97	1.00
Frt	0.98		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3474		1770	3539	3433	1583
Flt Permitted	1.00		0.25	1.00	0.95	1.00
Satd. Flow (perm)	3474		458	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	813	114	104	504	336	304
RTOR Reduction (vph)	12	0	0	0	0	108
Lane Group Flow (vph)	915	0	104	504	336	196
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	50.5		50.5	50.5	30.5	30.5
Effective Green, g (s)	50.5		50.5	50.5	30.5	30.5
Actuated g/C Ratio	0.56		0.56	0.56	0.34	0.34
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	1949		256	1985	1163	536
v/s Ratio Prot	c0.26			0.14	0.10	
v/s Ratio Perm			0.23			c0.12
v/c Ratio	0.47		0.41	0.25	0.29	0.37
Uniform Delay, d1	11.8		11.2	10.1	21.8	22.5
Progression Factor	0.26		0.92	0.91	0.63	0.37
Incremental Delay, d2	0.6		4.5	0.3	0.5	1.5
Delay (s)	3.7		14.8	9.5	14.1	9.9
Level of Service	A		B	A	B	A
Approach Delay (s)	3.7			10.4	12.1	
Approach LOS	A			B	B	

Intersection Summary			
HCM 2000 Control Delay	8.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	49.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 26: S San Pedro St/Judge John Aiso St & E 1st St

12/11/2018





























Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑		↘	↑↑			↑↑			↑↑	
Traffic Volume (vph)	86	809	129	69	577	81	184	425	140	32	190	64
Future Volume (vph)	86	809	129	69	577	81	184	425	140	32	190	64
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Util. Factor	1.00	0.95		1.00	0.95			0.95			0.95	
Frt	1.00	0.98		1.00	0.98			0.97			0.97	
Flt Protected	0.95	1.00		0.95	1.00			0.99			0.99	
Satd. Flow (prot)	1770	3466		1770	3474			3398			3401	
Flt Permitted	0.31	1.00		0.18	1.00			0.76			0.82	
Satd. Flow (perm)	574	3466		332	3474			2619			2819	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	93	879	140	75	627	88	200	462	152	35	207	70
RTOR Reduction (vph)	0	14	0	0	12	0	0	22	0	0	30	0
Lane Group Flow (vph)	93	1005	0	75	703	0	0	792	0	0	282	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)	42.6	42.6		42.6	42.6			38.4			38.4	
Effective Green, g (s)	42.6	42.6		42.6	42.6			38.4			38.4	
Actuated g/C Ratio	0.47	0.47		0.47	0.47			0.43			0.43	
Clearance Time (s)	4.5	4.5		4.5	4.5			4.5			4.5	
Lane Grp Cap (vph)	271	1640		157	1644			1117			1202	
v/s Ratio Prot		c0.29			0.20							
v/s Ratio Perm	0.16			0.23				c0.30			0.10	
v/c Ratio	0.34	0.61		0.48	0.43			0.71			0.23	
Uniform Delay, d1	14.9	17.6		16.1	15.6			21.2			16.4	
Progression Factor	0.39	0.36		0.88	0.88			1.00			0.39	
Incremental Delay, d2	2.4	1.2		9.6	0.8			3.8			0.4	
Delay (s)	8.2	7.5		23.8	14.6			25.0			6.8	
Level of Service	A	A		C	B			C			A	
Approach Delay (s)		7.5			15.5			25.0			6.8	
Approach LOS		A			B			C			A	

Intersection Summary

HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	75.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis
 27: N Mission Rd & E Cesar E Chavez Ave

12/11/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	437	650	318	157	608	36	232	561	82	38	557	377
Future Volume (vph)	437	650	318	157	608	36	232	561	82	38	557	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3224		1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.63		0.24	1.00		0.26	1.00	1.00	0.28	1.00	1.00
Satd. Flow (perm)	276	2028		438	3510		482	3539	1583	529	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	707	346	171	661	39	252	610	89	41	605	410
RTOR Reduction (vph)	0	50	0	0	5	0	0	0	53	0	0	43
Lane Group Flow (vph)	380	1098	0	171	695	0	252	610	36	41	605	367
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	44.3	44.3		26.5	20.1		36.7	36.7	36.7	21.7	21.7	41.4
Effective Green, g (s)	44.3	44.3		26.5	20.1		36.7	36.7	36.7	21.7	21.7	41.4
Actuated g/C Ratio	0.49	0.49		0.29	0.22		0.41	0.41	0.41	0.24	0.24	0.46
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	427	1260		223	783		346	1443	645	127	853	728
v/s Ratio Prot	c0.19	c0.19		0.05	0.20		c0.08	0.17			0.17	0.11
v/s Ratio Perm	c0.24	0.24		0.17			c0.21		0.02	0.08		0.12
v/c Ratio	0.89	0.87		0.77	0.89		0.73	0.42	0.06	0.32	0.71	0.50
Uniform Delay, d1	22.5	20.3		24.8	33.9		28.9	19.1	16.2	28.1	31.3	17.1
Progression Factor	1.13	0.49		1.00	1.00		0.73	0.65	0.45	1.00	1.00	1.00
Incremental Delay, d2	14.1	4.7		14.5	11.9		4.1	0.5	0.1	6.6	5.0	0.6
Delay (s)	39.6	14.6		39.4	45.8		25.2	12.9	7.3	34.7	36.2	17.6
Level of Service	D	B		D	D		C	B	A	C	D	B
Approach Delay (s)		20.8			44.5			15.6			28.9	
Approach LOS		C			D			B			C	

Intersection Summary		
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.89	
Actuated Cycle Length (s)	90.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	88.4%	ICU Level of Service E
Analysis Period (min)	15	

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

28: N Mission Rd & E 1st St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Future Volume (vph)	483	408	10	6	245	164	17	313	4	95	132	208
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	0.94		1.00	1.00		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1856		1770	1751		1770	1859		1770	1863	1583
Flt Permitted	0.95	1.00		0.95	1.00		0.62	1.00		0.25	1.00	1.00
Satd. Flow (perm)	1770	1856		1770	1751		1157	1859		464	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	525	443	11	7	266	178	18	340	4	103	143	226
RTOR Reduction (vph)	0	1	0	0	27	0	0	1	0	0	0	173
Lane Group Flow (vph)	525	453	0	7	417	0	18	343	0	103	143	53
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	Perm
Protected Phases	7	4		3	8			2				6
Permitted Phases							2			6		6
Actuated Green, G (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Effective Green, g (s)	32.2	54.2		1.0	23.0		21.3	21.3		21.3	21.3	21.3
Actuated g/C Ratio	0.36	0.60		0.01	0.26		0.24	0.24		0.24	0.24	0.24
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5		4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	633	1117		19	447		273	439		109	440	374
v/s Ratio Prot	c0.30	0.24		0.00	c0.24			0.18			0.08	
v/s Ratio Perm							0.02			c0.22		0.03
v/c Ratio	0.83	0.41		0.37	0.93		0.07	0.78		0.94	0.33	0.14
Uniform Delay, d1	26.4	9.4		44.2	32.8		26.6	32.2		33.8	28.4	27.1
Progression Factor	0.70	0.37		1.00	1.00		1.00	1.00		0.70	0.74	0.77
Incremental Delay, d2	7.5	0.2		11.7	26.6		0.5	13.0		54.9	1.2	0.5
Delay (s)	25.9	3.7		55.9	59.3		27.1	45.2		78.5	22.2	21.5
Level of Service	C	A		E	E		C	D		E	C	C
Approach Delay (s)		15.6			59.3			44.3			34.2	
Approach LOS		B			E			D			C	

Intersection Summary

HCM 2000 Control Delay	32.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	86.6%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

29: S Central Ave & E 1st St

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↘	↑↑	↘	↗
Traffic Volume (vph)	725	210	106	475	255	274
Future Volume (vph)	725	210	106	475	255	274
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.97		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3420		1770	3539	1770	1583
Flt Permitted	1.00		0.23	1.00	0.95	1.00
Satd. Flow (perm)	3420		424	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	788	228	115	516	277	298
RTOR Reduction (vph)	30	0	0	0	0	140
Lane Group Flow (vph)	986	0	115	516	277	158
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	2			6	8	
Permitted Phases			6			8
Actuated Green, G (s)	54.5		54.5	54.5	26.5	26.5
Effective Green, g (s)	54.5		54.5	54.5	26.5	26.5
Actuated g/C Ratio	0.61		0.61	0.61	0.29	0.29
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Lane Grp Cap (vph)	2071		256	2143	521	466
v/s Ratio Prot	c0.29			0.15	c0.16	
v/s Ratio Perm			0.27			0.10
v/c Ratio	0.48		0.45	0.24	0.53	0.34
Uniform Delay, d1	9.8		9.6	8.2	26.6	24.9
Progression Factor	0.30		1.27	1.15	1.00	1.00
Incremental Delay, d2	0.6		4.8	0.2	3.9	2.0
Delay (s)	3.6		17.1	9.6	30.4	26.9
Level of Service	A		B	A	C	C
Approach Delay (s)	3.6			11.0	28.6	
Approach LOS	A			B	C	

Intersection Summary

HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Signalized Intersection Capacity Analysis

30: N Vignes St & Bauchet St

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕		↕	↕		↕	↕↕	↕	↕	↕↕	
Traffic Volume (vph)	15	5	19	210	14	104	26	899	60	20	413	12
Future Volume (vph)	15	5	19	210	14	104	26	899	60	20	413	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	
Frt		0.93		1.00	0.87		1.00	1.00	0.85	1.00	1.00	
Flt Protected		0.98		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1705		1770	1616		1770	3539	1583	1770	3524	
Flt Permitted		0.89		0.73	1.00		0.49	1.00	1.00	0.26	1.00	
Satd. Flow (perm)		1549		1359	1616		904	3539	1583	480	3524	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	16	5	21	228	15	113	28	977	65	22	449	13
RTOR Reduction (vph)	0	16	0	0	68	0	0	0	21	0	2	0
Lane Group Flow (vph)	0	26	0	228	60	0	28	977	44	22	460	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	
Protected Phases		4			8			2		6		6
Permitted Phases	4			8			2		2	6		
Actuated Green, G (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Effective Green, g (s)		20.6		20.6	20.6		60.4	60.4	60.4	60.4	60.4	
Actuated g/C Ratio		0.23		0.23	0.23		0.67	0.67	0.67	0.67	0.67	
Clearance Time (s)		4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	
Vehicle Extension (s)		3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)		354		311	369		606	2375	1062	322	2364	
v/s Ratio Prot					0.04			c0.28			0.13	
v/s Ratio Perm		0.02		c0.17			0.03		0.03	0.05		
v/c Ratio		0.07		0.73	0.16		0.05	0.41	0.04	0.07	0.19	
Uniform Delay, d1		27.2		32.2	27.8		5.0	6.7	5.0	5.1	5.6	
Progression Factor		1.00		1.00	1.00		2.56	2.70	5.47	1.02	1.10	
Incremental Delay, d2		0.1		8.6	0.2		0.1	0.4	0.0	0.3	0.1	
Delay (s)		27.3		40.8	28.0		12.9	18.5	27.4	5.5	6.3	
Level of Service		C		D	C		B	B	C	A	A	
Approach Delay (s)		27.3			36.2			18.9			6.3	
Approach LOS		C			D			B			A	

Intersection Summary

HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis

31: Center St/Ramirez St & Keller St

12/11/2018

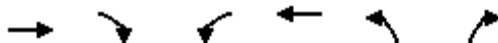


Movement	WBL	WBR	NBT	NBR	SBL	SBT	
Lane Configurations							
Traffic Volume (veh/h)	20	17	860	56	12	480	
Future Volume (Veh/h)	20	17	860	56	12	480	
Sign Control	Stop		Free		Free		
Grade	0%		0%		0%		
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	
Hourly flow rate (vph)	22	18	935	61	13	522	
Pedestrians							
Lane Width (ft)							
Walking Speed (ft/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (ft)	595						
pX, platoon unblocked							
vC, conflicting volume	1252	498			996		
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1252	498			996		
tC, single (s)	6.8	6.9			4.1		
tC, 2 stage (s)							
tF (s)	3.5	3.3			2.2		
p0 queue free %	86	97			98		
cM capacity (veh/h)	161	518			690		
Direction, Lane #	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2	SB 3
Volume Total	22	18	623	373	13	261	261
Volume Left	22	0	0	0	13	0	0
Volume Right	0	18	0	61	0	0	0
cSH	161	518	1700	1700	690	1700	1700
Volume to Capacity	0.14	0.03	0.37	0.22	0.02	0.15	0.15
Queue Length 95th (ft)	12	3	0	0	1	0	0
Control Delay (s)	30.8	12.2	0.0	0.0	10.3	0.0	0.0
Lane LOS	D	B			B		
Approach Delay (s)	22.5		0.0		0.3		
Approach LOS	C						
Intersection Summary							
Average Delay			0.7				
Intersection Capacity Utilization			35.6%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Signalized Intersection Capacity Analysis

32: Union Station North Driveway & E Cesar E Chavez Ave

12/11/2018



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑		↵	↑↑	↵	↵
Traffic Volume (vph)	1110	62	67	1038	116	109
Future Volume (vph)	1110	62	67	1038	116	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5		4.5	4.5	4.5	4.5
Lane Util. Factor	0.95		1.00	0.95	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	3511		1770	3539	1770	1583
Flt Permitted	1.00		0.14	1.00	0.95	1.00
Satd. Flow (perm)	3511		260	3539	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1207	67	73	1128	126	118
RTOR Reduction (vph)	8	0	0	0	0	35
Lane Group Flow (vph)	1266	0	73	1128	126	83
Turn Type	NA		Perm	NA	Prot	Perm
Protected Phases	4			8	2	
Permitted Phases			8			2
Actuated Green, G (s)	28.7		28.7	28.7	22.3	22.3
Effective Green, g (s)	28.7		28.7	28.7	22.3	22.3
Actuated g/C Ratio	0.48		0.48	0.48	0.37	0.37
Clearance Time (s)	4.5		4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0		3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1679		124	1692	657	588
v/s Ratio Prot	c0.36			0.32	c0.07	
v/s Ratio Perm			0.28			0.05
v/c Ratio	0.75		0.59	0.67	0.19	0.14
Uniform Delay, d1	12.8		11.4	12.0	12.8	12.5
Progression Factor	1.00		1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0		7.0	1.0	0.6	0.5
Delay (s)	14.7		18.3	13.0	13.4	13.0
Level of Service	B		B	B	B	B
Approach Delay (s)	14.7			13.3	13.2	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 110: N Alameda St & Los Angeles St EB/LA Union Station

12/11/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				↙	↑	↗		↑↑↑			↑↑↑	
Traffic Volume (vph)	0	0	0	165	55	66	0	863	0	0	860	117
Future Volume (vph)	0	0	0	165	55	66	0	863	0	0	860	117
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.5	4.5	4.5		4.5			4.5	
Lane Util. Factor				1.00	1.00	1.00		0.91			0.86	
Frt				1.00	1.00	0.85		1.00			0.98	
Flt Protected				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)				1770	1863	1583		5085			6293	
Flt Permitted				0.95	1.00	1.00		1.00			1.00	
Satd. Flow (perm)				1770	1863	1583		5085			6293	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	0	0	0	179	60	72	0	938	0	0	935	127
RTOR Reduction (vph)	0	0	0	0	0	60	0	0	0	0	15	0
Lane Group Flow (vph)	0	0	0	179	60	12	0	938	0	0	1047	0
Turn Type				Prot	NA	Perm		NA			NA	
Protected Phases				3	8			2			6	
Permitted Phases						8						
Actuated Green, G (s)				14.5	14.5	14.5		66.5			66.5	
Effective Green, g (s)				14.5	14.5	14.5		66.5			66.5	
Actuated g/C Ratio				0.16	0.16	0.16		0.74			0.74	
Clearance Time (s)				4.5	4.5	4.5		4.5			4.5	
Vehicle Extension (s)				3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)				285	300	255		3757			4649	
v/s Ratio Prot				c0.10	0.03			c0.18			0.17	
v/s Ratio Perm						0.01						
v/c Ratio				0.63	0.20	0.05		0.25			0.23	
Uniform Delay, d1				35.2	32.7	31.9		3.8			3.7	
Progression Factor				1.00	1.00	1.00		1.00			0.24	
Incremental Delay, d2				4.3	0.3	0.1		0.2			0.1	
Delay (s)				39.5	33.1	32.0		3.9			1.0	
Level of Service				D	C	C		A			A	
Approach Delay (s)		0.0			36.5			3.9			1.0	
Approach LOS		A			D			A			A	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	33.3%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖↖	↗	↖	↖		↖		↗↗	↖	↖	↗↗↗	
Traffic Volume (vph)	44	32	118	154	0	205	0	716	154	194	1211	0
Future Volume (vph)	44	32	118	154	0	205	0	716	154	194	1211	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00	
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	48	35	128	167	0	223	0	778	167	211	1316	0
RTOR Reduction (vph)	0	0	119	0	0	0	0	0	112	0	0	0
Lane Group Flow (vph)	48	35	9	167	0	223	0	778	55	211	1316	0
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA	
Protected Phases	3	3		4		4		6	Perm	Prot	NA	2
Permitted Phases			3						6			
Actuated Green, G (s)	4.0	4.0	4.0	9.7		9.7		19.7	19.7	8.6	32.8	
Effective Green, g (s)	4.0	4.0	4.0	9.7		9.7		19.7	19.7	8.6	32.8	
Actuated g/C Ratio	0.07	0.07	0.07	0.16		0.16		0.33	0.33	0.14	0.55	
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5	
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0	
Lane Grp Cap (vph)	228	124	105	286		255		1161	519	253	2779	
v/s Ratio Prot	0.01	c0.02		0.09		c0.14		c0.22		c0.12	0.26	
v/s Ratio Perm			0.01						0.03			
v/c Ratio	0.21	0.28	0.08	0.58		0.87		0.67	0.11	0.83	0.47	
Uniform Delay, d1	26.5	26.6	26.3	23.3		24.6		17.4	14.0	25.0	8.3	
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	1.3	0.3	3.0		26.5		3.1	0.4	20.4	0.6	
Delay (s)	27.0	27.9	26.6	26.3		51.1		20.4	14.4	45.4	8.9	
Level of Service	C	C	C	C		D		C	B	D	A	
Approach Delay (s)		26.9			40.5			19.4			13.9	
Approach LOS		C			D			B			B	

Intersection Summary

HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	244	61	75	0	0	2	167	137	0	92	254	192
Future Volume (vph)	244	61	75	0	0	2	167	137	0	92	254	192
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.92			0.86			1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00			0.97			0.99	1.00
Satd. Flow (prot)	3433	1708			1611			3445			1838	1583
Flt Permitted	0.95	1.00			1.00			0.97			0.99	1.00
Satd. Flow (perm)	3433	1708			1611			3445			1838	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	265	66	82	0	0	2	182	149	0	100	276	209
RTOR Reduction (vph)	0	45	0	0	1	0	0	0	0	0	0	138
Lane Group Flow (vph)	265	103	0	0	1	0	0	331	0	0	376	71
Turn Type	Prot	NA			NA		Split	NA		Split	NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	6.9	31.2			19.8			8.5			16.8	23.7
Effective Green, g (s)	6.9	31.2			19.8			8.5			16.8	23.7
Actuated g/C Ratio	0.10	0.45			0.28			0.12			0.24	0.34
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	338	761			455			418			441	637
v/s Ratio Prot	c0.08	c0.06			0.00			c0.10			c0.20	0.03
v/s Ratio Perm												0.02
v/c Ratio	0.78	0.13			0.00			0.85dl			0.85	0.11
Uniform Delay, d1	30.8	11.4			18.0			29.9			25.4	15.9
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	11.3	0.4			0.0			14.2			14.7	0.1
Delay (s)	42.1	11.8			18.0			44.1			40.1	16.0
Level of Service	D	B			B			D			D	B
Approach Delay (s)		31.3			18.0			44.1			31.5	
Approach LOS		C			B			D			C	

Intersection Summary		
HCM 2000 Control Delay	34.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.57	
Actuated Cycle Length (s)	70.0	Sum of lost time (s) 18.0
Intersection Capacity Utilization	52.6%	ICU Level of Service A
Analysis Period (min)	15	
dl Defacto Left Lane. Recode with 1 though lane as a left lane.		
c Critical Lane Group		

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↔						↑↑↑		↗	↑↑↑	
Traffic Volume (vph)	119	53	18	0	0	0	0	537	113	64	1168	0
Future Volume (vph)	119	53	18	0	0	0	0	537	113	64	1168	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.98						0.97		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3246						4953		1770	5085	
Flt Permitted	0.95	0.98						1.00		0.37	1.00	
Satd. Flow (perm)	1610	3246						4953		692	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	129	58	20	0	0	0	0	584	123	70	1270	0
RTOR Reduction (vph)	0	17	0	0	0	0	0	37	0	0	0	0
Lane Group Flow (vph)	68	122	0	0	0	0	0	670	0	70	1270	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4						2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	9.0	9.0						34.2		42.0	42.0	
Effective Green, g (s)	9.0	9.0						34.2		42.0	42.0	
Actuated g/C Ratio	0.15	0.15						0.57		0.70	0.70	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	241	486						2823		543	3559	
v/s Ratio Prot	c0.04	0.04						0.14		0.01	c0.25	
v/s Ratio Perm										0.08		
v/c Ratio	0.28	0.25						0.24		0.13	0.36	
Uniform Delay, d1	22.6	22.5						6.4		3.0	3.6	
Progression Factor	1.00	1.00						1.00		1.00	1.00	
Incremental Delay, d2	0.6	0.3						0.2		0.1	0.3	
Delay (s)	23.3	22.8						6.6		3.1	3.9	
Level of Service	C	C						A		A	A	
Approach Delay (s)		23.0			0.0			6.6			3.8	
Approach LOS		C			A			A			A	

Intersection Summary

























HCM 2000 Control Delay	6.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	55.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

15: Main St & Alpine St/N Vignes St

12/17/2018

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		 			 			 			 	
Traffic Volume (vph)	61	200	5	0	411	277	1	232	42	228	538	548
Future Volume (vph)	61	200	5	0	411	277	1	232	42	228	538	548
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95	
Frt	1.00	1.00			0.94		1.00	0.98		1.00	0.92	
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3527			3326		1770	3457		1770	3271	
Flt Permitted	0.95	1.00			1.00		0.15	1.00		0.57	1.00	
Satd. Flow (perm)	1770	3527			3326		281	3457		1061	3271	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	66	217	5	0	447	301	1	252	46	248	585	596
RTOR Reduction (vph)	0	3	0	0	159	0	0	14	0	0	177	0
Lane Group Flow (vph)	66	219	0	0	589	0	1	284	0	248	1004	0
Turn Type	Prot	NA			NA		Perm	NA		Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases							2			6		
Actuated Green, G (s)	5.7	26.9			16.7		39.1	39.1		39.1	39.1	
Effective Green, g (s)	5.7	26.9			16.7		39.1	39.1		39.1	39.1	
Actuated g/C Ratio	0.08	0.36			0.22		0.52	0.52		0.52	0.52	
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	1265			740		146	1802		553	1705	
v/s Ratio Prot	c0.04	0.06			c0.18			0.08			c0.31	
v/s Ratio Perm							0.00			0.23		
v/c Ratio	0.49	0.17			0.80		0.01	0.16		0.45	0.59	
Uniform Delay, d1	33.3	16.4			27.5		8.6	9.4		11.2	12.4	
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.8	0.1			6.0		0.1	0.2		2.6	1.5	
Delay (s)	36.1	16.5			33.5		8.7	9.5		13.8	13.9	
Level of Service	D	B			C		A	A		B	B	
Approach Delay (s)		21.0			33.5			9.5			13.9	
Approach LOS		C			C			A			B	
Intersection Summary												
HCM 2000 Control Delay			19.5				HCM 2000 Level of Service				B	
HCM 2000 Volume to Capacity ratio			0.64									
Actuated Cycle Length (s)			75.0				Sum of lost time (s)			13.5		
Intersection Capacity Utilization			76.1%				ICU Level of Service			D		
Analysis Period (min)			15									

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 27: N Mission Rd & E Cesar E Chavez Ave

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↙↗		↘	↗↘		↘	↗↘	↗	↘	↗↘	↗
Traffic Volume (vph)	291	230	131	293	960	8	226	503	91	26	1025	740
Future Volume (vph)	291	230	131	293	960	8	226	503	91	26	1025	740
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.96		1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	0.99		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3212		1770	3535		1770	3539	1583	1770	3539	1583
Flt Permitted	0.17	0.56		0.45	1.00		0.12	1.00	1.00	0.45	1.00	1.00
Satd. Flow (perm)	284	1838		833	3535		232	3539	1583	834	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	316	250	142	318	1043	9	246	547	99	28	1114	804
RTOR Reduction (vph)	0	38	0	0	1	0	0	0	57	0	0	40
Lane Group Flow (vph)	183	487	0	318	1051	0	246	547	42	28	1114	764
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	37.6	37.6		38.4	24.3		38.5	38.5	38.5	27.6	27.6	41.3
Effective Green, g (s)	37.6	37.6		38.4	24.3		38.5	38.5	38.5	27.6	27.6	41.3
Actuated g/C Ratio	0.42	0.42		0.43	0.27		0.43	0.43	0.43	0.31	0.31	0.46
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	320	977		502	954		208	1513	677	255	1085	805
v/s Ratio Prot	0.09	0.08		0.10	c0.30		c0.08	0.15			0.31	c0.14
v/s Ratio Perm	0.15	0.13		0.17			c0.42		0.03	0.03		0.34
v/c Ratio	0.57	0.50		0.63	1.10		1.18	0.36	0.06	0.11	1.03	0.95
Uniform Delay, d1	19.7	19.3		18.0	32.9		22.8	17.4	15.1	22.4	31.2	23.4
Progression Factor	0.55	0.43		1.00	1.00		1.34	1.13	1.67	1.00	1.00	1.00
Incremental Delay, d2	2.3	0.4		2.6	61.2		119.4	0.6	0.2	0.9	34.3	20.2
Delay (s)	13.1	8.7		20.6	94.0		149.9	20.3	25.5	23.3	65.5	43.5
Level of Service	B	A		C	F		F	C	C	C	E	D
Approach Delay (s)		9.9			77.0			56.6			55.8	
Approach LOS		A			E			E			E	

Intersection Summary		
HCM 2000 Control Delay	55.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.19	E
Actuated Cycle Length (s)	90.0	Sum of lost time (s)
Intersection Capacity Utilization	96.4%	18.0
Analysis Period (min)	15	ICU Level of Service
		F

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

1: N Alameda St & E Aliso St/E Commercial St

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖↗	↗	↖	↖		↖		↕	↖	↖	↕↕↕		
Traffic Volume (vph)	361	65	49	91	0	189	0	1249	169	137	772	0	
Future Volume (vph)	361	65	49	91	0	189	0	1249	169	137	772	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5		
Lane Util. Factor	0.97	1.00	1.00	1.00		1.00		0.95	1.00	1.00	0.91		
Frt	1.00	1.00	0.85	1.00		0.85		1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (prot)	3433	1863	1583	1770		1583		3539	1583	1770	5085		
Flt Permitted	0.95	1.00	1.00	0.95		1.00		1.00	1.00	0.95	1.00		
Satd. Flow (perm)	3433	1863	1583	1770		1583		3539	1583	1770	5085		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	392	71	53	99	0	205	0	1358	184	149	839	0	
RTOR Reduction (vph)	0	0	46	0	0	0	0	0	65	0	0	0	
Lane Group Flow (vph)	392	71	7	99	0	205	0	1358	119	149	839	0	
Turn Type	Split	NA	Perm	Prot		Prot		NA	Perm	Prot	NA		
Protected Phases	3	3		4		4		6	Perm	Prot	NA		
Permitted Phases			3						6				
Actuated Green, G (s)	13.4	13.4	13.4	15.0		15.0		43.3	43.3	10.3	58.1		
Effective Green, g (s)	13.4	13.4	13.4	15.0		15.0		43.3	43.3	10.3	58.1		
Actuated g/C Ratio	0.13	0.13	0.13	0.15		0.15		0.43	0.43	0.10	0.58		
Clearance Time (s)	4.5	4.5	4.5	4.5		4.5		4.5	4.5	4.5	4.5		
Vehicle Extension (s)	3.0	3.0	3.0	3.0		3.0		3.0	3.0	3.0	3.0		
Lane Grp Cap (vph)	460	249	212	265		237		1532	685	182	2954		
v/s Ratio Prot	c0.11	0.04		0.06		c0.13		c0.38		c0.08	0.16		
v/s Ratio Perm			0.00						0.08				
v/c Ratio	0.85	0.29	0.03	0.37		0.86		0.89	0.17	0.82	0.28		
Uniform Delay, d1	42.3	39.0	37.7	38.3		41.5		26.1	17.4	43.9	10.5		
Progression Factor	1.00	1.00	1.00	1.00		1.00		1.00	1.00	1.00	1.00		
Incremental Delay, d2	14.1	0.6	0.1	0.9		26.3		7.9	0.6	24.0	0.2		
Delay (s)	56.5	39.6	37.7	39.2		67.8		34.0	17.9	67.9	10.8		
Level of Service	E	D	D	D		E		C	B	E	B		
Approach Delay (s)		52.2			58.5			32.1			19.4		
Approach LOS		D			E			C			B		
Intersection Summary													
HCM 2000 Control Delay			33.8		HCM 2000 Level of Service					C			
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			100.0		Sum of lost time (s)					18.0			
Intersection Capacity Utilization			67.8%		ICU Level of Service					C			
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

2: N Garey St/US-101 & E Commercial St

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	351	0	62	0	12	86	65	746	0	0	133	169
Future Volume (vph)	351	0	62	0	12	86	65	746	0	0	133	169
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Lane Util. Factor	0.97	1.00			1.00			0.95			1.00	1.00
Frt	1.00	0.85			0.88			1.00			1.00	0.85
Flt Protected	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (prot)	3433	1583			1642			3525			1863	1583
Flt Permitted	0.95	1.00			1.00			1.00			1.00	1.00
Satd. Flow (perm)	3433	1583			1642			3525			1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	382	0	67	0	13	93	71	811	0	0	145	184
RTOR Reduction (vph)	0	38	0	0	71	0	0	0	0	0	0	136
Lane Group Flow (vph)	382	29	0	0	35	0	0	882	0	0	145	48
Turn Type	Prot	NA			NA		Split	NA			NA	custom
Protected Phases	5	2			6		3	3		4	4	4
Permitted Phases				6								5
Actuated Green, G (s)	13.1	38.5			20.9			27.5			10.5	23.6
Effective Green, g (s)	13.1	38.5			20.9			27.5			10.5	23.6
Actuated g/C Ratio	0.15	0.43			0.23			0.31			0.12	0.26
Clearance Time (s)	4.5	4.5			4.5			4.5			4.5	4.5
Vehicle Extension (s)	3.0	3.0			3.0			3.0			3.0	3.0
Lane Grp Cap (vph)	499	677			381			1077			217	494
v/s Ratio Prot	c0.11	0.02			c0.02			c0.25			c0.08	0.01
v/s Ratio Perm												0.02
v/c Ratio	0.77	0.04			0.09			0.82			0.67	0.10
Uniform Delay, d1	37.0	15.0			27.1			28.9			38.1	25.1
Progression Factor	1.00	1.00			1.00			1.00			1.00	1.00
Incremental Delay, d2	6.9	0.1			0.1			7.0			7.6	0.1
Delay (s)	43.9	15.1			27.2			35.9			45.6	25.2
Level of Service	D	B			C			D			D	C
Approach Delay (s)		39.6			27.2			35.9			34.2	
Approach LOS		D			C			D			C	

Intersection Summary

HCM 2000 Control Delay	36.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 10: N Alameda St & Los Angeles St WB/LA Union Station

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↗	↔			↑			↑↑↑		↗	↑↑↑	
Traffic Volume (vph)	243	57	84	0	0	0	0	635	79	60	969	0
Future Volume (vph)	243	57	84	0	0	0	0	635	79	60	969	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5						4.5		4.5	4.5	
Lane Util. Factor	0.91	0.91						0.91		1.00	0.91	
Frt	1.00	0.95						0.98		1.00	1.00	
Flt Protected	0.95	0.98						1.00		0.95	1.00	
Satd. Flow (prot)	1610	3152						5001		1770	5085	
Flt Permitted	0.95	0.95						1.00		0.30	1.00	
Satd. Flow (perm)	1610	3060						5001		560	5085	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	264	62	91	0	0	0	0	690	86	65	1053	0
RTOR Reduction (vph)	0	26	0	0	0	0	0	15	0	0	0	0
Lane Group Flow (vph)	143	248	0	0	0	0	0	761	0	65	1053	0
Turn Type	Prot	NA						NA		pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases										6		
Actuated Green, G (s)	33.4	33.4						37.1		47.6	47.6	
Effective Green, g (s)	33.4	33.4						37.1		47.6	47.6	
Actuated g/C Ratio	0.37	0.37						0.41		0.53	0.53	
Clearance Time (s)	4.5	4.5						4.5		4.5	4.5	
Vehicle Extension (s)	3.0	3.0						3.0		3.0	3.0	
Lane Grp Cap (vph)	597	1169						2061		376	2689	
v/s Ratio Prot	c0.09	0.08						0.15		0.01	c0.21	
v/s Ratio Perm										0.08		
v/c Ratio	0.24	0.21						0.37		0.17	0.39	
Uniform Delay, d1	19.5	19.3						18.3		14.1	12.6	
Progression Factor	1.00	1.00						1.01		1.05	1.02	
Incremental Delay, d2	0.2	0.1						0.4		0.2	0.4	
Delay (s)	19.7	19.4						18.9		15.1	13.3	
Level of Service	B	B						B		B	B	
Approach Delay (s)		19.5			0.0			18.9			13.4	
Approach LOS		B			A			B			B	

























Intersection Summary

HCM 2000 Control Delay	16.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	37.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis
 15: Main St & Alpine St/N Vignes St

12/17/2018

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		 			 			 			 		
Traffic Volume (vph)	229	251	1	24	649	364	5	677	35	238	276	188	
Future Volume (vph)	229	251	1	24	649	364	5	677	35	238	276	188	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5		
Lane Util. Factor	1.00	0.95			0.95		1.00	0.95		1.00	0.95		
Frt	1.00	1.00			0.95		1.00	0.99		1.00	0.94		
Flt Protected	0.95	1.00			1.00		0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1770	3537			3349		1770	3513		1770	3324		
Flt Permitted	0.95	1.00			0.94		0.41	1.00		0.27	1.00		
Satd. Flow (perm)	1770	3537			3150		759	3513		495	3324		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	
Adj. Flow (vph)	249	273	1	26	705	396	5	736	38	259	300	204	
RTOR Reduction (vph)	0	0	0	0	48	0	0	3	0	0	80	0	
Lane Group Flow (vph)	249	274	0	0	1079	0	5	771	0	259	424	0	
Turn Type	Prot	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases	7	4			8			2			6		
Permitted Phases				8			2			6			
Actuated Green, G (s)	19.5	69.5			45.5		71.5	71.5		71.5	71.5		
Effective Green, g (s)	19.5	69.5			45.5		71.5	71.5		71.5	71.5		
Actuated g/C Ratio	0.13	0.46			0.30		0.48	0.48		0.48	0.48		
Clearance Time (s)	4.5	4.5			4.5		4.5	4.5		4.5	4.5		
Vehicle Extension (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0		
Lane Grp Cap (vph)	230	1638			955		361	1674		235	1584		
v/s Ratio Prot	c0.14	0.08						0.22			0.13		
v/s Ratio Perm					c0.34		0.01			c0.52			
v/c Ratio	1.08	0.17			1.13		0.01	0.46		1.10	0.27		
Uniform Delay, d1	65.2	23.4			52.2		20.7	26.3		39.2	23.5		
Progression Factor	1.00	1.00			1.00		1.00	1.00		1.00	1.00		
Incremental Delay, d2	83.1	0.0			71.8		0.1	0.9		88.8	0.4		
Delay (s)	148.3	23.5			124.0		20.7	27.2		128.0	24.0		
Level of Service	F	C			F		C	C		F	C		
Approach Delay (s)		82.9			124.0			27.2			59.3		
Approach LOS		F			F			C			E		
Intersection Summary													
HCM 2000 Control Delay			78.2									HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio			1.11										
Actuated Cycle Length (s)			150.0									Sum of lost time (s)	13.5
Intersection Capacity Utilization			91.0%									ICU Level of Service	E
Analysis Period (min)			15										

c Critical Lane Group

HCM Signalized Intersection Capacity Analysis

27: N Mission Rd & E Cesar E Chavez Ave

12/17/2018



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	437	650	341	157	608	36	235	561	82	38	557	377
Future Volume (vph)	437	650	341	157	608	36	235	561	82	38	557	377
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	0.91	0.91		1.00	0.95		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.95		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1610	3216		1770	3510		1770	3539	1583	1770	3539	1583
Flt Permitted	0.16	0.71		0.23	1.00		0.22	1.00	1.00	0.24	1.00	1.00
Satd. Flow (perm)	277	2284		431	3510		416	3539	1583	446	3539	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	475	707	371	171	661	39	255	610	89	41	605	410
RTOR Reduction (vph)	0	55	0	0	4	0	0	0	57	0	0	42
Lane Group Flow (vph)	389	1109	0	171	696	0	255	610	32	41	605	368
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	Perm	NA	pm+ov
Protected Phases	7	4		3	8		5	2			6	7
Permitted Phases	4			8			2		2	6		6
Actuated Green, G (s)	48.5	48.5		30.2	24.7		32.5	32.5	32.5	18.5	18.5	37.8
Effective Green, g (s)	48.5	48.5		30.2	24.7		32.5	32.5	32.5	18.5	18.5	37.8
Actuated g/C Ratio	0.54	0.54		0.34	0.27		0.36	0.36	0.36	0.21	0.21	0.42
Clearance Time (s)	4.5	4.5		4.5	4.5		4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	435	1430		226	963		293	1277	571	91	727	664
v/s Ratio Prot	c0.19	0.17		0.05	0.20		c0.09	0.17			0.17	0.12
v/s Ratio Perm	c0.29	0.25		0.21			c0.22		0.02	0.09		0.11
v/c Ratio	0.89	0.78		0.76	0.72		0.87	0.48	0.06	0.45	0.83	0.55
Uniform Delay, d1	21.1	16.4		22.2	29.5		32.4	22.2	18.7	31.3	34.3	19.7
Progression Factor	1.16	0.52		1.00	1.00		0.75	0.69	0.58	1.00	1.00	1.00
Incremental Delay, d2	14.1	1.7		13.5	4.7		13.9	0.7	0.1	15.3	10.7	1.0
Delay (s)	38.5	10.3		35.7	34.2		38.4	15.9	11.0	46.6	45.0	20.7
Level of Service	D	B		D	C		D	B	B	D	D	C
Approach Delay (s)		17.4			34.5			21.4			35.6	
Approach LOS		B			C			C			D	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	89.1%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

**Appendix N:
Traffic Signal Warrant Analysis at Center Street and
Commercial Street**

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TRAFFIC SIGNAL WARRANT SUMMARY

City: Los Angeles
 County: Los Angeles

Alternative: Year 2031 No Build - AM Peak
 Project: Link US

Major Street: Center Street
 Minor Street: Commercial Street

Lanes: 2 Critical Approach Speed: 30
 Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? Yes No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? Yes No
 If Question 1 or 2 above is answered "Yes", then use "70%" volume level 70% 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: Yes No
 Satisfied: Yes No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour		

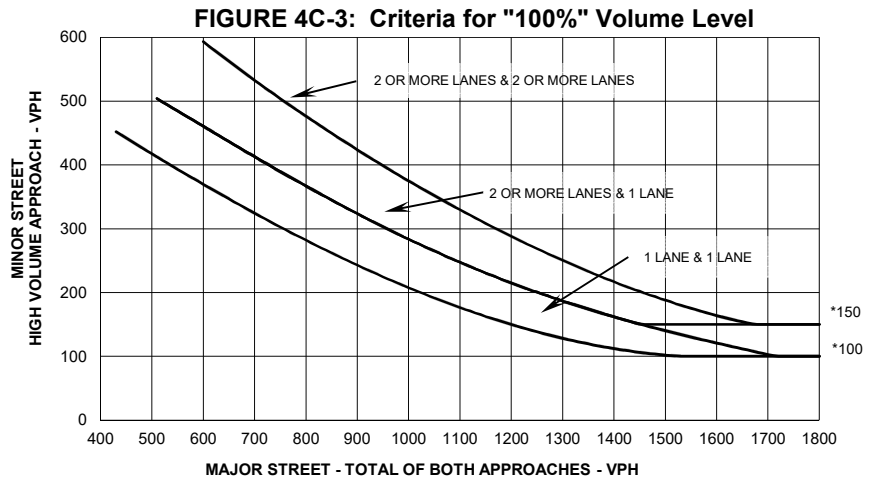
Criteria

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*		
Delay*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	
Volume*	288	
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*		100
Volume*		1,041
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

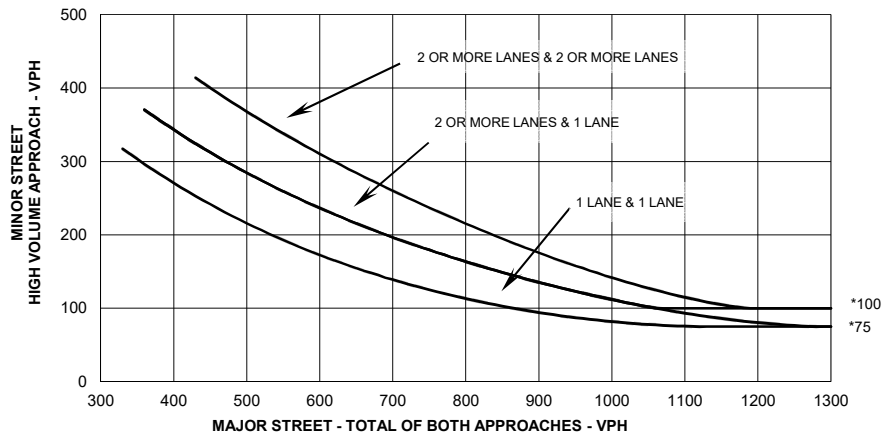
Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

TRAFFIC SIGNAL WARRANT SUMMARY

City: Los Angeles
 County: Los Angeles

Alternative: Year 2031 No Build - PM Peak
 Project: Link US

Major Street: Center Street
 Minor Street: Commercial Street

Lanes: 2 Critical Approach Speed: 30
 Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? Yes No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? Yes No
 If Question 1 or 2 above is answered "Yes", then use "70%" volume level 70% 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: Yes No
 Satisfied: Yes No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour		

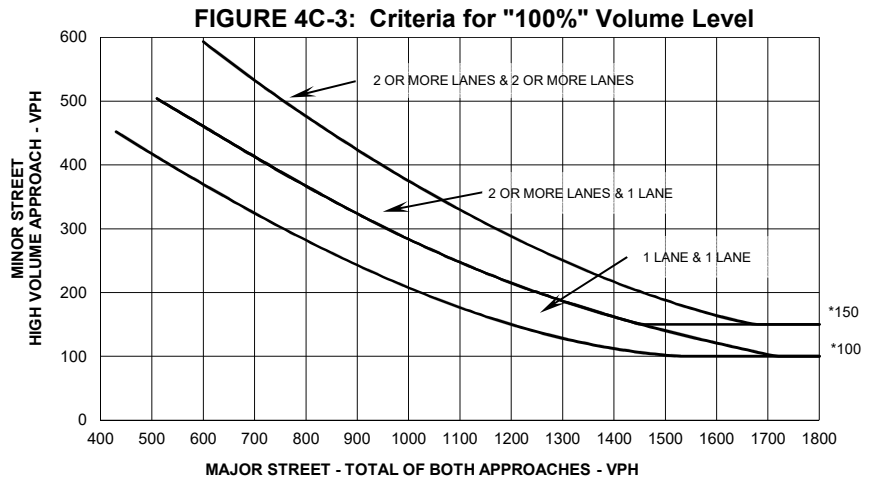
Criteria

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*		
Delay*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	
Volume*	319	
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

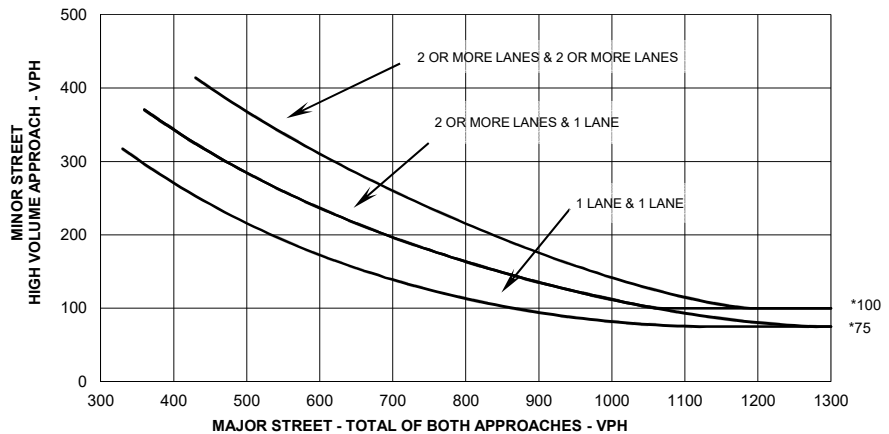
3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*		150
Volume*		1,166
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

FIGURE 4C-4: Criteria for "70%" Volume Level
 (Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

TRAFFIC SIGNAL WARRANT SUMMARY

City: Los Angeles
 County: Los Angeles

Alternative: Year 2031 Build - AM Peak
 Project: Link US

Major Street: Center Street
 Minor Street: Commercial Street

Lanes: 2 Critical Approach Speed: 30
 Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? Yes No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? Yes No
 If Question 1 or 2 above is answered "Yes", then use "70%" volume level 70% 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: Yes No
 Satisfied: Yes No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour		

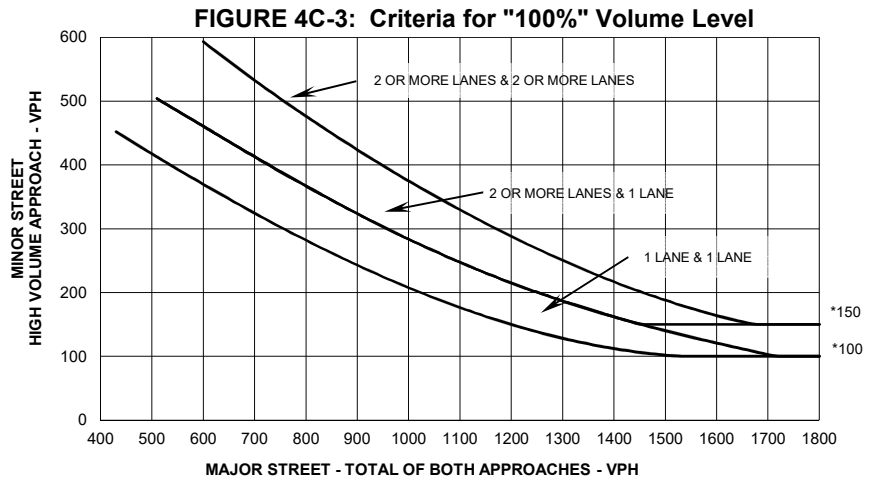
Criteria

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*		
Delay*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	
Volume*	306	
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

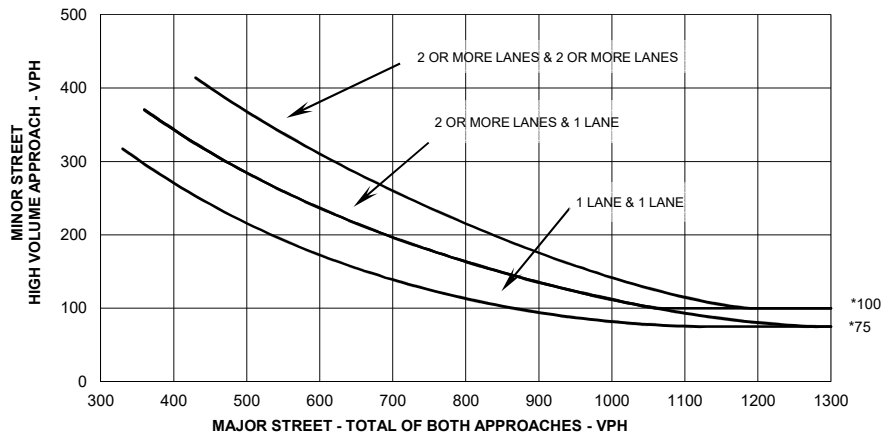
3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	100	
Volume*	1,248	
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

FIGURE 4C-4: Criteria for "70%" Volume Level
 (Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

TRAFFIC SIGNAL WARRANT SUMMARY

City: Los Angeles
 County: Los Angeles

Alternative: Year 2031 Build - PM Peak
 Project: Link US

Major Street: Center Street
 Minor Street: Commercial Street

Lanes: 2 Critical Approach Speed: 30
 Lanes: 1

Volume Level Criteria

1. Is the critical speed of major street traffic > 70 km/h (40 mph) ? Yes No
 2. Is the intersection in a built-up area of isolated community of <10,000 population? Yes No

If Question 1 or 2 above is answered "Yes", then use "70%" volume level 70% 100%

WARRANT 3 - PEAK HOUR

If all three criteria are fulfilled or the plotted point lies above the appropriate line, then the warrant is satisfied.

Applicable: Yes No
 Satisfied: Yes No

Unusual condition justifying use of warrant:

Record hour when criteria are fulfilled and the corresponding delay or volume in boxes provided.

Peak Hour		

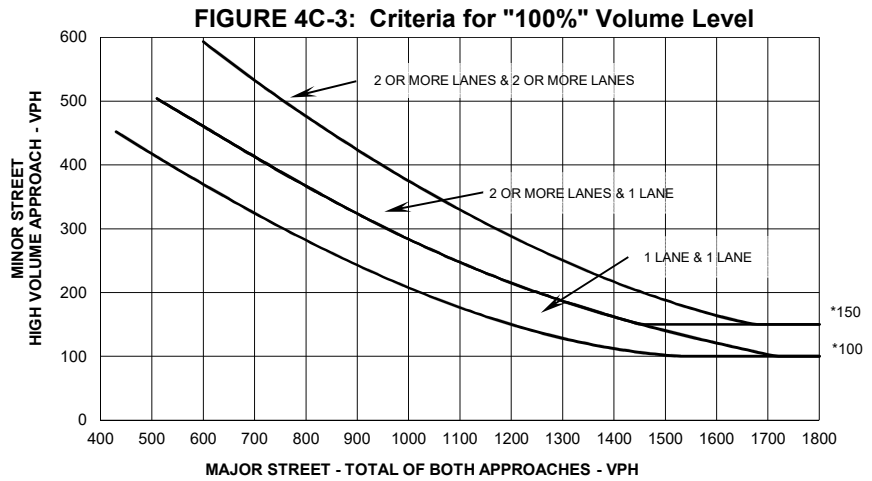
Criteria

1. Delay on Minor Approach *(vehicle-hours)		
Approach Lanes	1	2
Delay Criteria*		
Delay*		
Fulfilled?:	<input type="checkbox"/> Yes	<input type="checkbox"/> No

2. Volume on Minor Approach *(vehicles per hour)		
Approach Lanes	1	2
Volume Criteria*	100	
Volume*	333	
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

3. Total Entering Volume *(vehicles per hour)		
No. of Approaches	3	4
Volume Criteria*	100	
Volume*	1,476	
Fulfilled?:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

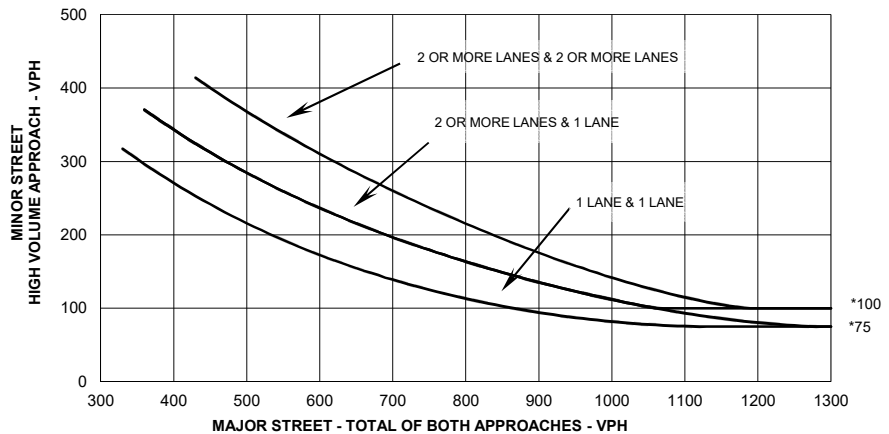
Plot volume combination on the applicable figure below.



* Note: 150 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 100 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

FIGURE 4C-4: Criteria for "70%" Volume Level

(Community Less than 10,000 population or above 70 km/hr (40 mph) on Major Street)



* Note: 100 vph applies as the lower threshold volume for a minor street approach with two or more lanes and 75 vph applies as the lower threshold volume threshold for a minor street approach with one lane.

**Appendix O:
Metropolitan Water District Analysis: Traffic Reassignment
Results**

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APPENDIX O

MWD Analysis

Union Station Campus Internal Circulation Analysis

INTRODUCTION

The Link Union Station Project proposes changes to the internal circulation system within the Union Station campus. Specifically, the roadway along the east side of the building separating the Gold Line tracks from the baggage claim building is proposed to be closed permanently (the Project) in order to make room for a large pedestrian plaza connecting the passenger corridors to the Union Station building itself. Figure M-1 shows the location of the roadway section in question.

The east road roadway closure would necessitate more travel along the west roadway along the Alameda Street side of the building. The purpose of this analysis is to evaluate the effects of the proposed roadway closure on the overall internal circulation within the site.

EXISTING CONDITIONS

The internal circulation system is basically provided by a two-lane, two-way roadway surrounding Union Station. The roadway connects Union Station to Alameda Street and to East Cesar Chavez Avenue at signalized intersections. The internal roadway provides access to the Union Station building, the Mozaic at Union Station apartments, the Metropolitan Water Department (MWD) Building, the First 5 LA Building, and the surface and underground parking serving these buildings.

The intersections within the Union Station site are all controlled with stop signs. The entrances to the site on Alameda Street and on E. Cesar Chavez Avenue are controlled by traffic signals.

Traffic Flow

Morning and afternoon peak period traffic counts were conducted at key intersections along the internal circulation roadway. Figure M-1 shows the locations of these counts at Intersections 1-11. Intersection 9 provides an inbound ramp from the circulation road to the underground parking for the MWD Building, but on the day the counts were conducted, the ramp was closed so all traffic to/from the MWD Building used the garage entrance at Intersection 10. Figure M-2

shows the results of the turning movement counts. Morning and afternoon peak hour counts show the flow of traffic in and out of the site and along the internal circulation roadway.

Figure M-2 also shows the results of 24-hour traffic counts along the east and south sides of the circulation roadway. The east side roadway section to be closed accommodates approximately 1,500 vehicles per day (vpd) near the baggage claim building, decreasing to approximately 1,050 vpd just north of the MWD garage entrance (Intersection 10). The roadway section south of the MWD Building carries almost 1,300 vpd. The capacity of a two-lane roadway is 10-12,000 vpd, so none of the sections of the internal circulation roadway is nearing capacity or experiencing congestion issues, and observations confirmed this.

Pedestrian Flow

The traffic counts conducted along the internal circulation roadway also included a summary of the pedestrians crossing the roadway at each study intersection. Figure M-3 shows the pedestrian flow at the key internal intersections.

At the Alameda Street entrance to Union Station, the pedestrian flows are the highest. Approximately 525 pedestrians cross the internal roadway at the Alameda Street driveways in the morning peak hour with that number increasing to 890 in the afternoon peak hour.

In addition, another 300 pedestrians cross the internal roadway in both the morning and afternoon peak hours southerly between the First 5 LA and the MWD Buildings. Most of these people come from Alameda Street and from the bus stops serving the El Monte Busway. These crossings take place both in and between the three marked crosswalks in this section of the internal roadway.

Traffic Flow Adjustments

Adjustments to the internal traffic flow were made to account for the fact that the MWD Building is undergoing renovation and major portions of the building were vacant during the time of the traffic counts. Therefore the trips in and out of the MWD garage intersection were increased by 30% to account for the vacant space in the building. Figure M-4 shows the what the existing traffic flow would be along the internal roadway if the MWD Building were fully occupied.

FUTURE ROADWAY CHANGES

Internal Roadway Closure

Figure M-1 shows the section of the east circulation roadway proposed for closure. The two-lane roadway between the Baggage Building parking lot southerly to the MWD Building curve would be closed to traffic.

TRAFFIC SHIFTS

Figure M-5 shows the shift in morning and afternoon peak hour traffic that would take place as a result of the east circulation roadway closure. Essentially, the traffic that is now using the east circulation roadway would shift to the west side of the Union Station building to make their way to/from the First 5 LA Building and the MWD Building.

The roadway closure would increase the peak directional flow along the west circulation roadway by approximately 75 vehicles per hour in the morning peak hour and by 85 vph in the afternoon peak hour. The closure of the east circulation roadway is not expected to affect the traffic flows using the external intersections along Alameda Street and along Cesar Chavez Avenue.

Figure M-6 shows the results of a full MWD Building with the east circulation roadway closed.

FUTURE ROADWAY VOLUMES

Figures M-7 and M-8 show the future morning and afternoon peak hour traffic levels expected with and without the east circulation roadway closure under Year 2031 conditions. Both figures assume a full MWD Building, completion of the Link Union Station project, and ambient growth in background traffic. Both future scenarios assume the consolidation of the Alameda Street/Union Station entrance opposite Los Angeles Street as part of the Union Station Forecourt project.

IMPACT ANALYSIS METHODOLOGY

Intersection capacity has been analyzed using *Highway Capacity Manual, 6th Edition, A Guide for Multimodal Mobility Analysis* (Transportation Research Board, 2016) (HCM) methodology in accordance with the LADOT *Transportation Impact Study Guidelines* for roadway infrastructure projects. The Highway Capacity Manual methodology was implemented using Vistro software to analyze intersection operating conditions. The methodology calculates the amount of intersection delay that occurs under existing or projected traffic conditions, which is used to determine the intersection LOS according to the LOS definitions provided in Table M-1. LOS worksheets for each scenario are provided in the Attachment to this Appendix.

Impact Criteria and Significance Thresholds

The significance of the potential impacts of Project generated traffic at the study intersections was determined using criteria identified in *Transportation Impact Study Guidelines*. LADOT guidelines indicate that a project is considered to have a significant transportation impact on a signalized intersection if the increase in the seconds of delay attributable to the project exceeds a specific threshold depending on the final intersection LOS. LADOT has developed a sliding

scale methodology in which the minimum allowable increase in the delay attributable to a project decreases as the V/C ratio of the intersection increases:

Intersection Conditions with Project Traffic		Significant Impact Threshold for Project-related Increase in Delay (secs)
LOS	Delay (secs)	
C	15.1 – 25.0	Equal to or greater than 6.0
D	25.1 – 35.0	Equal to or greater than 4.0
E, F	>35.0	Equal to or greater than 2.5

Source: City of Los Angeles.

The relative impact of the added traffic volumes to be generated by the Project was evaluated based on analysis of existing and future operating conditions at the study intersections, with and without the Project.

The internal intersections are currently controlled by Stop signs and the above criteria was also used to evaluate the performance of the unsignalized study intersections. Typically, LADOT asks that unsignalized intersections be evaluated for potential installation of a traffic signal if the unsignalized intersection operates at a poor Level of Service (LOS E or F). However, in this case, the unsignalized intersections are located so close to existing signalized intersections that signalizing intersections along the internal circulation roadway would be impractical. Therefore, the unsignalized were investigated in terms of overall performance (seconds of delay) with and without the Project.

To account for the effects of pedestrians on intersection operations, the capacity of Intersections 2, 3, 6, 7, and 8 along the internal circulation roadway were adjusted. Observations showed that these intersections performed worse than the capacity calculations indicated, primarily due to the effects of random pedestrian crossings. Therefore, the intersection Levels of Service were downgraded one or two Levels of Service to reflect the actual performance levels observed.

IMPACT ANALYSIS RESULTS

2018 Conditions

Table M-2 shows the results of the intersection capacity calculations both with and without the Project. When comparing the “With Project” results to the “Existing Conditions – Fully Occupied MWD Building” conditions, the results show that none of the 11 study intersections experience an increase in seconds of delay that approaches the levels of significance shown above. In all but one case, the increases in delay are less than one second.

The closure of the east circulation roadway would not have a significant impact on any of the study locations under the Existing Conditions.

2031 Conditions

Table M-3 shows similar results for the 2031 conditions. While the actual performance of the study intersections degraded somewhat in the Year 2031 tests (due to the growth in background traffic levels and the loss of one through lane in each direction along Alameda Street), the shift in traffic caused by the closure of the east circulation roadway did not result in any significant impacts at any of the study intersections.

CONCLUSION

The proposal to close the east circulation roadway in order to create a larger pedestrian plaza area as part of the Link US plan will cause traffic shifts along the internal circulation roadway system inside the Union Station campus. Approximately 75 trips in the morning peak hour and 85 trips in the afternoon peak hour will shift from the east to the west side of the Union Station Building.

No significant impacts are anticipated as a result of the closure of a section of the east circulation roadway.

The internal circulation system of the Union Station campus will still operate satisfactorily even with the east circulation roadway closed. Access to the parking areas serving the First 5 LA Building and the MWD Building can be maintained and satisfactory Levels of Service will result.

**TABLE M-1
LEVEL OF SERVICE DEFINITIONS**

Level of Service	Delay (Seconds)	Definition
A	0.0 - 10.0	EXCELLENT. No vehicle waits longer than one red light and no approach phase is fully used.
B	10.1 - 15.0	VERY GOOD. An occasional approach phase is fully utilized; many drivers begin to feel somewhat restricted within groups of vehicles.
C	15.1 - 25.0	GOOD. Occasionally drivers may have to wait through more than one red light; backups may develop behind turning vehicles.
D	25.1 - 35.0	FAIR. Delays may be substantial during portions of the rush hours, but enough lower volume periods occur to permit clearing of developing lines, preventing excessive backups.
E	35.1 - 50	POOR. Represents the most vehicles intersection approaches can accommodate; may be long lines of waiting vehicles through several signal cycles.
F	> 50.0	FAILURE. Backups from nearby locations or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches. Tremendous delays with continuously increasing queue lengths.

Source:

Highway Capacity Manual 6th Edition (Transportation Research Board, 2016).

**TABLE M-2
EXISTING CONDITIONS (YEAR 2018)
INTERSECTION ANALYSIS WITH PEDESTRIAN VOLUMES**

No	Intersection	Peak Hour	Existing Conditions		Existing Conditions (Fully Occupied)			Existing with Project (Fully Occupied)		
			Delay	LOS	Delay	LOS	Change in Delay	Delay	LOS	Change in Delay
1.	Union Station North Driveway & E Cesar Chavez	AM	11.9	B	11.9	B	0.0	11.9	B	0.0
		PM	14.8	B	14.8	B	0.0	14.8	B	0.0
2. [a]	Union Station North Driveway & North Internal T-Intersection	AM	8.0	B*	8.1	B*	0.1	8.0	B*	-0.1
		PM	8.5	B*	8.6	B*	0.1	9.1	B*	0.5
3.] [a]	Union Station North Driveway & South Internal T-Intersection	AM	8.0	B*	8.2	B*	0.2	7.4	B*	-0.8
		PM	7.5	B*	7.5	B*	0.0	7.3	B*	-0.2
4. Source:	N Alameda Street & N Los Angeles Street (North)	AM	17.4	C	18.2	C	0.8	18.2	C	0.0
		PM	21.0	C	21.6	C	0.6	21.6	C	0.0
on (Tra	N Alameda Street & N Los Angeles Street (South)	AM	21.3	C	21.3	C	0.0	21.3	C	0.0
		PM	30.0	D	30.0	D	0.0	30.0	D	0.0
6. [a]	Union Station Driveway & West Internal Circulation Road (North)	AM	8.0	C*	8.0	C*	0.0	8.1	C*	0.1
		PM	8.8	C*	9.0	C*	0.2	9.3	C*	0.3
7. [a]	Union Station Driveway & West Internal Circulation Road (South)	AM	7.9	C*	7.9	C*	0.0	8.0	C*	0.1
		PM	8.4	C*	8.4	C*	0.0	8.6	C*	0.2
8. [a]	Union Station Driveway & MWD West Valet Parking Driveway	AM	12.4	C*	12.4	C*	0.0	12.4	C*	0.0
		PM	12.2	C*	12.2	C*	0.0	12.2	C*	0.0
9. [a]	Union Station Circulation Road & Gated Ramp	AM	0.0	A	0.0	A	0.0	0.0	A	0.0
		PM	0.0	A	0.0	A	0.0	0.0	A	0.0
10. [a]	Union Station Circulation Road & MWD East Driveway to Parking Garage	AM	9.8	A	10.2	B	0.4	11.4	B	1.2
		PM	9.2	A	9.5	A	0.3	9.4	A	-0.1
11. [a]	Union Station Circulation Road & MWD Truck Dock	AM	8.5	A	8.5	A	0.0	8.5	A	0.0
		PM	8.5	A	8.5	A	0.0	8.5	A	0.0

Note:

[a] Intersection is unsignalized.

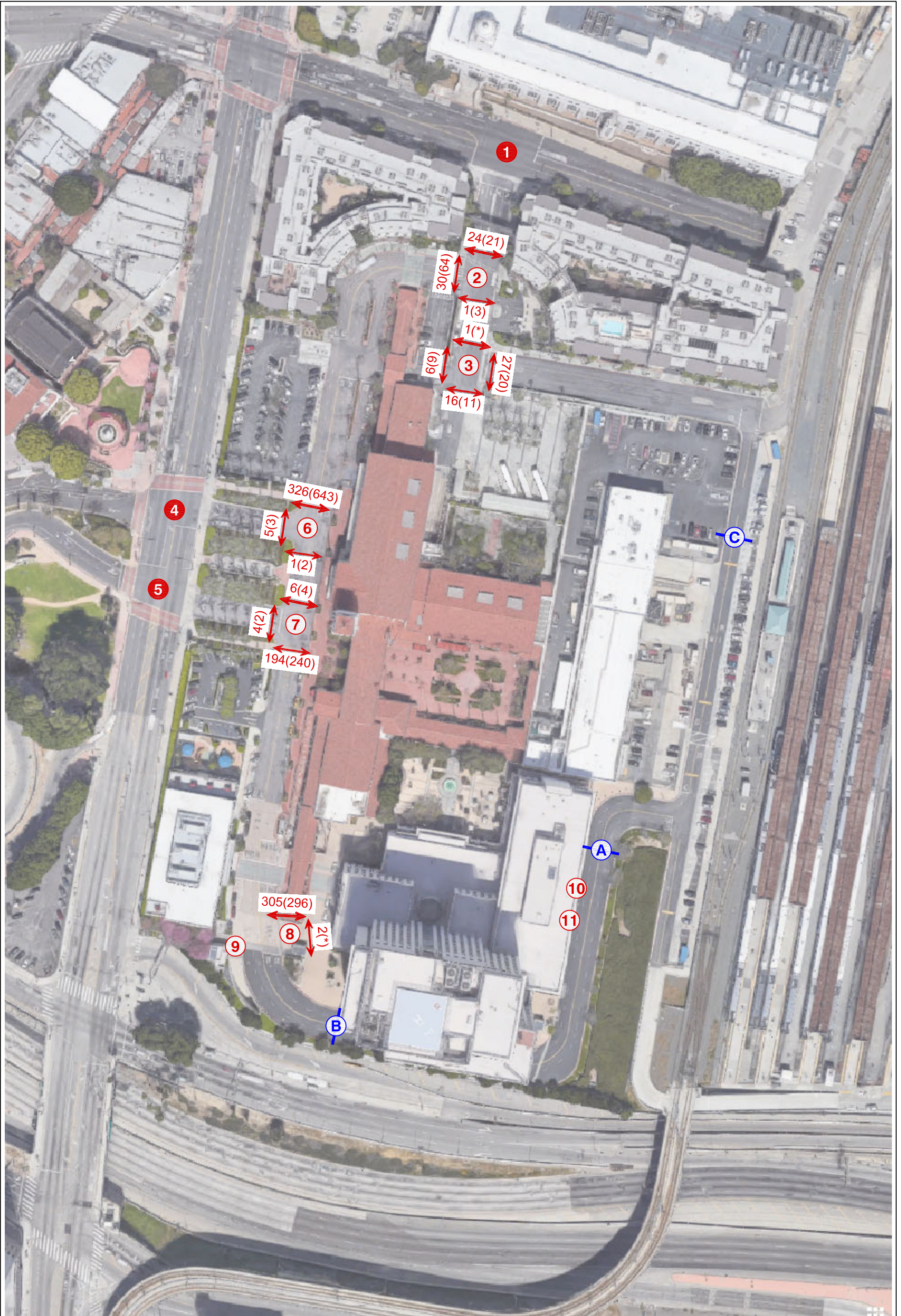
* Intersection LOS changed to account for pedestrian volumes.

**TABLE M-3
FUTURE CONDITIONS (YEAR 2031)
INTERSECTION ANALYSIS WITH PEDESTRIAN VOLUMES**

Delay
(Seconds)


No	Peak Hour	Future Base Conditions		Future Base Conditions (Fully Occupied)			Future With Project Conditions (Fully Occupied)		
		Delay	LOS	Delay	LOS	Change in Delay	Delay	LOS	Change in Delay
1.	AM PM	12.8 17.1	B C	12.8 17.1	B C	0.0 0.0	12.8 17.1	B C	0.0 0.0
2. [a]	AM PM	8.8 9.8	B* B*	9.1 10.5	B* C*	0.3 0.7	9.0 11.5	B* C*	-0.1 1.0
3. [a]	AM PM	8.0 7.5	B* B*	8.9 7.9	B* B*	0.9 0.4	8.1 7.5	B* B*	-0.8 -0.4
4. Source:	AM PM	27.7 83.3	D F	28.7 83.3	D F	1.0 0.0	28.8 83.3	D F	0.1 0.0
on (Tra [a]	AM PM	8.8 9.9	C* C*	8.8 10.0	C* C*	0.0 0.1	9.1 10.3	C* C*	0.3 0.3
8. [a]	AM PM	12.4 12.2	C* C*	12.4 12.2	C* C*	0.0 0.0	12.4 12.2	C* C*	0.0 0.0
9. [a]	AM PM	0.0 0.0	A A	0.0 0.0	A A	0.0 0.0	0.0 0.0	A A	0.0 0.0
10. [a]	AM PM	9.8 9.2	A A	10.2 9.5	B A	0.4 0.3	11.4 9.4	B A	1.2 -0.1
11. [a]	AM PM	8.5 8.5	A A	8.5 8.5	A A	0.0 0.0	8.5 8.5	A A	0.0 0.0

Note:
[a]
*



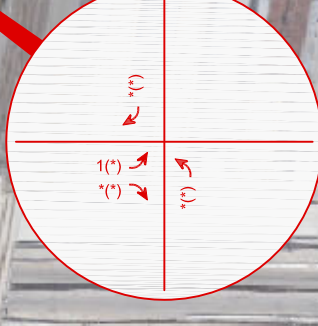
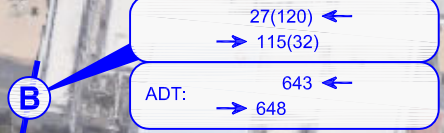
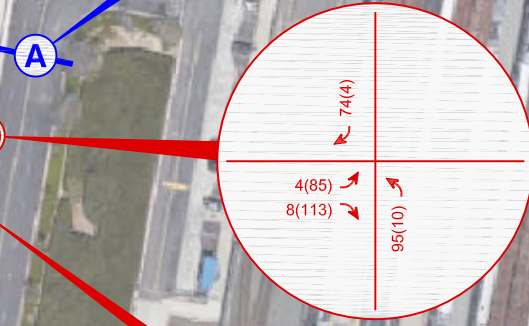
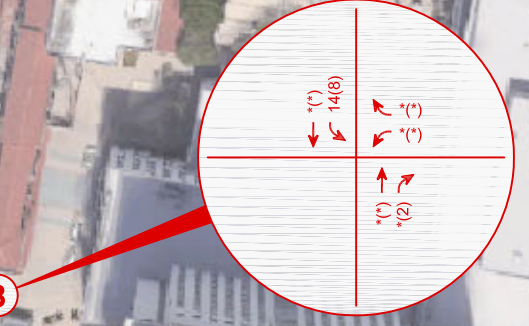
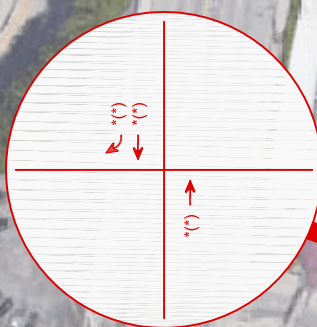
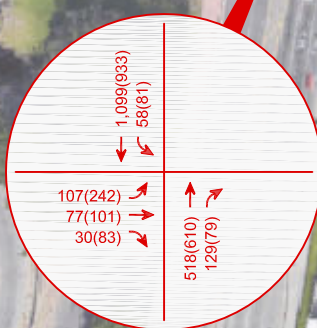
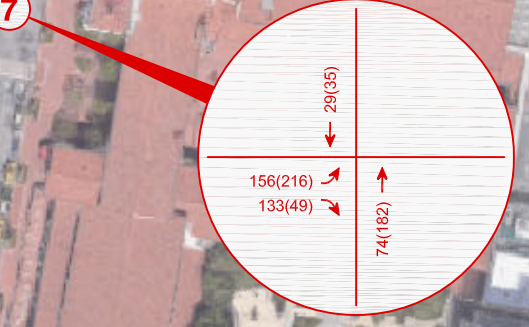
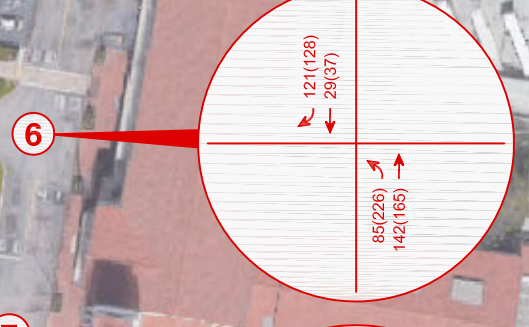
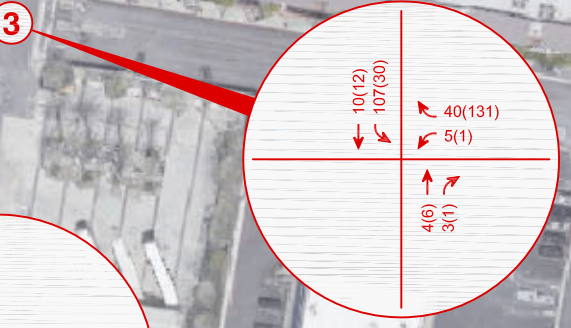
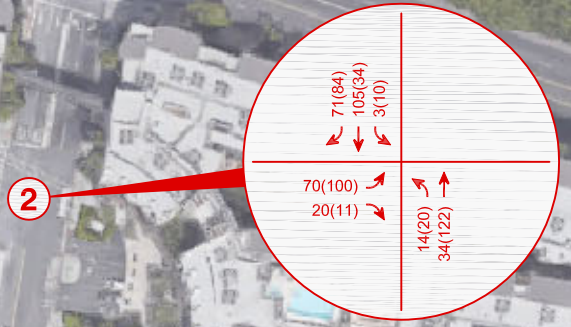
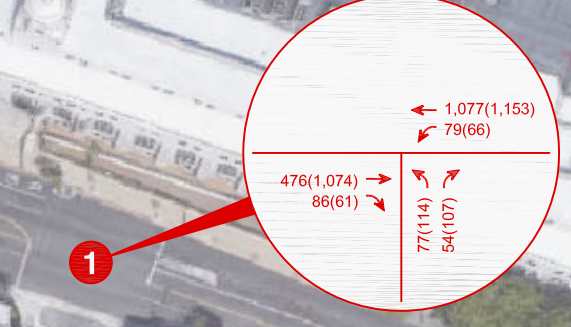
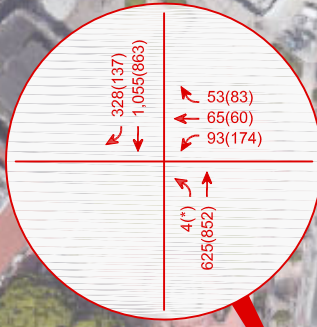
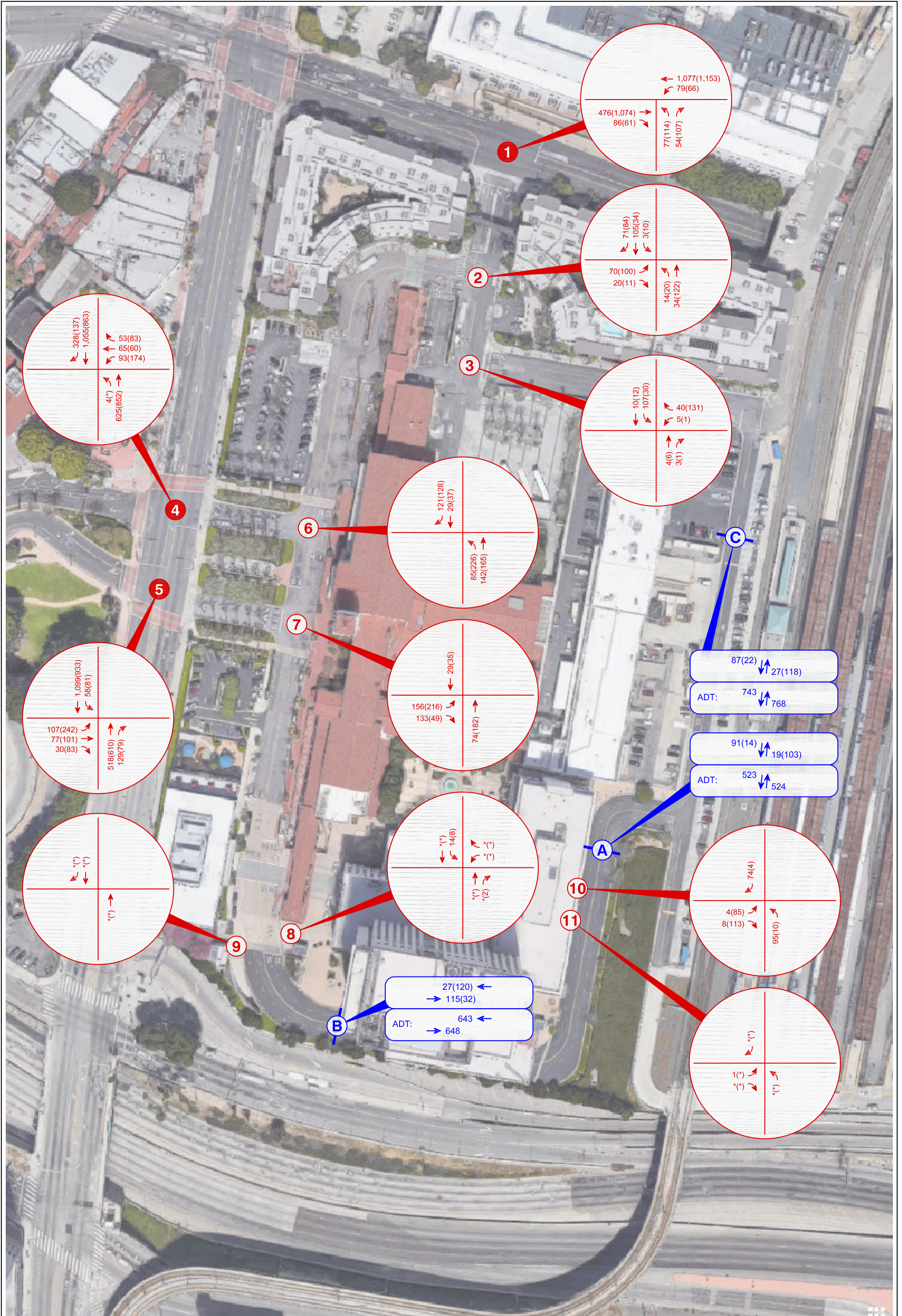
LEGEND

- Signalized Intersection
- # Unsignalized Intersection
- ⊗ Street Segment
- x(x) AM(PM) Peak Hour Pedestrian Volumes
- * Negligible Volume


 N
 Not to Scale

**EXISTING CONDITIONS
PEAK HOUR PEDESTRIAN VOLUMES**

**FIGURE
M-3**



LEGEND

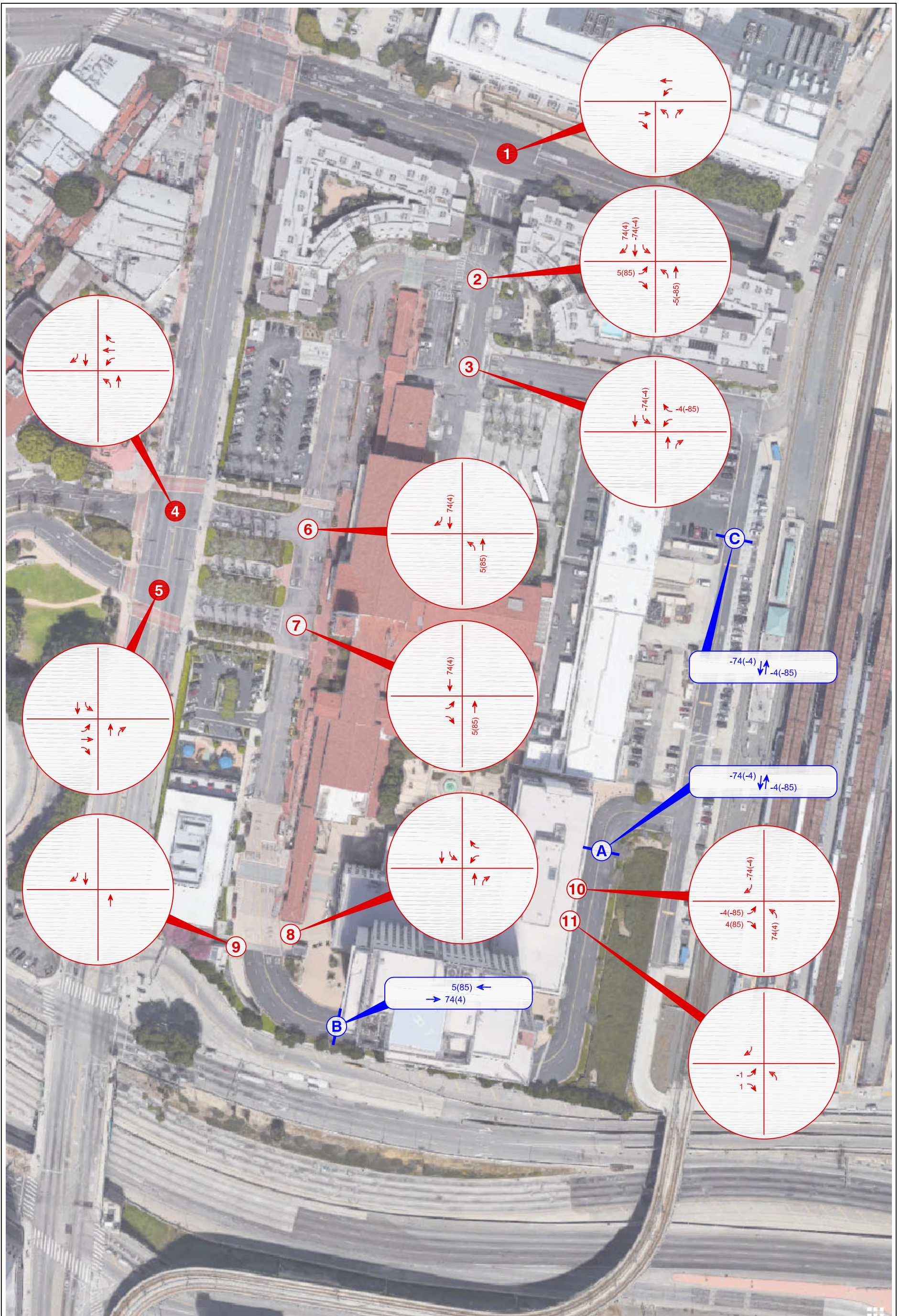
- # Signalized Intersection
- #• Unsignalized Intersection
- X Street Segment
- x(x) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume



Not to Scale

EXISTING CONDITIONS, FULLY OCCUPIED (YEAR 2018)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
M-4



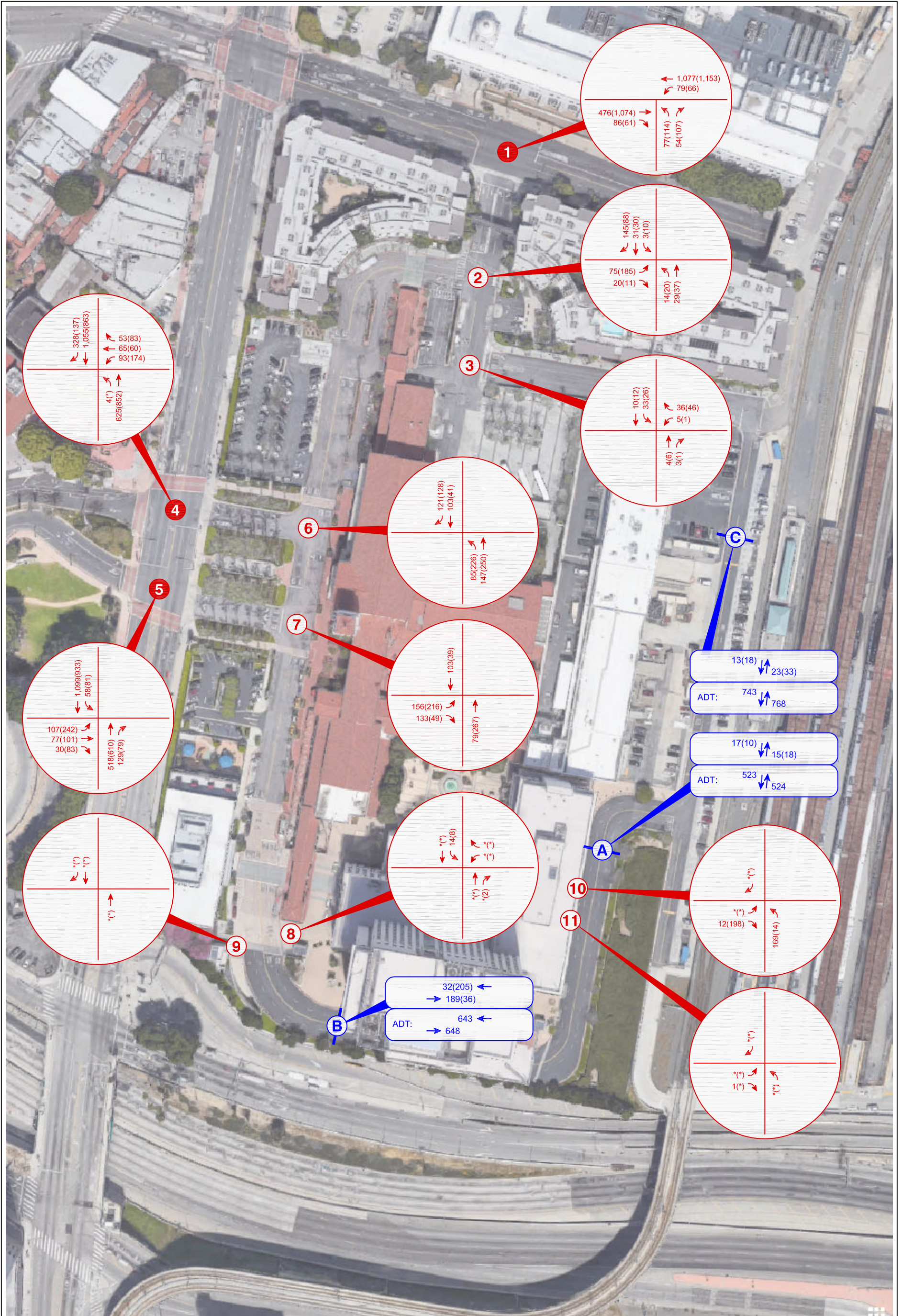
LEGEND

- # Signalized Intersection
- # Unsignalized Intersection
- X- Street Segment
- x(x) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume



PROJECT-ONLY
PEAK HOUR TRAFFIC VOLUMES

FIGURE
M-5



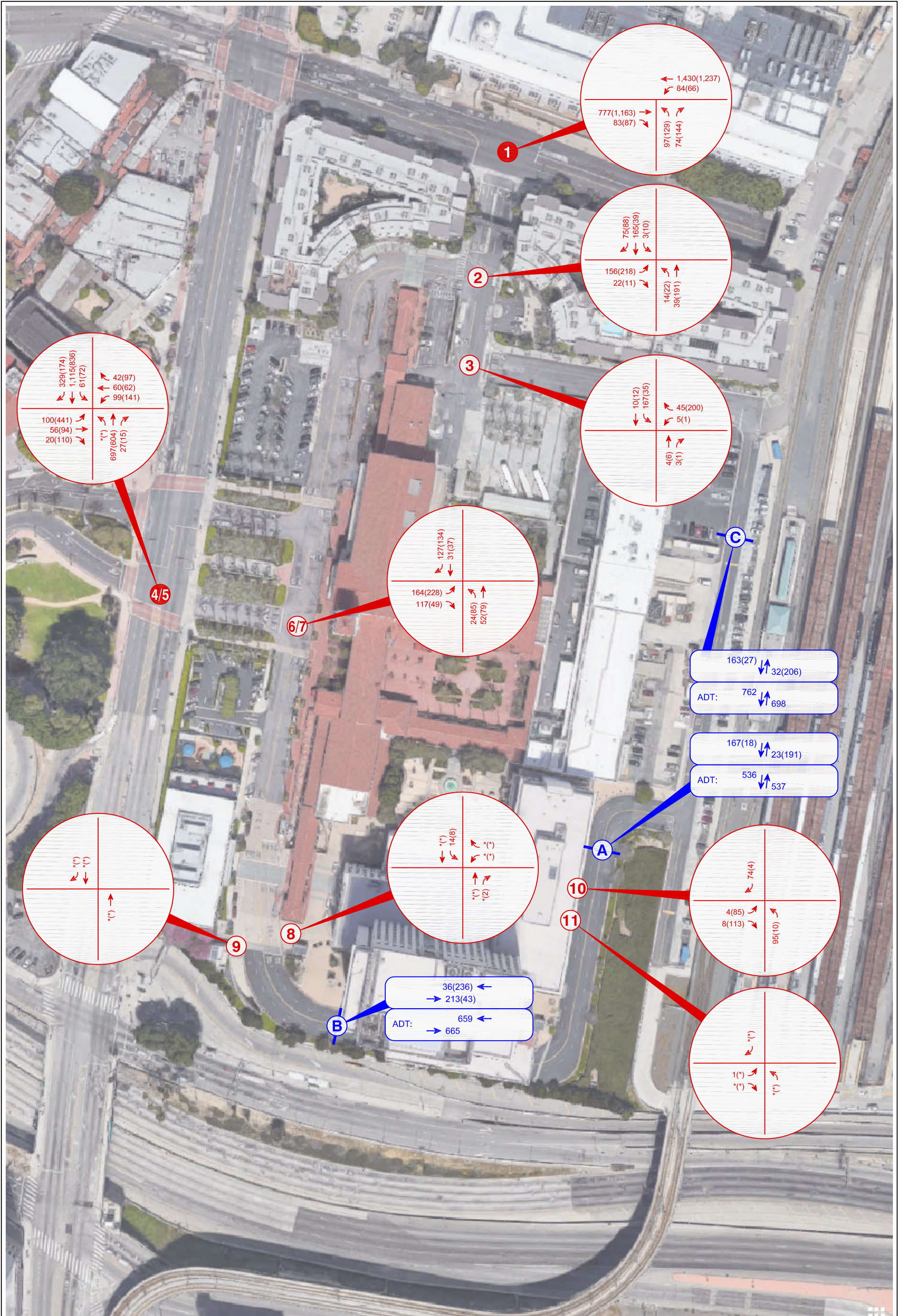
LEGEND

- # Signalized Intersection
- #• Unsignalized Intersection
- X- Street Segment
- x(x) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume




EXISTING WITH PROJECT CONDITIONS (YEAR 2018)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
M-6



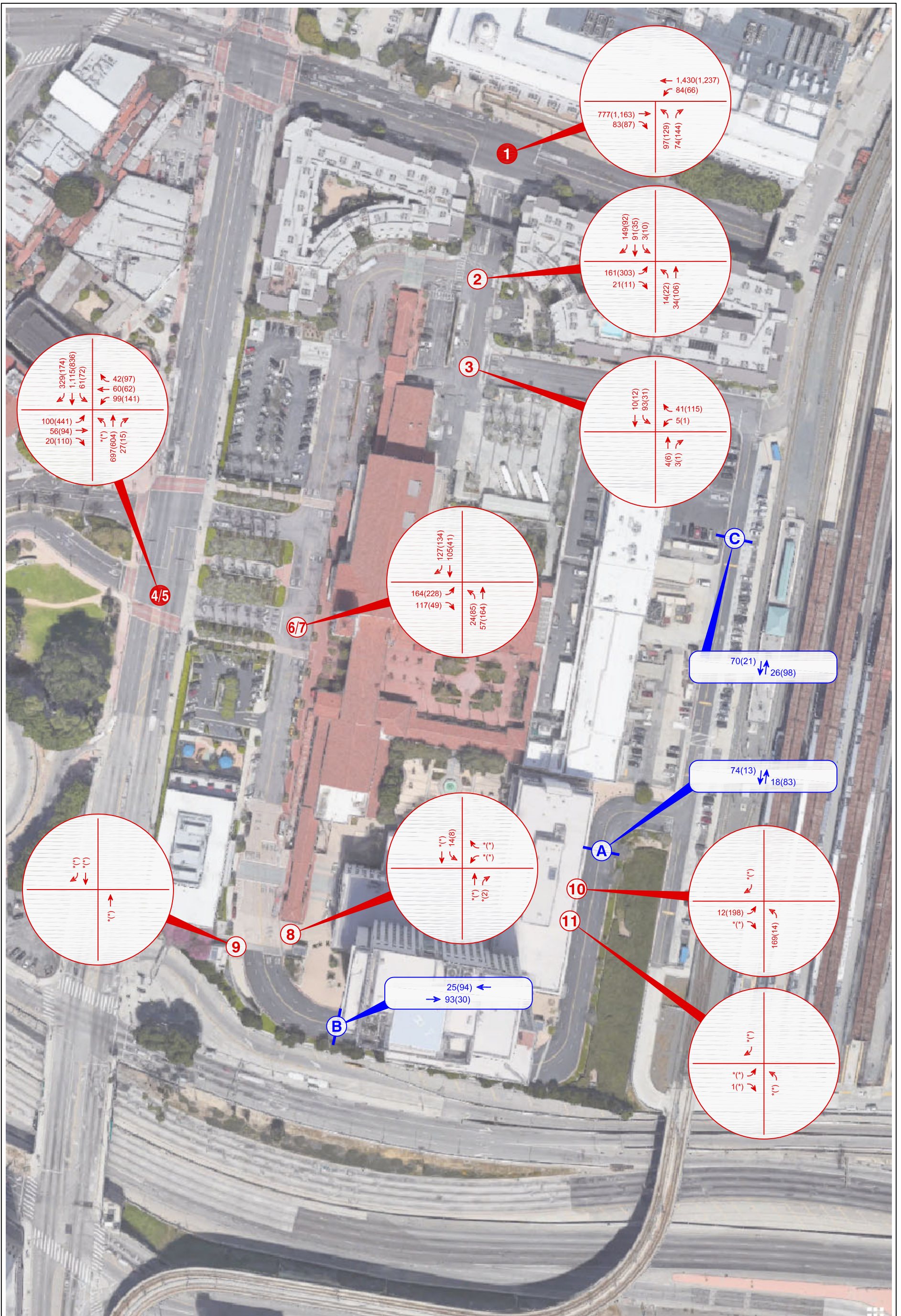
LEGEND

- # Signalized Intersection
- #/ Unsignalized Intersection
- ⊗ Street Segment
- x(x) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume


 N
 Not to Scale

**FUTURE BASE CONDITIONS, FULLY OCCUPIED (YEAR 2031)
PEAK HOUR TRAFFIC VOLUMES**

**FIGURE
M-7**



LEGEND

- # Signalized Intersection
- #/ Unsignalized Intersection
- ⊗ Street Segment
- x(x) AM(PM) Peak Hour Traffic Volumes
- * Negligible Volume



FUTURE WITH PROJECT CONDITIONS (YEAR 2031)
PEAK HOUR TRAFFIC VOLUMES

FIGURE
M-8

Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.109

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	14	33	0	3	88	71	70	0	20	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	33	0	3	88	71	70	0	20	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	8	0	1	22	18	18	0	5	0	0	0
Total Analysis Volume [veh/h]	14	33	0	3	88	71	70	0	20	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	749	744	856	653	835	702
Degree of Utilization, x	0.06	0.11	0.09	0.11	0.02	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.20	0.36	0.31	0.36	0.07	0.00
95th-Percentile Queue Length [ft]	5.01	9.12	7.81	8.96	1.84	0.00
Approach Delay [s/veh]	8.13	7.74		8.48		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.02					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.128

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	4	3	90	10	0	0	0	0	5	0	39
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	3	90	10	0	0	0	0	5	0	39
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	23	3	0	0	0	0	1	0	10
Total Analysis Volume [veh/h]	0	4	3	90	10	0	0	0	0	5	0	39
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	802	701	776	741	678	876
Degree of Utilization, x	0.01	0.13	0.01	0.00	0.01	0.04

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.44	0.04	0.00	0.02	0.14
95th-Percentile Queue Length [ft]	0.66	10.99	0.98	0.00	0.56	3.49
Approach Delay [s/veh]	7.53	8.47		0.00	7.12	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	8.04					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.298

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T						T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	156	0	0	264	82	0	0	0	23	16	13
Total Analysis Volume [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	180	0	0	180	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		L	C	R
C, Cycle Length [s]	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	176	176	176		56	56	56
g / C, Green / Cycle	0.73	0.73	0.73		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.14	0.23	0.24		0.06	0.04	0.04
s, saturation flow rate [veh/h]	4584	4584	1442		1603	1683	1431
c, Capacity [veh/h]	3362	3362	1057		374	393	334
d1, Uniform Delay [s]	9.88	11.03	11.23		74.88	73.37	73.25
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.12	0.24	0.83		1.59	0.91	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.19	0.31	0.33		0.25	0.17	0.16
d, Delay for Lane Group [s/veh]	10.00	11.27	12.05		76.46	74.27	74.26
Lane Group LOS	B	B	B		E	E	E
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	3.63	6.73	7.02		4.93	3.36	2.75
50th-Percentile Queue Length [ft]	90.77	168.24	175.41		123.15	83.99	68.71
95th-Percentile Queue Length [veh]	6.54	10.98	11.36		8.57	6.05	4.95
95th-Percentile Queue Length [ft]	163.38	274.60	284.01		214.15	151.18	123.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	10.00	0.00	0.00	11.28	12.05	0.00	0.00	0.00	76.46	74.27	74.26
Movement LOS		B			B	B				E	E	E
d_A, Approach Delay [s/veh]	10.00		11.46			0.00			75.24			
Approach LOS	B		B			A			E			
d_I, Intersection Delay [s/veh]	17.12											
Intersection LOS	B											
Intersection V/C	0.298											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.887	2.927	1.853	2.055
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1467	1467	0	467
d_b, Bicycle Delay [s]	8.53	8.53	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	1.903	2.130	4.132	1.908
Bicycle LOS	A	B	D	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 105: Alameda & Los Angeles St (South)

Control Type:	Signalized	Delay (sec / veh):	19.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.296

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Westbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	518	129	58	1099	0	0	0	0	107	77	30
Base Volume Input [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	130	32	15	275	0	0	0	0	27	19	8
Total Analysis Volume [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	0	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	155	0	36	191	0	0	0	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No						No	
Maximum Recall		No		No	No						No	
Pedestrian Recall		No		No	No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C		L	C	R
C, Cycle Length [s]	240	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	151	151	187	187		45	45	45
g / C, Green / Cycle	0.63	0.63	0.78	0.78		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.13	0.14	0.07	0.24		0.06	0.06	0.02
s, saturation flow rate [veh/h]	3204	1522	868	4584		1603	1668	1431
c, Capacity [veh/h]	2016	958	677	3572		301	313	268
d1, Uniform Delay [s]	19.07	19.23	6.56	7.70		83.97	83.91	80.92
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.24	0.55	0.25	0.22		2.57	2.43	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.21	0.23	0.09	0.31		0.30	0.30	0.11
d, Delay for Lane Group [s/veh]	19.31	19.77	6.81	7.92		86.54	86.34	81.76
Lane Group LOS	B	B	A	A		F	F	F
Critical Lane Group	No	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	5.51	5.63	0.76	5.78		5.15	5.28	1.63
50th-Percentile Queue Length [ft]	137.76	140.80	18.98	144.45		128.65	131.94	40.86
95th-Percentile Queue Length [veh]	9.36	9.52	1.37	9.72		8.87	9.05	2.94
95th-Percentile Queue Length [ft]	234.00	238.11	34.16	243.01		221.66	226.13	73.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	19.39	19.77	6.81	7.92	0.00	0.00	0.00	0.00	86.51	86.34	81.76
Movement LOS		B	B	A	A					F	F	F
d_A, Approach Delay [s/veh]		19.46		7.87		0.00				85.78		
Approach LOS		B		A		A				F		
d_I, Intersection Delay [s/veh]	19.85											
Intersection LOS	B											
Intersection V/C	0.296											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.788	2.888	2.125	2.056
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1258	1558	0	375
d_b, Bicycle Delay [s]	16.50	5.85	120.00	79.22
I_b,int, Bicycle LOS Score for Intersection	1.915	2.196	4.132	1.913
Bicycle LOS	A	B	D	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.156

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration	⇄		⇄			
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	83	142	29	121	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	142	29	121	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	36	7	30	0	0
Total Analysis Volume [veh/h]	83	142	29	121	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	721	779	767	901	
Degree of Utilization, x	0.16	0.14	0.04	0.13	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.55	0.50	0.12	0.46	
95th-Percentile Queue Length [ft]	13.76	12.58	2.95	11.58	
Approach Delay [s/veh]	8.35		7.37		0.00
Approach LOS	A		A		A
Intersection Delay [s/veh]	7.96				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 107: Union Station Driveway & West Internal Circulation Road (South)

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.130

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	↑↑		↑↑		↵↵↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	72	29	0	156	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	72	29	0	156	111
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	18	7	0	39	28
Total Analysis Volume [veh/h]	0	72	29	0	156	111
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings**Lanes**

Capacity per Entry Lane [veh/h]	791	791	786	786	685	726	887
Degree of Utilization, x	0.05	0.05	0.02	0.02	0.13	0.12	0.10

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.14	0.14	0.06	0.06	0.45	0.42	0.33
95th-Percentile Queue Length [ft]	3.57	3.57	1.41	1.41	11.14	10.44	8.34
Approach Delay [s/veh]	7.47		7.37		8.11		
Approach LOS	A		A		A		
Intersection Delay [s/veh]	7.92						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	4	0	0	0
Total Analysis Volume [veh/h]	0	0	14	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.24	0.00	8.69	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.03	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.65	0.33	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.24		8.51	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.24					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	73	0	0	57	3	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	0	0	57	3	6
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	0	0	14	1	2
Total Analysis Volume [veh/h]	73	0	0	57	3	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.44	0.00	0.00	0.00	9.77	8.50
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.07	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	3.71	1.86	0.00	0.00	0.74	0.74
d_A, Approach Delay [s/veh]	7.44		0.00		8.92	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.49					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	1	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.07	0.07
d_A, Approach Delay [s/veh]	3.61		0.00		8.52	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.52					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Ex 2018.vistro

Scenario 2 Existing 2018 PM

Report File: S:\...\Ex 2018 PM.pdf

7/27/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Right	0.435	14.8	B
102	Union Station North Driveway & North Internal T-Intersection	All-way stop	HCM 6th Edition	EB Left	0.164	8.5	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.122	7.5	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.294	20.7	C
105	Alameda & Los Angeles St (South)	Signalized	HCM 6th Edition	SEB Left	0.309	28.8	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	NB Left	0.285	8.8	A
107	Union Station Driveway & West Internal Circulation Road (South)	All-way stop	HCM 6th Edition	EB Left	0.164	8.4	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Left	0.000	8.6	A
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.065	9.2	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↵↵		↵		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	114	107	1074	61	66	1153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	107	1074	61	66	1153
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	27	269	15	17	288
Total Analysis Volume [veh/h]	114	107	1074	61	66	1153
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.34	0.34	0.15	0.36
s, saturation flow rate [veh/h]	1603	1431	1683	1652	446	3204
c, Capacity [veh/h]	220	197	1395	1369	356	2657
d1, Uniform Delay [s]	96.10	96.49	5.28	5.34	10.16	5.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.42	10.39	0.88	0.93	1.14	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.54	0.41	0.41	0.19	0.43
d, Delay for Lane Group [s/veh]	104.53	106.88	6.16	6.26	11.30	5.99
Lane Group LOS	F	F	A	A	B	A
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh]	7.22	6.88	7.62	7.71	1.28	7.85
50th-Percentile Queue Length [ft]	180.47	172.10	190.59	192.63	31.92	196.25
95th-Percentile Queue Length [veh]	11.62	11.19	12.15	12.26	2.30	12.44
95th-Percentile Queue Length [ft]	290.62	279.67	303.79	306.44	57.46	311.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.53	106.88	6.21	6.26	11.30	5.99
Movement LOS	F	F	A	A	B	A
d_A, Approach Delay [s/veh]	105.67		6.21		6.28	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	14.78					
Intersection LOS	B					
Intersection V/C	0.435					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.356	2.763	2.814
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.069	5.138
Bicycle LOS	D	F	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.164

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	20	102	0	10	33	84	100	0	11	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	102	0	10	33	84	100	0	11	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	26	0	3	8	21	25	0	3	0	0	0
Total Analysis Volume [veh/h]	20	102	0	10	33	84	100	0	11	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	746	709	846	641	816	681
Degree of Utilization, x	0.16	0.06	0.10	0.16	0.01	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.58	0.19	0.33	0.55	0.04	0.00
95th-Percentile Queue Length [ft]	14.55	4.83	8.25	13.75	1.02	0.00
Approach Delay [s/veh]	8.77	7.66		9.13		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.49					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.122

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	1	6	1	29	12	0	1	1	1	1	0	111
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	1	29	12	0	1	1	1	1	0	111
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	7	3	0	0	0	0	0	0	28
Total Analysis Volume [veh/h]	1	6	1	29	12	0	1	1	1	1	0	111
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	754	683	754	777	698	909
Degree of Utilization, x	0.01	0.04	0.02	0.00	0.00	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.13	0.05	0.01	0.00	0.42
95th-Percentile Queue Length [ft]	0.80	3.32	1.21	0.29	0.11	10.39
Approach Delay [s/veh]	7.83	8.02		7.65	7.22	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.45					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	20.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.294

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration				T						T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	213	0	0	216	34	0	0	0	44	15	21
Total Analysis Volume [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	180	0	0	180	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		L	C	R
C, Cycle Length [s]	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	176	176	176		56	56	56
g / C, Green / Cycle	0.73	0.73	0.73		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.19	0.16	0.16		0.11	0.04	0.06
s, saturation flow rate [veh/h]	4584	4584	1535		1603	1683	1431
c, Capacity [veh/h]	3362	3362	1125		374	393	334
d1, Uniform Delay [s]	10.48	10.20	10.19		79.12	73.14	74.88
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.18	0.15	0.46		4.12	0.82	1.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.25	0.22	0.22		0.47	0.15	0.25
d, Delay for Lane Group [s/veh]	10.66	10.36	10.65		83.24	73.97	76.65
Lane Group LOS	B	B	B		F	E	E
Critical Lane Group	Yes	No	No		Yes	No	No
50th-Percentile Queue Length [veh]	5.25	4.50	4.59		9.84	3.09	4.41
50th-Percentile Queue Length [ft]	131.30	112.49	114.77		246.03	77.26	110.35
95th-Percentile Queue Length [veh]	9.01	7.98	8.10		14.99	5.56	7.86
95th-Percentile Queue Length [ft]	225.26	199.46	202.61		374.65	139.08	196.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	10.66	0.00	0.00	10.39	10.65	0.00	0.00	0.00	83.24	73.97	76.65
Movement LOS		B			B	B				F	E	E
d_A, Approach Delay [s/veh]	10.66		10.43			0.00			79.76			
Approach LOS	B		B			A			E			
d_I, Intersection Delay [s/veh]	20.65											
Intersection LOS	C											
Intersection V/C	0.294											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.903	2.910	1.662	2.089
Crosswalk LOS	C	C	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1467	1467	0	467
d_b, Bicycle Delay [s]	8.53	8.53	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	2.028	1.972	4.132	2.083
Bicycle LOS	B	A	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 105: Alameda & Los Angeles St (South)

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.309

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Westbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	610	79	81	933	0	0	0	0	242	101	83
Base Volume Input [veh/h]	0	610	79	81	933	0	0	0	0	242	101	83
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	610	79	81	933	0	0	0	0	242	101	83
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	153	20	20	233	0	0	0	0	61	25	21
Total Analysis Volume [veh/h]	0	610	79	81	933	0	0	0	0	242	101	83
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	0	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	155	0	36	191	0	0	0	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No						No	
Maximum Recall		No		No	No						No	
Pedestrian Recall		No		No	No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C		L	C	R
C, Cycle Length [s]	240	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	151	151	187	187		45	45	45
g / C, Green / Cycle	0.63	0.63	0.78	0.78		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.14	0.14	0.10	0.20		0.11	0.11	0.06
s, saturation flow rate [veh/h]	3204	1587	846	4584		1603	1648	1431
c, Capacity [veh/h]	2016	998	660	3572		301	309	268
d1, Uniform Delay [s]	19.26	19.29	6.70	7.35		88.56	88.56	84.10
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.26	0.54	0.38	0.18		7.43	7.22	2.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.23	0.23	0.12	0.26		0.56	0.56	0.31
d, Delay for Lane Group [s/veh]	19.53	19.83	7.08	7.53		95.99	95.78	87.08
Lane Group LOS	B	B	A	A		F	F	F
Critical Lane Group	No	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	5.93	6.01	1.08	4.68		10.32	10.59	4.74
50th-Percentile Queue Length [ft]	148.21	150.34	26.99	117.03		257.92	264.70	118.51
95th-Percentile Queue Length [veh]	9.92	10.04	1.94	8.23		15.58	15.92	8.31
95th-Percentile Queue Length [ft]	248.04	250.88	48.59	205.74		389.61	398.11	207.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	19.60	19.83	7.08	7.53	0.00	0.00	0.00	0.00	95.93	95.78	87.08
Movement LOS		B	B	A	A					F	F	F
d_A, Approach Delay [s/veh]		19.63		7.49		0.00		0.00		94.17		
Approach LOS		B		A		A		A		F		
d_I, Intersection Delay [s/veh]	28.76											
Intersection LOS	C											
Intersection V/C	0.309											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.776	2.900	2.145	2.125
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1258	1558	0	375
d_b, Bicycle Delay [s]	16.50	5.85	120.00	79.22
I_b,int, Bicycle LOS Score for Intersection	1.939	2.117	4.132	2.263
Bicycle LOS	A	B	D	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.285

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	200	165	37	128	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	200	165	37	128	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	50	41	9	32	0	0
Total Analysis Volume [veh/h]	200	165	37	128	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	701	777	747	874	
Degree of Utilization, x	0.29	0.21	0.05	0.15	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.18	0.80	0.16	0.51	
95th-Percentile Queue Length [ft]	29.39	20.02	3.90	12.81	
Approach Delay [s/veh]	9.29		7.58		0.00
Approach LOS	A		A		A
Intersection Delay [s/veh]	8.76				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 107: Union Station Driveway & West Internal Circulation Road (South)

Control Type:	All-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.164

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	↑↑		↑↑		↵↵↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	156	35	0	216	47
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	156	35	0	216	47
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	39	9	0	54	12
Total Analysis Volume [veh/h]	0	156	35	0	216	47
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	790	790	776	776	660	660	845
Degree of Utilization, x	0.10	0.10	0.02	0.02	0.16	0.16	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.33	0.33	0.07	0.07	0.58	0.58	0.18
95th-Percentile Queue Length [ft]	8.19	8.19	1.73	1.73	14.56	14.56	4.41
Approach Delay [s/veh]	7.75		7.44		8.86		
Approach LOS	A		A		A		
Intersection Delay [s/veh]	8.37						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	2	8	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	8	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	2	8	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.62	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.01	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.37	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.23		8.47	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	8	0	0	3	65	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	0	0	3	65	87
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	1	16	22
Total Analysis Volume [veh/h]	8	0	0	3	65	87
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.07	0.08
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	9.22	8.92
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.00	0.00	0.51	0.51
95th-Percentile Queue Length [ft]	0.37	0.19	0.00	0.00	12.75	12.75
d_A, Approach Delay [s/veh]	7.24		0.00		9.04	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.79					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

J1559- LINK US MWD Analysis

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Scenario 3 Existing Fully Occupied AM
8/15/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Left	0.384	11.9	B
102	Union Station North Driveway & North Internal T-Intersection	All-way stop	HCM 6th Edition	EB Left	0.120	8.1	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.153	8.2	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.366	18.2	B
105	Alameda & Los Angeles St (South)	Signalized	HCM 6th Edition	SEB Left	0.400	21.3	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	NB Left	0.157	8.0	A
107	Union Station Driveway & West Internal Circulation Road (South)	All-way stop	HCM 6th Edition	EB Left	0.141	7.9	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.4	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.006	10.2	B
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.001	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	77	54	476	86	79	1077
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	54	476	86	79	1077
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	14	119	22	20	269
Total Analysis Volume [veh/h]	77	54	476	86	79	1077
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_i Volume / Saturation Flow Rate	0.05	0.04	0.17	0.18	0.10	0.34
s, saturation flow rate [veh/h]	1603	1431	1683	1597	763	3204
c, Capacity [veh/h]	220	197	1395	1324	629	2657
d1, Uniform Delay [s]	93.77	92.77	4.20	4.25	6.23	5.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.32	3.43	0.32	0.37	0.41	0.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.27	0.20	0.21	0.13	0.41
d, Delay for Lane Group [s/veh]	98.10	96.20	4.53	4.62	6.64	5.74
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	4.68	3.25	2.99	3.03	1.08	7.07
50th-Percentile Queue Length [ft]	117.06	81.30	74.87	75.87	27.11	176.71
95th-Percentile Queue Length [veh]	8.23	5.85	5.39	5.46	1.95	11.43
95th-Percentile Queue Length [ft]	205.77	146.35	134.76	136.57	48.81	285.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.10	96.20	4.56	4.62	6.64	5.74
Movement LOS	F	F	A	A	A	A
d_A, Approach Delay [s/veh]	97.31		4.57		5.80	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	11.91					
Intersection LOS	B					
Intersection V/C	0.384					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.362	2.596	2.675
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.596	5.086
Bicycle LOS	D	E	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.120

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	14	34	0	3	105	71	70	0	20	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	34	0	3	105	71	70	0	20	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	0	1	26	18	18	0	5	0	0	0
Total Analysis Volume [veh/h]	14	34	0	3	105	71	70	0	20	0	0	0
Pedestrian Volume [ped/h]	1			24			30			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	746	744	844	649	827	696
Degree of Utilization, x	0.06	0.12	0.11	0.11	0.02	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.21	0.41	0.35	0.36	0.07	0.00
95th-Percentile Queue Length [ft]	5.15	10.21	8.87	9.03	1.86	0.00
Approach Delay [s/veh]	8.16	7.84		8.53		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.08					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.153

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	4	3	107	10	0	0	0	0	5	0	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	3	107	10	0	0	0	0	5	0	40
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	27	3	0	0	0	0	1	0	10
Total Analysis Volume [veh/h]	0	4	3	107	10	0	0	0	0	5	0	40
Pedestrian Volume [ped/h]	16			1			6			27		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	798	701	776	733	672	866
Degree of Utilization, x	0.01	0.15	0.01	0.00	0.01	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.54	0.04	0.00	0.02	0.15
95th-Percentile Queue Length [ft]	0.66	13.43	0.98	0.00	0.56	3.63
Approach Delay [s/veh]	7.55	8.65		0.00	7.17	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	8.21					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.366

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	156	0	0	264	82	0	0	0	23	16	13
Total Analysis Volume [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	180	0	0	180	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		L	C	R
C, Cycle Length [s]	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	176	176	176		56	56	56
g / C, Green / Cycle	0.73	0.73	0.73		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.20	0.29	0.31		0.06	0.04	0.04
s, saturation flow rate [veh/h]	3204	3204	1495		1603	1683	1431
c, Capacity [veh/h]	2350	2350	1097		374	393	334
d1, Uniform Delay [s]	10.60	11.98	12.34		74.88	73.37	73.25
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.28	0.49	1.19		1.59	0.91	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.39	0.42		0.25	0.17	0.16
d, Delay for Lane Group [s/veh]	10.88	12.47	13.52		76.46	74.27	74.26
Lane Group LOS	B	B	B		E	E	E
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	5.87	9.80	10.29		4.93	3.36	2.75
50th-Percentile Queue Length [ft]	146.81	245.02	257.19		123.15	83.99	68.71
95th-Percentile Queue Length [veh]	9.85	14.93	15.55		8.57	6.05	4.95
95th-Percentile Queue Length [ft]	246.17	373.37	388.69		214.15	151.18	123.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	10.88	0.00	0.00	12.61	13.52	0.00	0.00	0.00	76.46	74.27	74.26
Movement LOS		B			B	B				E	E	E
d_A, Approach Delay [s/veh]	10.88		12.82			0.00			75.24			
Approach LOS	B		B			A			E			
d_I, Intersection Delay [s/veh]	18.21											
Intersection LOS	B											
Intersection V/C	0.366											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.692	2.748	1.853	2.055
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1467	1467	0	467
d_b, Bicycle Delay [s]	8.53	8.53	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	2.075	2.320	4.132	1.908
Bicycle LOS	B	B	D	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 105: Alameda & Los Angeles St (South)

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Westbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	518	129	58	1099	0	0	0	0	107	77	30
Base Volume Input [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	130	32	15	275	0	0	0	0	27	19	8
Total Analysis Volume [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	0	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	155	0	36	191	0	0	0	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No						No	
Maximum Recall		No		No	No						No	
Pedestrian Recall		No		No	No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C		L	C	R
C, Cycle Length [s]	240	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	151	151	187	187		45	45	45
g / C, Green / Cycle	0.63	0.63	0.78	0.78		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.19	0.21	0.07	0.34		0.06	0.06	0.02
s, saturation flow rate [veh/h]	1683	1572	868	3204		1603	1668	1431
c, Capacity [veh/h]	1059	989	652	2497		301	313	268
d1, Uniform Delay [s]	20.43	20.78	7.28	8.91		83.97	83.91	80.92
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.75	0.88	0.27	0.57		2.57	2.43	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.33	0.09	0.44		0.30	0.30	0.11
d, Delay for Lane Group [s/veh]	21.17	21.66	7.55	9.47		86.54	86.34	81.76
Lane Group LOS	C	C	A	A		F	F	F
Critical Lane Group	No	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	8.97	9.14	0.76	10.10		5.15	5.28	1.63
50th-Percentile Queue Length [ft]	224.13	228.42	19.03	252.42		128.65	131.94	40.86
95th-Percentile Queue Length [veh]	13.88	14.09	1.37	15.31		8.87	9.05	2.94
95th-Percentile Queue Length [ft]	346.89	352.35	34.25	382.70		221.66	226.13	73.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	21.36	21.66	7.55	9.47	0.00	0.00	0.00	0.00	86.51	86.34	81.76
Movement LOS		C	C	A	A					F	F	F
d_A, Approach Delay [s/veh]		21.42		9.38		0.00				85.78		
Approach LOS		C		A		A				F		
d_I, Intersection Delay [s/veh]	21.34											
Intersection LOS	C											
Intersection V/C	0.400											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.610	2.694	2.125	2.056
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1258	1558	0	375
d_b, Bicycle Delay [s]	16.50	5.85	120.00	79.22
I_b,int, Bicycle LOS Score for Intersection	2.093	2.514	4.132	1.913
Bicycle LOS	B	B	D	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.157

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐			
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	85	142	29	121	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	142	29	121	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	36	7	30	0	0
Total Analysis Volume [veh/h]	85	142	29	121	0	0
Pedestrian Volume [ped/h]	1		326		5	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	721	779	766	901	
Degree of Utilization, x	0.16	0.15	0.04	0.13	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.56	0.51	0.12	0.46	
95th-Percentile Queue Length [ft]	13.92	12.71	2.95	11.59	
Approach Delay [s/veh]	8.37		7.37		0.00
Approach LOS	A		A		A
Intersection Delay [s/veh]	7.97				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 107: Union Station Driveway & West Internal Circulation Road (South)

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.141

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	↑↑		↑↑		↵↵↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	74	29	0	156	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	74	29	0	156	133
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	19	7	0	39	33
Total Analysis Volume [veh/h]	0	74	29	0	156	133
Pedestrian Volume [ped/h]	194		6		4	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	791	791	786	786	684	749	886
Degree of Utilization, x	0.05	0.05	0.02	0.02	0.14	0.13	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.15	0.15	0.06	0.06	0.49	0.44	0.36
95th-Percentile Queue Length [ft]	3.68	3.68	1.41	1.41	12.22	11.02	9.12
Approach Delay [s/veh]	7.48		7.37		8.10		
Approach LOS	A		A		A		
Intersection Delay [s/veh]	7.93						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	4	0	0	0
Total Analysis Volume [veh/h]	0	0	14	0	0	0
Pedestrian Volume [ped/h]	0		305		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.71	12.38
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.03	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.66	0.33	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.25		10.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	95	0	0	74	4	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	0	0	74	4	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	0	0	19	1	2
Total Analysis Volume [veh/h]	95	0	0	74	4	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	7.52	0.00	0.00	0.00	10.24	8.56
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh]	0.20	0.10	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft]	4.98	2.49	0.00	0.00	1.03	1.03
d_A, Approach Delay [s/veh]	7.52		0.00		9.12	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.55					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	1	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.07	0.07
d_A, Approach Delay [s/veh]	3.61		0.00		8.52	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.52					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Ex 2018.vistro

Scenario 4 Existing Fully Occupied PM

Report File: S:\...\04 PM.pdf

8/15/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Right	0.435	14.8	B
102	Union Station North Driveway & North Internal T-Intersection	All-way stop	HCM 6th Edition	EB Left	0.190	8.6	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.144	7.5	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.374	21.6	C
105	Alameda & Los Angeles St (South)	Signalized	HCM 6th Edition	SEB Left	0.397	30.0	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	NB Left	0.322	9.0	A
107	Union Station Driveway & West Internal Circulation Road (South)	All-way stop	HCM 6th Edition	EB Left	0.165	8.4	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.2	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.086	9.5	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	114	107	1074	61	66	1153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	107	1074	61	66	1153
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	27	269	15	17	288
Total Analysis Volume [veh/h]	114	107	1074	61	66	1153
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.34	0.34	0.15	0.36
s, saturation flow rate [veh/h]	1603	1431	1683	1652	446	3204
c, Capacity [veh/h]	220	197	1395	1369	356	2657
d1, Uniform Delay [s]	96.10	96.49	5.28	5.34	10.16	5.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.42	10.39	0.88	0.93	1.14	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.54	0.41	0.41	0.19	0.43
d, Delay for Lane Group [s/veh]	104.53	106.88	6.16	6.26	11.30	5.99
Lane Group LOS	F	F	A	A	B	A
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh]	7.22	6.88	7.62	7.71	1.28	7.85
50th-Percentile Queue Length [ft]	180.47	172.10	190.59	192.63	31.92	196.25
95th-Percentile Queue Length [veh]	11.62	11.19	12.15	12.26	2.30	12.44
95th-Percentile Queue Length [ft]	290.62	279.67	303.79	306.44	57.46	311.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.53	106.88	6.21	6.26	11.30	5.99
Movement LOS	F	F	A	A	B	A
d_A, Approach Delay [s/veh]	105.67		6.21		6.28	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	14.78					
Intersection LOS	B					
Intersection V/C	0.435					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.356	2.763	2.814
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.069	5.138
Bicycle LOS	D	F	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.190

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	20	122	0	10	34	84	100	0	11	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	122	0	10	34	84	100	0	11	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	31	0	3	9	21	25	0	3	0	0	0
Total Analysis Volume [veh/h]	20	122	0	10	34	84	100	0	11	0	0	0
Pedestrian Volume [ped/h]	3			21			64			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	746	707	841	636	806	674
Degree of Utilization, x	0.19	0.06	0.10	0.16	0.01	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.70	0.20	0.33	0.56	0.04	0.00
95th-Percentile Queue Length [ft]	17.47	4.97	8.29	13.89	1.04	0.00
Approach Delay [s/veh]	8.96	7.69		9.20		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.60					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.144

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	1	6	1	30	12	0	1	1	1	1	0	131
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	1	30	12	0	1	1	1	1	0	131
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	8	3	0	0	0	0	0	0	33
Total Analysis Volume [veh/h]	1	6	1	30	12	0	1	1	1	1	0	131
Pedestrian Volume [ped/h]	11			0			9			20		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	747	677	747	774	697	908
Degree of Utilization, x	0.01	0.04	0.02	0.00	0.00	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.14	0.05	0.01	0.00	0.50
95th-Percentile Queue Length [ft]	0.81	3.47	1.22	0.29	0.11	12.58
Approach Delay [s/veh]	7.87	8.08		7.67	7.33	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.53					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.374

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	213	0	0	216	34	0	0	0	44	15	21
Total Analysis Volume [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	180	0	0	180	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		L	C	R
C, Cycle Length [s]	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	176	176	176		56	56	56
g / C, Green / Cycle	0.73	0.73	0.73		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.27	0.21	0.21		0.11	0.04	0.06
s, saturation flow rate [veh/h]	3204	3204	1569		1603	1683	1431
c, Capacity [veh/h]	2350	2350	1151		374	393	334
d1, Uniform Delay [s]	11.62	10.78	10.83		79.12	73.14	74.88
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	0.30	0.64		4.12	0.82	1.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.28	0.29		0.47	0.15	0.25
d, Delay for Lane Group [s/veh]	12.06	11.08	11.47		83.24	73.97	76.65
Lane Group LOS	B	B	B		F	E	E
Critical Lane Group	Yes	No	No		Yes	No	No
50th-Percentile Queue Length [veh]	8.78	6.37	6.51		9.84	3.09	4.41
50th-Percentile Queue Length [ft]	219.61	159.19	162.68		246.03	77.26	110.35
95th-Percentile Queue Length [veh]	13.65	10.51	10.69		14.99	5.56	7.86
95th-Percentile Queue Length [ft]	341.13	262.65	267.26		374.65	139.08	196.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.06	0.00	0.00	11.17	11.47	0.00	0.00	0.00	83.24	73.97	76.65
Movement LOS		B			B	B				F	E	E
d_A, Approach Delay [s/veh]	12.06		11.21			0.00			79.76			
Approach LOS	B		B			A			E			
d_I, Intersection Delay [s/veh]	21.56											
Intersection LOS	C											
Intersection V/C	0.374											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.714	2.723	1.662	2.089
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1467	1467	0	467
d_b, Bicycle Delay [s]	8.53	8.53	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	2.263	2.110	4.132	2.083
Bicycle LOS	B	B	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 105: Alameda & Los Angeles St (South)

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Westbound			Southeastbound		
Lane Configuration	↑			↵ ↑						↑		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	610	79	81	933	0	0	0	0	242	101	83
Base Volume Input [veh/h]	0	610	79	81	933	0	0	0	0	242	101	83
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	610	79	81	933	0	0	0	0	242	101	83
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	153	20	20	233	0	0	0	0	61	25	21
Total Analysis Volume [veh/h]	0	610	79	81	933	0	0	0	0	242	101	83
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	0	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	155	0	36	191	0	0	0	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No						No	
Maximum Recall		No		No	No						No	
Pedestrian Recall		No		No	No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C		L	C	R
C, Cycle Length [s]	240	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	151	151	187	187		45	45	45
g / C, Green / Cycle	0.63	0.63	0.78	0.78		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.20	0.21	0.10	0.29		0.11	0.11	0.06
s, saturation flow rate [veh/h]	1683	1618	846	3204		1603	1648	1431
c, Capacity [veh/h]	1059	1018	635	2497		301	309	268
d1, Uniform Delay [s]	20.75	20.97	7.54	8.26		88.56	88.56	84.10
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.82	0.90	0.41	0.43		7.43	7.22	2.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.34	0.13	0.37		0.56	0.56	0.31
d, Delay for Lane Group [s/veh]	21.57	21.87	7.95	8.69		95.99	95.78	87.08
Lane Group LOS	C	C	A	A		F	F	F
Critical Lane Group	No	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	9.70	9.81	1.08	7.94		10.32	10.59	4.74
50th-Percentile Queue Length [ft]	242.50	245.35	27.07	198.49		257.92	264.70	118.51
95th-Percentile Queue Length [veh]	14.81	14.95	1.95	12.56		15.58	15.92	8.31
95th-Percentile Queue Length [ft]	370.19	373.80	48.73	314.02		389.61	398.11	207.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	21.70	21.87	7.95	8.69	0.00	0.00	0.00	0.00	95.93	95.78	87.08
Movement LOS		C	C	A	A					F	F	F
d_A, Approach Delay [s/veh]		21.72		8.63		0.00				94.17		
Approach LOS		C		A		A				F		
d_I, Intersection Delay [s/veh]	29.98											
Intersection LOS	C											
Intersection V/C	0.397											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.593	2.710	2.145	2.125
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1258	1558	0	375
d_b, Bicycle Delay [s]	16.50	5.85	120.00	79.22
I_b,int, Bicycle LOS Score for Intersection	2.128	2.396	4.132	2.263
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.322

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐			
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	226	165	37	128	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	165	37	128	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	41	9	32	0	0
Total Analysis Volume [veh/h]	226	165	37	128	0	0
Pedestrian Volume [ped/h]	2		643		3	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	701	777	743	869	
Degree of Utilization, x	0.32	0.21	0.05	0.15	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.39	0.80	0.16	0.52	
95th-Percentile Queue Length [ft]	34.87	20.03	3.92	12.89	
Approach Delay [s/veh]	9.55		7.61		0.00
Approach LOS	A		A		A
Intersection Delay [s/veh]	8.98				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 107: Union Station Driveway & West Internal Circulation Road (South)

Control Type:	All-way stop	Delay (sec / veh):	8.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.165

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	↑↑		↑↑		↵↵↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	182	35	0	216	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	182	35	0	216	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	46	9	0	54	12
Total Analysis Volume [veh/h]	0	182	35	0	216	49
Pedestrian Volume [ped/h]	240		4		2	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	790	790	773	773	653	653	834
Degree of Utilization, x	0.12	0.12	0.02	0.02	0.17	0.17	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.39	0.39	0.07	0.07	0.59	0.59	0.19
95th-Percentile Queue Length [ft]	9.72	9.72	1.74	1.74	14.74	14.74	4.67
Approach Delay [s/veh]	7.85		7.46		8.93		
Approach LOS	A		A		A		
Intersection Delay [s/veh]	8.42						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	2	8	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	8	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	2	8	0	0	0
Pedestrian Volume [ped/h]	0		296		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.62	12.17
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.01	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.37	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.23		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.086

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	10	0	0	4	85	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	0	0	4	85	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	0	1	21	28
Total Analysis Volume [veh/h]	10	0	0	4	85	113
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.09	0.10
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	9.47	9.15
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.02	0.01	0.00	0.00	0.70	0.70
95th-Percentile Queue Length [ft]	0.47	0.23	0.00	0.00	17.56	17.56
d_A, Approach Delay [s/veh]	7.24		0.00		9.28	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	9.01					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Ex 2018.vistro

Scenario 5 Existing with Project AM (Fully Occupied)

Report File: S:\...\05 AM.pdf

8/15/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Left	0.384	11.9	B
102	Union Station North Driveway & North Internal T-Intersection	All-way stop	HCM 6th Edition	EB Left	0.166	8.0	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.047	7.4	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.366	18.2	B
105	Alameda & Los Angeles St (South)	Signalized	HCM 6th Edition	SEB Left	0.400	21.3	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	NB Left	0.163	8.1	A
107	Union Station Driveway & West Internal Circulation Road (South)	All-way stop	HCM 6th Edition	EB Left	0.145	8.0	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.4	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.000	11.4	B
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	11.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.384

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	77	54	476	86	79	1077
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	77	54	476	86	79	1077
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	19	14	119	22	20	269
Total Analysis Volume [veh/h]	77	54	476	86	79	1077
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_i Volume / Saturation Flow Rate	0.05	0.04	0.17	0.18	0.10	0.34
s, saturation flow rate [veh/h]	1603	1431	1683	1597	763	3204
c, Capacity [veh/h]	220	197	1395	1324	629	2657
d1, Uniform Delay [s]	93.77	92.77	4.20	4.25	6.23	5.28
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	4.32	3.43	0.32	0.37	0.41	0.46
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.35	0.27	0.20	0.21	0.13	0.41
d, Delay for Lane Group [s/veh]	98.10	96.20	4.53	4.62	6.64	5.74
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	4.68	3.25	2.99	3.03	1.08	7.07
50th-Percentile Queue Length [ft]	117.06	81.30	74.87	75.87	27.11	176.71
95th-Percentile Queue Length [veh]	8.23	5.85	5.39	5.46	1.95	11.43
95th-Percentile Queue Length [ft]	205.77	146.35	134.76	136.57	48.81	285.72

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	98.10	96.20	4.56	4.62	6.64	5.74
Movement LOS	F	F	A	A	A	A
d_A, Approach Delay [s/veh]	97.31		4.57		5.80	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	11.91					
Intersection LOS	B					
Intersection V/C	0.384					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.362	2.596	2.675
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.596	5.086
Bicycle LOS	D	E	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.166

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	↵			↵↻			↻↵			↻↵		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	14	29	0	3	31	145	75	0	20	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	29	0	3	31	145	75	0	20	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	7	0	1	8	36	19	0	5	0	0	0
Total Analysis Volume [veh/h]	14	29	0	3	31	145	75	0	20	0	0	0
Pedestrian Volume [ped/h]	1			24			30			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	744	739	871	652	833	699
Degree of Utilization, x	0.06	0.05	0.17	0.12	0.02	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.18	0.14	0.59	0.39	0.07	0.00
95th-Percentile Queue Length [ft]	4.59	3.61	14.87	9.70	1.84	0.00
Approach Delay [s/veh]	8.14	7.68		8.56		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.01					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.047

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	4	3	33	10	0	0	0	0	5	0	36
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	3	33	10	0	0	0	0	5	0	36
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	8	3	0	0	0	0	1	0	9
Total Analysis Volume [veh/h]	0	4	3	33	10	0	0	0	0	5	0	36
Pedestrian Volume [ped/h]	16			1			6			27		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	816	702	778	766	698	909
Degree of Utilization, x	0.01	0.05	0.01	0.00	0.01	0.04

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.15	0.04	0.00	0.02	0.12
95th-Percentile Queue Length [ft]	0.65	3.69	0.98	0.00	0.54	3.09
Approach Delay [s/veh]	7.45	7.92		0.00	6.95	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.45					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	18.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.366

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	156	0	0	264	82	0	0	0	23	16	13
Total Analysis Volume [veh/h]	0	625	0	0	1055	328	0	0	0	93	65	53
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	180	0	0	180	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		L	C	R
C, Cycle Length [s]	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	176	176	176		56	56	56
g / C, Green / Cycle	0.73	0.73	0.73		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.20	0.29	0.31		0.06	0.04	0.04
s, saturation flow rate [veh/h]	3204	3204	1495		1603	1683	1431
c, Capacity [veh/h]	2350	2350	1097		374	393	334
d1, Uniform Delay [s]	10.60	11.98	12.34		74.88	73.37	73.25
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.28	0.49	1.19		1.59	0.91	1.02
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.27	0.39	0.42		0.25	0.17	0.16
d, Delay for Lane Group [s/veh]	10.88	12.47	13.52		76.46	74.27	74.26
Lane Group LOS	B	B	B		E	E	E
Critical Lane Group	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	5.87	9.80	10.29		4.93	3.36	2.75
50th-Percentile Queue Length [ft]	146.81	245.02	257.19		123.15	83.99	68.71
95th-Percentile Queue Length [veh]	9.85	14.93	15.55		8.57	6.05	4.95
95th-Percentile Queue Length [ft]	246.17	373.37	388.69		214.15	151.18	123.68

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	10.88	0.00	0.00	12.61	13.52	0.00	0.00	0.00	76.46	74.27	74.26
Movement LOS		B			B	B				E	E	E
d_A, Approach Delay [s/veh]	10.88		12.82			0.00			75.24			
Approach LOS	B		B			A			E			
d_I, Intersection Delay [s/veh]	18.21											
Intersection LOS	B											
Intersection V/C	0.366											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.692	2.748	1.853	2.055
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1467	1467	0	467
d_b, Bicycle Delay [s]	8.53	8.53	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	2.075	2.320	4.132	1.908
Bicycle LOS	B	B	D	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 105: Alameda & Los Angeles St (South)

Control Type:	Signalized	Delay (sec / veh):	21.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.400

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Westbound			Southeastbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	518	129	58	1099	0	0	0	0	107	77	30
Base Volume Input [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	130	32	15	275	0	0	0	0	27	19	8
Total Analysis Volume [veh/h]	0	518	129	58	1099	0	0	0	0	107	77	30
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	0	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	155	0	36	191	0	0	0	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No						No	
Maximum Recall		No		No	No						No	
Pedestrian Recall		No		No	No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C		L	C	R
C, Cycle Length [s]	240	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	151	151	187	187		45	45	45
g / C, Green / Cycle	0.63	0.63	0.78	0.78		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.19	0.21	0.07	0.34		0.06	0.06	0.02
s, saturation flow rate [veh/h]	1683	1572	868	3204		1603	1668	1431
c, Capacity [veh/h]	1059	989	652	2497		301	313	268
d1, Uniform Delay [s]	20.43	20.78	7.28	8.91		83.97	83.91	80.92
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.75	0.88	0.27	0.57		2.57	2.43	0.84
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.31	0.33	0.09	0.44		0.30	0.30	0.11
d, Delay for Lane Group [s/veh]	21.17	21.66	7.55	9.47		86.54	86.34	81.76
Lane Group LOS	C	C	A	A		F	F	F
Critical Lane Group	No	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	8.97	9.14	0.76	10.10		5.15	5.28	1.63
50th-Percentile Queue Length [ft]	224.13	228.42	19.03	252.42		128.65	131.94	40.86
95th-Percentile Queue Length [veh]	13.88	14.09	1.37	15.31		8.87	9.05	2.94
95th-Percentile Queue Length [ft]	346.89	352.35	34.25	382.70		221.66	226.13	73.54

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	21.36	21.66	7.55	9.47	0.00	0.00	0.00	0.00	86.51	86.34	81.76
Movement LOS		C	C	A	A					F	F	F
d_A, Approach Delay [s/veh]		21.42		9.38		0.00				85.78		
Approach LOS		C		A		A				F		
d_I, Intersection Delay [s/veh]	21.34											
Intersection LOS	C											
Intersection V/C	0.400											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.610	2.694	2.125	2.056
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1258	1558	0	375
d_b, Bicycle Delay [s]	16.50	5.85	120.00	79.22
I_b,int, Bicycle LOS Score for Intersection	2.093	2.514	4.132	1.913
Bicycle LOS	B	B	D	A

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	8.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.163

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	85	147	103	121	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	147	103	121	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	37	26	30	0	0
Total Analysis Volume [veh/h]	85	147	103	121	0	0
Pedestrian Volume [ped/h]	1		326		5	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	714	770	765	899	
Degree of Utilization, x	0.16	0.15	0.13	0.13	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.58	0.53	0.46	0.46	
95th-Percentile Queue Length [ft]	14.44	13.22	11.60	11.61	
Approach Delay [s/veh]	8.46		7.70		0.00
Approach LOS	A		A		A
Intersection Delay [s/veh]	8.09				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 107: Union Station Driveway & West Internal Circulation Road (South)

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.145

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	↑↑		↑↑		↵↵↵	
Lane Configuration	↑↑		↑↑		↵↵↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	79	103	0	156	133
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	79	103	0	156	133
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	20	26	0	39	33
Total Analysis Volume [veh/h]	0	79	103	0	156	133
Pedestrian Volume [ped/h]	194		6		4	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	783	783	785	785	663	723	850
Degree of Utilization, x	0.05	0.05	0.07	0.07	0.15	0.13	0.11

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.16	0.16	0.21	0.21	0.51	0.46	0.38
95th-Percentile Queue Length [ft]	3.98	3.98	5.25	5.25	12.68	11.46	9.56
Approach Delay [s/veh]	7.55		7.61		8.33		
Approach LOS	A		A		A		
Intersection Delay [s/veh]	8.04						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	4	0	0	0
Total Analysis Volume [veh/h]	0	0	14	0	0	0
Pedestrian Volume [ped/h]	0		305		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.71	12.38
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.03	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.66	0.33	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.25		10.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	169	0	0	0	0	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	169	0	0	0	0	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	0	0	0	0	3
Total Analysis Volume [veh/h]	169	0	0	0	0	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.48	0.00	0.00	0.00	11.40	8.36
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh]	0.35	0.17	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	8.71	4.35	0.00	0.00	0.84	0.84
d_A, Approach Delay [s/veh]	7.48		0.00		8.36	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.54					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.07	0.07
d_A, Approach Delay [s/veh]	3.61		0.00		8.32	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.32					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Ex 2018.vistro

Scenario 6 Existing with Project PM (Fully Occupied)

Report File: S:\...\06 PM.pdf

8/15/2018

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Right	0.435	14.8	B
102	Union Station North Driveway & North Internal T-Intersection	All-way stop	HCM 6th Edition	EB Left	0.282	9.1	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.050	7.3	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.374	21.6	C
105	Alameda & Los Angeles St (South)	Signalized	HCM 6th Edition	SEB Left	0.397	30.0	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	NB Left	0.338	9.3	A
107	Union Station Driveway & West Internal Circulation Road (South)	All-way stop	HCM 6th Edition	EB Left	0.171	8.6	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.2	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.000	9.4	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	14.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.435

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	↵↵		↑		↵	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	114	107	1074	61	66	1153
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	114	107	1074	61	66	1153
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	27	269	15	17	288
Total Analysis Volume [veh/h]	114	107	1074	61	66	1153
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_i Volume / Saturation Flow Rate	0.07	0.07	0.34	0.34	0.15	0.36
s, saturation flow rate [veh/h]	1603	1431	1683	1652	446	3204
c, Capacity [veh/h]	220	197	1395	1369	356	2657
d1, Uniform Delay [s]	96.10	96.49	5.28	5.34	10.16	5.47
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	8.42	10.39	0.88	0.93	1.14	0.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.52	0.54	0.41	0.41	0.19	0.43
d, Delay for Lane Group [s/veh]	104.53	106.88	6.16	6.26	11.30	5.99
Lane Group LOS	F	F	A	A	B	A
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh]	7.22	6.88	7.62	7.71	1.28	7.85
50th-Percentile Queue Length [ft]	180.47	172.10	190.59	192.63	31.92	196.25
95th-Percentile Queue Length [veh]	11.62	11.19	12.15	12.26	2.30	12.44
95th-Percentile Queue Length [ft]	290.62	279.67	303.79	306.44	57.46	311.12

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	104.53	106.88	6.21	6.26	11.30	5.99
Movement LOS	F	F	A	A	B	A
d_A, Approach Delay [s/veh]	105.67		6.21		6.28	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	14.78					
Intersection LOS	B					
Intersection V/C	0.435					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.356	2.763	2.814
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.069	5.138
Bicycle LOS	D	F	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.282

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	20	37	0	10	30	88	185	0	11	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	20	37	0	10	30	88	185	0	11	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	9	0	3	8	22	46	0	3	0	0	0
Total Analysis Volume [veh/h]	20	37	0	10	30	88	185	0	11	0	0	0
Pedestrian Volume [ped/h]	3			21			64			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	704	682	809	657	841	686
Degree of Utilization, x	0.08	0.06	0.11	0.28	0.01	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.26	0.19	0.36	1.15	0.04	0.00
95th-Percentile Queue Length [ft]	6.59	4.66	9.11	28.84	0.99	0.00
Approach Delay [s/veh]	8.57	7.88		10.13		0.00
Approach LOS	A	A		B		A
Intersection Delay [s/veh]	9.14					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.050

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	1	6	1	26	12	0	1	1	1	1	0	46
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	1	26	12	0	1	1	1	1	0	46
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	7	3	0	0	0	0	0	0	12
Total Analysis Volume [veh/h]	1	6	1	26	12	0	1	1	1	1	0	46
Pedestrian Volume [ped/h]	11			0			9			20		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	777	700	776	789	699	912
Degree of Utilization, x	0.01	0.04	0.02	0.00	0.00	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.12	0.05	0.01	0.00	0.16
95th-Percentile Queue Length [ft]	0.78	2.89	1.18	0.29	0.11	3.98
Approach Delay [s/veh]	7.68	7.84		7.58	6.88	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.35					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	21.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.374

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No						No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	213	0	0	216	34	0	0	0	44	15	21
Total Analysis Volume [veh/h]	0	852	0	0	863	137	0	0	0	174	60	83
Presence of On-Street Parking	No		No	No		No				No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	0	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	180	0	0	180	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No						No	
Maximum Recall		No			No						No	
Pedestrian Recall		No			No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	C		L	C	R
C, Cycle Length [s]	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	176	176	176		56	56	56
g / C, Green / Cycle	0.73	0.73	0.73		0.23	0.23	0.23
(v / s)_i Volume / Saturation Flow Rate	0.27	0.21	0.21		0.11	0.04	0.06
s, saturation flow rate [veh/h]	3204	3204	1569		1603	1683	1431
c, Capacity [veh/h]	2350	2350	1151		374	393	334
d1, Uniform Delay [s]	11.62	10.78	10.83		79.12	73.14	74.88
k, delay calibration	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.44	0.30	0.64		4.12	0.82	1.78
d3, Initial Queue Delay [s]	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.36	0.28	0.29		0.47	0.15	0.25
d, Delay for Lane Group [s/veh]	12.06	11.08	11.47		83.24	73.97	76.65
Lane Group LOS	B	B	B		F	E	E
Critical Lane Group	Yes	No	No		Yes	No	No
50th-Percentile Queue Length [veh]	8.78	6.37	6.51		9.84	3.09	4.41
50th-Percentile Queue Length [ft]	219.61	159.19	162.68		246.03	77.26	110.35
95th-Percentile Queue Length [veh]	13.65	10.51	10.69		14.99	5.56	7.86
95th-Percentile Queue Length [ft]	341.13	262.65	267.26		374.65	139.08	196.49

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	12.06	0.00	0.00	11.17	11.47	0.00	0.00	0.00	83.24	73.97	76.65
Movement LOS		B			B	B				F	E	E
d_A, Approach Delay [s/veh]	12.06		11.21			0.00			79.76			
Approach LOS	B		B			A			E			
d_I, Intersection Delay [s/veh]	21.56											
Intersection LOS	C											
Intersection V/C	0.374											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.714	2.723	1.662	2.089
Crosswalk LOS	B	B	A	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1467	1467	0	467
d_b, Bicycle Delay [s]	8.53	8.53	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	2.263	2.110	4.132	2.083
Bicycle LOS	B	B	D	B

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 105: Alameda & Los Angeles St (South)

Control Type:	Signalized	Delay (sec / veh):	30.0
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

Name	Northbound			Alameda St			Southbound			Westbound			Southeastbound		
Approach	Northbound			Southbound			Westbound			Southeastbound					
Lane Configuration															
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right			
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00			
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0			
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00			
Speed [mph]	30.00			30.00			30.00			30.00					
Grade [%]	0.00			0.00			0.00			0.00					
Curb Present	No			No			No			No					
Crosswalk	Yes			Yes			Yes			Yes					

Volumes

Name	Northbound			Alameda St			Southbound			Westbound			Southeastbound		
Base Volume Input [veh/h]	0	610	79	81	933	0	0	0	0	0	0	242	101	83	
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total Hourly Volume [veh/h]	0	610	79	81	933	0	0	0	0	0	0	242	101	83	
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	
Total 15-Minute Volume [veh/h]	0	153	20	20	233	0	0	0	0	0	0	61	25	21	
Total Analysis Volume [veh/h]	0	610	79	81	933	0	0	0	0	0	0	242	101	83	
Presence of On-Street Parking	No		No	No		No						No		No	
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
v_do, Outbound Pedestrian Volume crossing	0			0			0			0					
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0					
v_co, Outbound Pedestrian Volume crossing	0			0			0			0					
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0					
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0					
Bicycle Volume [bicycles/h]	0			0			0			0					

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	1	6	0	0	0	0	0	8	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	Lead	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	5	5	0	0	0	0	0	5	0
Maximum Green [s]	0	30	0	30	30	0	0	0	0	0	30	0
Amber [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	155	0	36	191	0	0	0	0	0	49	0
Vehicle Extension [s]	0.0	3.0	0.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	0	0	0	10	0
Rest In Walk		No			No						No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall		No		No	No						No	
Maximum Recall		No		No	No						No	
Pedestrian Recall		No		No	No						No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	C	L	C		L	C	R
C, Cycle Length [s]	240	240	240	240		240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00		4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	0.00	2.00		2.00	2.00	2.00
g_i, Effective Green Time [s]	151	151	187	187		45	45	45
g / C, Green / Cycle	0.63	0.63	0.78	0.78		0.19	0.19	0.19
(v / s)_i Volume / Saturation Flow Rate	0.20	0.21	0.10	0.29		0.11	0.11	0.06
s, saturation flow rate [veh/h]	1683	1618	846	3204		1603	1648	1431
c, Capacity [veh/h]	1059	1018	635	2497		301	309	268
d1, Uniform Delay [s]	20.75	20.97	7.54	8.26		88.56	88.56	84.10
k, delay calibration	0.50	0.50	0.50	0.50		0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00
d2, Incremental Delay [s]	0.82	0.90	0.41	0.43		7.43	7.22	2.98
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00		0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00		1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00		1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.34	0.13	0.37		0.56	0.56	0.31
d, Delay for Lane Group [s/veh]	21.57	21.87	7.95	8.69		95.99	95.78	87.08
Lane Group LOS	C	C	A	A		F	F	F
Critical Lane Group	No	No	No	Yes		Yes	No	No
50th-Percentile Queue Length [veh]	9.70	9.81	1.08	7.94		10.32	10.59	4.74
50th-Percentile Queue Length [ft]	242.50	245.35	27.07	198.49		257.92	264.70	118.51
95th-Percentile Queue Length [veh]	14.81	14.95	1.95	12.56		15.58	15.92	8.31
95th-Percentile Queue Length [ft]	370.19	373.80	48.73	314.02		389.61	398.11	207.78

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	21.70	21.87	7.95	8.69	0.00	0.00	0.00	0.00	95.93	95.78	87.08
Movement LOS		C	C	A	A					F	F	F
d_A, Approach Delay [s/veh]		21.72		8.63		0.00				94.17		
Approach LOS		C		A		A				F		
d_I, Intersection Delay [s/veh]	29.98											
Intersection LOS	C											
Intersection V/C	0.397											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.593	2.710	2.145	2.125
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1258	1558	0	375
d_b, Bicycle Delay [s]	16.50	5.85	120.00	79.22
I_b,int, Bicycle LOS Score for Intersection	2.128	2.396	4.132	2.263
Bicycle LOS	B	B	D	B

Sequence

Ring 1	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	9.3
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.338

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	226	250	41	128	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	226	250	41	128	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	57	63	10	32	0	0
Total Analysis Volume [veh/h]	226	250	41	128	0	0
Pedestrian Volume [ped/h]	2		643		3	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	704	776	732	852	
Degree of Utilization, x	0.34	0.31	0.06	0.15	

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.49	1.30	0.18	0.53	
95th-Percentile Queue Length [ft]	37.37	32.57	4.45	13.18	
Approach Delay [s/veh]	9.90		7.73		0.00
Approach LOS	A		A		A
Intersection Delay [s/veh]	9.33				
Intersection LOS	A				

Intersection Level Of Service Report

Intersection 107: Union Station Driveway & West Internal Circulation Road (South)

Control Type:	All-way stop	Delay (sec / veh):	8.6
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.171

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	↑↑		↑↑		↵↵↵	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	267	39	0	216	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	267	39	0	216	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	67	10	0	54	12
Total Analysis Volume [veh/h]	0	267	39	0	216	49
Pedestrian Volume [ped/h]	240		4		2	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	789	789	763	763	631	631	799
Degree of Utilization, x	0.17	0.17	0.03	0.03	0.17	0.17	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.61	0.61	0.08	0.08	0.61	0.61	0.20
95th-Percentile Queue Length [ft]	15.15	15.15	1.97	1.97	15.33	15.33	4.89
Approach Delay [s/veh]	8.19		7.54		9.19		
Approach LOS	A		A		A		
Intersection Delay [s/veh]	8.61						
Intersection LOS	A						

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	2	8	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	8	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	2	8	0	0	0
Pedestrian Volume [ped/h]	0		296		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.62	12.17
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.01	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.37	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.23		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	14	0	0	0	0	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	0	0	0	0	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	0	0	0	50
Total Analysis Volume [veh/h]	14	0	0	0	0	198
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.18
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	9.43	9.06
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.03	0.01	0.00	0.00	0.67	0.67
95th-Percentile Queue Length [ft]	0.65	0.33	0.00	0.00	16.65	16.65
d_A, Approach Delay [s/veh]	7.24		0.00		9.06	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.94					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Future.vistro

Scenario 1 Future Base 2031 AM

Report File: S:\...\07 FB AM.pdf

1/7/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Left	0.507	12.8	B
102	Union Station North Driveway & North Internal T-Intersectio	All-way stop	HCM 6th Edition	EB Left	0.234	8.8	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.130	8.0	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	EB Thru	0.649	27.7	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	EB Left	0.248	8.8	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.4	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.004	9.8	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.001	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	97	74	777	83	84	1430
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	74	777	83	84	1430
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	19	194	21	21	358
Total Analysis Volume [veh/h]	97	74	777	83	84	1430
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_j Volume / Saturation Flow Rate	0.06	0.05	0.26	0.26	0.15	0.45
s, saturation flow rate [veh/h]	1603	1431	1683	1628	578	3204
c, Capacity [veh/h]	220	197	1395	1350	469	2657
d1, Uniform Delay [s]	95.02	94.14	4.70	4.76	8.12	6.32
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.26	5.41	0.57	0.62	0.83	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.38	0.31	0.32	0.18	0.54
d, Delay for Lane Group [s/veh]	101.28	99.55	5.28	5.38	8.96	7.11
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	6.02	4.56	5.13	5.20	1.40	11.27
50th-Percentile Queue Length [ft]	150.56	113.95	128.36	130.09	35.03	281.79
95th-Percentile Queue Length [veh]	10.05	8.06	8.85	8.94	2.52	16.78
95th-Percentile Queue Length [ft]	251.18	201.48	221.26	223.61	63.05	419.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	101.28	99.55	5.32	5.38	8.96	7.11
Movement LOS	F	F	A	A	A	A
d_A, Approach Delay [s/veh]	100.53		5.33		7.21	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	12.85					
Intersection LOS	B					
Intersection V/C	0.507					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.379	2.759	2.807
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.842	5.381
Bicycle LOS	D	E	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.234

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	14	34	0	3	89	73	152	0	21	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	34	0	3	89	73	152	0	21	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	0	1	22	18	38	0	5	0	0	0
Total Analysis Volume [veh/h]	14	34	0	3	89	73	152	0	21	0	0	0
Pedestrian Volume [ped/h]	1			24			30			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	710	708	809	649	829	682
Degree of Utilization, x	0.07	0.12	0.10	0.23	0.03	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.22	0.39	0.34	0.90	0.08	0.00
95th-Percentile Queue Length [ft]	5.43	9.85	8.48	22.59	1.95	0.00
Approach Delay [s/veh]	8.44	8.06		9.59		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.79					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.130

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	⊕			⊕			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	4	3	91	10	0	0	0	0	5	0	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	3	91	10	0	0	0	0	5	0	40
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	23	3	0	0	0	0	1	0	10
Total Analysis Volume [veh/h]	0	4	3	91	10	0	0	0	0	5	0	40
Pedestrian Volume [ped/h]	16			1			6			27		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	801	701	776	740	678	875
Degree of Utilization, x	0.01	0.13	0.01	0.00	0.01	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.45	0.04	0.00	0.02	0.14
95th-Percentile Queue Length [ft]	0.66	11.13	0.98	0.00	0.56	3.59
Approach Delay [s/veh]	7.53	8.49		0.00	7.13	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	8.04					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	27.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	r			r l			r+			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	697	40	61	1115	329	100	56	20	111	60	42
Base Volume Input [veh/h]	0	697	40	61	1115	329	100	56	20	111	60	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	697	40	61	1115	329	100	56	20	111	60	42
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	174	10	15	279	82	25	14	5	28	15	11
Total Analysis Volume [veh/h]	0	697	40	61	1115	329	100	56	20	111	60	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	230
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	171	0	0	171	0	0	59	0	0	59	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	230	230	230	230	230	230	230	230	230
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	167	167	167	167	167	55	55	55	55
g / C, Green / Cycle	0.73	0.73	0.73	0.73	0.73	0.24	0.24	0.24	0.24
(v / s)_j Volume / Saturation Flow Rate	0.22	0.03	0.09	0.44	0.45	0.04	0.20	0.15	0.03
s, saturation flow rate [veh/h]	3204	1431	673	1683	1554	1163	649	1147	1431
c, Capacity [veh/h]	2327	1039	463	1222	1129	144	177	300	342
d1, Uniform Delay [s]	11.03	8.88	16.28	15.44	15.73	97.90	95.16	78.10	68.59
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.33	0.07	0.59	2.25	2.58	6.16	22.40	7.65	0.74
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.04	0.13	0.61	0.62	0.33	0.72	0.57	0.12
d, Delay for Lane Group [s/veh]	11.36	8.95	16.86	17.69	18.31	104.06	117.56	85.75	69.32
Lane Group LOS	B	A	B	B	B	F	F	F	E
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	6.62	0.62	1.42	20.18	19.50	2.99	8.70	9.83	2.05
50th-Percentile Queue Length [ft]	165.41	15.54	35.49	504.43	487.58	74.77	217.45	245.78	51.21
95th-Percentile Queue Length [veh]	10.83	1.12	2.56	27.54	26.75	5.38	13.53	14.97	3.69
95th-Percentile Queue Length [ft]	270.87	27.97	63.89	688.59	668.64	134.59	338.37	374.33	92.18

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	11.36	8.95	16.86	17.90	18.31	107.66	117.56	117.56	85.75	85.75	69.32
Movement LOS		B	A	B	B	B	F	F	F	F	F	E
d_A, Approach Delay [s/veh]		11.23		17.94			113.88			82.51		
Approach LOS		B		B			F			F		
d_I, Intersection Delay [s/veh]	27.71											
Intersection LOS	C											
Intersection V/C	0.649											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	106.18	106.18	106.18	106.18
I_p,int, Pedestrian LOS Score for Intersection	2.889	3.000	2.168	2.352
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1452	1452	478	478
d_b, Bicycle Delay [s]	8.63	8.63	66.58	66.58
I_b,int, Bicycle LOS Score for Intersection	2.168	2.801	1.850	1.911
Bicycle LOS	B	C	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.248

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	23	51	30	124	160	114
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	23	51	30	124	160	114
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	13	8	31	40	29
Total Analysis Volume [veh/h]	23	51	30	124	160	114
Pedestrian Volume [ped/h]	327		201		9	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	631	668	675	779	645	822
Degree of Utilization, x	0.06	0.06	0.04	0.16	0.25	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.19	0.18	0.14	0.56	0.97	0.48
95th-Percentile Queue Length [ft]	4.66	4.39	3.48	14.11	24.33	12.02
Approach Delay [s/veh]	8.59		8.21		9.14	
Approach LOS	A		A		A	
Intersection Delay [s/veh]	8.77					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	4	0	0	0
Total Analysis Volume [veh/h]	0	0	14	0	0	0
Pedestrian Volume [ped/h]	0		305		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.71	12.38
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.03	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.66	0.33	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.25		10.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.004

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐		⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	73	0	0	57	3	6
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	73	0	0	57	3	6
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	0	0	14	1	2
Total Analysis Volume [veh/h]	73	0	0	57	3	6
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.44	0.00	0.00	0.00	9.77	8.50
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.15	0.07	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	3.71	1.86	0.00	0.00	0.74	0.74
d_A, Approach Delay [s/veh]	7.44		0.00		8.92	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.49					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	1	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.07	0.07
d_A, Approach Delay [s/veh]	3.61		0.00		8.52	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.52					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Future.vistro

Scenario 2 Future Base 2031 PM

Report File: S:\...\08 FB PM.pdf

1/7/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Right	0.487	17.1	B
102	Union Station North Driveway & North Internal T-Intersectio	All-way stop	HCM 6th Edition	EB Left	0.335	9.8	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.123	7.5	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.125	83.3	F
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	EB Left	0.360	9.9	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.2	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.065	9.2	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	129	144	1163	87	66	1237
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	144	1163	87	66	1237
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	36	291	22	17	309
Total Analysis Volume [veh/h]	129	144	1163	87	66	1237
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_j Volume / Saturation Flow Rate	0.08	0.10	0.37	0.38	0.17	0.39
s, saturation flow rate [veh/h]	1603	1431	1683	1643	400	3204
c, Capacity [veh/h]	220	197	1395	1362	316	2657
d1, Uniform Delay [s]	97.08	99.26	5.57	5.65	11.60	5.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.89	21.26	1.04	1.12	1.49	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.73	0.45	0.46	0.21	0.47
d, Delay for Lane Group [s/veh]	107.97	120.52	6.61	6.77	13.09	6.29
Lane Group LOS	F	F	A	A	B	A
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh]	8.33	9.91	8.86	9.00	1.40	8.78
50th-Percentile Queue Length [ft]	208.22	247.66	221.49	225.05	35.01	219.62
95th-Percentile Queue Length [veh]	13.06	15.07	13.74	13.92	2.52	13.65
95th-Percentile Queue Length [ft]	326.55	376.71	343.52	348.07	63.01	341.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	107.97	120.52	6.68	6.77	13.09	6.29
Movement LOS	F	F	A	A	B	A
d_A, Approach Delay [s/veh]	114.59		6.69		6.64	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	17.09					
Intersection LOS	B					
Intersection V/C	0.487					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.375	2.815	2.855
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.164	5.207
Bicycle LOS	D	F	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	9.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.335

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	21	103	0	10	34	86	213	0	11	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	21	103	0	10	34	86	213	0	11	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	26	0	3	9	22	53	0	3	0	0	0
Total Analysis Volume [veh/h]	21	103	0	10	34	86	213	0	11	0	0	0
Pedestrian Volume [ped/h]	3			21			64			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	693	661	777	635	806	653
Degree of Utilization, x	0.18	0.07	0.11	0.34	0.01	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.65	0.21	0.37	1.47	0.04	0.00
95th-Percentile Queue Length [ft]	16.20	5.34	9.29	36.82	1.04	0.00
Approach Delay [s/veh]	9.33	8.12		11.01		0.00
Approach LOS	A	A		B		A
Intersection Delay [s/veh]	9.79					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.123

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	1	6	1	30	12	0	1	1	1	1	0	112
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	1	30	12	0	1	1	1	1	0	112
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	8	3	0	0	0	0	0	0	28
Total Analysis Volume [veh/h]	1	6	1	30	12	0	1	1	1	1	0	112
Pedestrian Volume [ped/h]	11			0			9			20		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	754	682	754	777	697	908
Degree of Utilization, x	0.01	0.04	0.02	0.00	0.00	0.12

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.14	0.05	0.01	0.00	0.42
95th-Percentile Queue Length [ft]	0.80	3.45	1.21	0.29	0.11	10.50
Approach Delay [s/veh]	7.83	8.03		7.65	7.22	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.47					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	r			r l			r+			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	604	15	72	836	174	441	94	110	141	62	97
Base Volume Input [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	151	4	18	209	44	110	24	28	35	16	24
Total Analysis Volume [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	0	0	0	0	0	0	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	0	0	0	0	0	0	0	5	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	10	0
Rest In Walk												No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall												No	
Maximum Recall												No	
Pedestrian Recall												No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group				C	R
C, Cycle Length [s]				240	240
L, Total Lost Time per Cycle [s]				4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]				0.00	0.00
l2, Clearance Lost Time [s]				2.00	2.00
g_i, Effective Green Time [s]				56	56
g / C, Green / Cycle				0.23	0.23
(v / s)_i Volume / Saturation Flow Rate				0.12	0.07
s, saturation flow rate [veh/h]				1626	1431
c, Capacity [veh/h]				380	334
d1, Uniform Delay [s]				80.59	75.66
k, delay calibration				0.50	0.50
l, Upstream Filtering Factor				1.00	1.00
d2, Incremental Delay [s]				5.32	2.19
d3, Initial Queue Delay [s]				0.00	0.00
Rp, platoon ratio				1.00	1.00
PF, progression factor				1.00	1.00

Lane Group Results

X, volume / capacity				0.53	0.29
d, Delay for Lane Group [s/veh]				85.91	77.86
Lane Group LOS				F	E
Critical Lane Group				Yes	No
50th-Percentile Queue Length [veh]				11.75	5.22
50th-Percentile Queue Length [ft]				293.67	130.54
95th-Percentile Queue Length [veh]				17.37	8.97
95th-Percentile Queue Length [ft]				434.20	224.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.91	85.91	77.86
Movement LOS											F	F	E
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			83.31			
Approach LOS	A			A			A			F			
d_I, Intersection Delay [s/veh]	83.31												
Intersection LOS	F												
Intersection V/C	0.125												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	120.00	120.00
I_p,int, Pedestrian LOS Score for Intersection	2.374	2.365	2.010	2.253
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0	467
d_b, Bicycle Delay [s]	120.00	120.00	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	2.055
Bicycle LOS	A	A	A	B

Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	9.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.360

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	83	77	36	131	222	48
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	83	77	36	131	222	48
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	19	9	33	56	12
Total Analysis Volume [veh/h]	83	77	36	131	222	48
Pedestrian Volume [ped/h]	246		645		5	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	600	654	652	748	616	775
Degree of Utilization, x	0.14	0.12	0.06	0.18	0.36	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.48	0.40	0.17	0.63	1.64	0.20
95th-Percentile Queue Length [ft]	11.97	9.95	4.37	15.81	40.90	4.94
Approach Delay [s/veh]	9.32		8.54		11.06	
Approach LOS	A		A		B	
Intersection Delay [s/veh]	9.89					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	2	8	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	8	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	2	8	0	0	0
Pedestrian Volume [ped/h]	0		296		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.62	12.17
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.01	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.37	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.23		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.2
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.065

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	8	0	0	3	65	87
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	8	0	0	3	65	87
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	2	0	0	1	16	22
Total Analysis Volume [veh/h]	8	0	0	3	65	87
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.07	0.08
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	9.22	8.92
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.01	0.01	0.00	0.00	0.51	0.51
95th-Percentile Queue Length [ft]	0.37	0.19	0.00	0.00	12.75	12.75
d_A, Approach Delay [s/veh]	7.24		0.00		9.04	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.79					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Future.vistro

Scenario 3 FB 2031 (Fully Occupied) AM

Report File: S:\...09 FB Full AM.pdf

1/7/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Left	0.507	12.8	B
102	Union Station North Driveway & North Internal T-Intersectio	All-way stop	HCM 6th Edition	EB Left	0.249	9.1	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.239	8.9	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	EB Thru	0.645	28.7	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	EB Left	0.255	8.8	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.4	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.006	10.2	B
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.001	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	97	74	777	83	84	1430
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	74	777	83	84	1430
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	19	194	21	21	358
Total Analysis Volume [veh/h]	97	74	777	83	84	1430
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_j Volume / Saturation Flow Rate	0.06	0.05	0.26	0.26	0.15	0.45
s, saturation flow rate [veh/h]	1603	1431	1683	1628	578	3204
c, Capacity [veh/h]	220	197	1395	1350	469	2657
d1, Uniform Delay [s]	95.02	94.14	4.70	4.76	8.12	6.32
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.26	5.41	0.57	0.62	0.83	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.38	0.31	0.32	0.18	0.54
d, Delay for Lane Group [s/veh]	101.28	99.55	5.28	5.38	8.96	7.11
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	6.02	4.56	5.13	5.20	1.40	11.27
50th-Percentile Queue Length [ft]	150.56	113.95	128.36	130.09	35.03	281.79
95th-Percentile Queue Length [veh]	10.05	8.06	8.85	8.94	2.52	16.78
95th-Percentile Queue Length [ft]	251.18	201.48	221.26	223.61	63.05	419.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	101.28	99.55	5.32	5.38	8.96	7.11
Movement LOS	F	F	A	A	A	A
d_A, Approach Delay [s/veh]	100.53		5.33		7.21	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	12.85					
Intersection LOS	B					
Intersection V/C	0.507					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.379	2.759	2.807
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.842	5.381
Bicycle LOS	D	E	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.249

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	←			←→			→→			→		
Lane Configuration	←			←→			→→			→		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	14	39	0	3	165	75	156	0	22	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	39	0	3	165	75	156	0	22	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	10	0	1	41	19	39	0	6	0	0	0
Total Analysis Volume [veh/h]	14	39	0	3	165	75	156	0	22	0	0	0
Pedestrian Volume [ped/h]	1			24			30			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	694	703	771	627	792	654
Degree of Utilization, x	0.08	0.17	0.16	0.25	0.03	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.25	0.62	0.56	0.98	0.09	0.00
95th-Percentile Queue Length [ft]	6.18	15.53	13.95	24.46	2.14	0.00
Approach Delay [s/veh]	8.62	8.57		9.97		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	9.10					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.239

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	⊕			⊕			⊕			⊕		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	4	3	167	10	0	0	0	0	5	0	45
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	3	167	10	0	0	0	0	5	0	45
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	42	3	0	0	0	0	1	0	11
Total Analysis Volume [veh/h]	0	4	3	167	10	0	0	0	0	5	0	45
Pedestrian Volume [ped/h]	16			1			6			27		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	783	698	773	709	653	834
Degree of Utilization, x	0.01	0.24	0.01	0.00	0.01	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.93	0.04	0.00	0.02	0.17
95th-Percentile Queue Length [ft]	0.68	23.25	0.98	0.00	0.58	4.27
Approach Delay [s/veh]	7.64	9.35		0.00	7.36	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	8.88					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	28.7
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	r			r l			r+			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	697	40	61	1115	329	100	56	20	111	60	42
Base Volume Input [veh/h]	0	697	40	61	1115	329	100	56	20	111	60	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	697	40	61	1115	329	100	56	20	111	60	42
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	174	10	15	279	82	25	14	5	28	15	11
Total Analysis Volume [veh/h]	0	697	40	61	1115	329	100	56	20	111	60	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	178	0	0	178	0	0	62	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	240	240	240	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	174	174	174	174	174	58	58	58	58
g / C, Green / Cycle	0.73	0.73	0.73	0.73	0.73	0.24	0.24	0.24	0.24
(v / s)_j Volume / Saturation Flow Rate	0.22	0.03	0.09	0.44	0.45	0.04	0.19	0.15	0.03
s, saturation flow rate [veh/h]	3204	1431	673	1683	1554	1163	658	1149	1431
c, Capacity [veh/h]	2323	1037	461	1220	1127	146	180	302	346
d1, Uniform Delay [s]	11.60	9.34	17.08	16.24	16.54	101.53	98.72	81.00	71.10
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.33	0.07	0.59	2.26	2.60	6.07	20.78	7.47	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.04	0.13	0.61	0.62	0.33	0.71	0.57	0.12
d, Delay for Lane Group [s/veh]	11.93	9.41	17.67	18.50	19.14	107.60	119.50	88.47	71.81
Lane Group LOS	B	A	B	B	B	F	F	F	E
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	6.99	0.66	1.49	21.29	20.57	3.15	8.91	10.21	2.13
50th-Percentile Queue Length [ft]	174.69	16.39	37.29	532.17	514.30	78.84	222.64	255.37	53.29
95th-Percentile Queue Length [veh]	11.32	1.18	2.68	28.85	28.01	5.68	13.80	15.46	3.84
95th-Percentile Queue Length [ft]	283.07	29.51	67.12	721.33	700.26	141.91	344.99	386.41	95.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	11.93	9.41	17.67	18.71	19.14	110.72	119.50	119.50	88.47	88.47	71.81
Movement LOS		B	A	B	B	B	F	F	F	F	F	E
d_A, Approach Delay [s/veh]		11.79		18.76			116.20			85.19		
Approach LOS		B		B			F			F		
d_I, Intersection Delay [s/veh]	28.71											
Intersection LOS	C											
Intersection V/C	0.645											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.891	3.001	2.170	2.354
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1450	1450	483	483
d_b, Bicycle Delay [s]	9.08	9.08	69.01	69.01
I_b,int, Bicycle LOS Score for Intersection	2.168	2.801	1.850	1.911
Bicycle LOS	B	C	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	8.8
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.255

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	24	52	31	127	164	117
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	52	31	127	164	117
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	13	8	32	41	29
Total Analysis Volume [veh/h]	24	52	31	127	164	117
Pedestrian Volume [ped/h]	327		201		9	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	627	664	672	775	643	819
Degree of Utilization, x	0.06	0.06	0.05	0.16	0.25	0.14

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.19	0.18	0.14	0.58	1.01	0.50
95th-Percentile Queue Length [ft]	4.82	4.54	3.62	14.60	25.23	12.43
Approach Delay [s/veh]	8.63		8.26		9.21	
Approach LOS	A		A		A	
Intersection Delay [s/veh]	8.83					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	4	0	0	0
Total Analysis Volume [veh/h]	0	0	14	0	0	0
Pedestrian Volume [ped/h]	0		305		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.71	12.38
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.03	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.66	0.33	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.25		10.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	10.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.006

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	95	0	0	74	4	8
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	0	0	74	4	8
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	0	0	19	1	2
Total Analysis Volume [veh/h]	95	0	0	74	4	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.00	0.00	0.00	0.01	0.01
d_M, Delay for Movement [s/veh]	7.52	0.00	0.00	0.00	10.24	8.56
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh]	0.20	0.10	0.00	0.00	0.04	0.04
95th-Percentile Queue Length [ft]	4.98	2.49	0.00	0.00	1.03	1.03
d_A, Approach Delay [s/veh]	7.52		0.00		9.12	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.55					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.001

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	1	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	1	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	1	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.07	0.07
d_A, Approach Delay [s/veh]	3.61		0.00		8.52	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.52					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Future.vistro

Scenario 4 FB 2031 (Fully Occupied) PM

Report File: S:\...\10 FB Full PM.pdf

1/7/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Right	0.487	17.1	B
102	Union Station North Driveway & North Internal T-Intersectio	All-way stop	HCM 6th Edition	EB Left	0.359	10.5	B
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.221	7.9	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.125	83.3	F
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	EB Left	0.372	10.0	B
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.2	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.086	9.5	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	129	144	1163	87	66	1237
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	144	1163	87	66	1237
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	36	291	22	17	309
Total Analysis Volume [veh/h]	129	144	1163	87	66	1237
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_j Volume / Saturation Flow Rate	0.08	0.10	0.37	0.38	0.17	0.39
s, saturation flow rate [veh/h]	1603	1431	1683	1643	400	3204
c, Capacity [veh/h]	220	197	1395	1362	316	2657
d1, Uniform Delay [s]	97.08	99.26	5.57	5.65	11.60	5.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.89	21.26	1.04	1.12	1.49	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.73	0.45	0.46	0.21	0.47
d, Delay for Lane Group [s/veh]	107.97	120.52	6.61	6.77	13.09	6.29
Lane Group LOS	F	F	A	A	B	A
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh]	8.33	9.91	8.86	9.00	1.40	8.78
50th-Percentile Queue Length [ft]	208.22	247.66	221.49	225.05	35.01	219.62
95th-Percentile Queue Length [veh]	13.06	15.07	13.74	13.92	2.52	13.65
95th-Percentile Queue Length [ft]	326.55	376.71	343.52	348.07	63.01	341.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	107.97	120.52	6.68	6.77	13.09	6.29
Movement LOS	F	F	A	A	B	A
d_A, Approach Delay [s/veh]	114.59		6.69		6.64	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	17.09					
Intersection LOS	B					
Intersection V/C	0.487					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.375	2.815	2.855
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.164	5.207
Bicycle LOS	D	F	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	10.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.359

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	22	191	0	10	39	88	218	0	11	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	191	0	10	39	88	218	0	11	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	48	0	3	10	22	55	0	3	0	0	0
Total Analysis Volume [veh/h]	22	191	0	10	39	88	218	0	11	0	0	0
Pedestrian Volume [ped/h]	3			21			64			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	687	645	753	608	763	618
Degree of Utilization, x	0.31	0.08	0.12	0.36	0.01	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	1.32	0.25	0.40	1.62	0.04	0.00
95th-Percentile Queue Length [ft]	32.97	6.15	9.88	40.59	1.10	0.00
Approach Delay [s/veh]	10.58	8.34		11.69		0.00
Approach LOS	B	A		B		A
Intersection Delay [s/veh]	10.49					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.221

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	1	6	1	35	12	0	1	1	1	1	0	200
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	1	35	12	0	1	1	1	1	0	200
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	9	3	0	0	0	0	0	0	50
Total Analysis Volume [veh/h]	1	6	1	35	12	0	1	1	1	1	0	200
Pedestrian Volume [ped/h]	11			0			9			20		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	722	657	724	760	695	904
Degree of Utilization, x	0.01	0.05	0.02	0.00	0.00	0.22

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.17	0.05	0.01	0.00	0.84
95th-Percentile Queue Length [ft]	0.84	4.21	1.26	0.30	0.11	21.11
Approach Delay [s/veh]	8.04	8.30		7.76	7.81	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.91					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	r			r t			r+			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	604	15	72	836	174	441	94	110	141	62	97
Base Volume Input [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	151	4	18	209	44	110	24	28	35	16	24
Total Analysis Volume [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	0	0	0	0	0	0	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	0	0	0	0	0	0	0	5	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	10	0
Rest In Walk												No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall												No	
Maximum Recall												No	
Pedestrian Recall												No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group				C	R
C, Cycle Length [s]				240	240
L, Total Lost Time per Cycle [s]				4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]				0.00	0.00
l2, Clearance Lost Time [s]				2.00	2.00
g_i, Effective Green Time [s]				56	56
g / C, Green / Cycle				0.23	0.23
(v / s)_i Volume / Saturation Flow Rate				0.12	0.07
s, saturation flow rate [veh/h]				1626	1431
c, Capacity [veh/h]				380	334
d1, Uniform Delay [s]				80.59	75.66
k, delay calibration				0.50	0.50
l, Upstream Filtering Factor				1.00	1.00
d2, Incremental Delay [s]				5.32	2.19
d3, Initial Queue Delay [s]				0.00	0.00
Rp, platoon ratio				1.00	1.00
PF, progression factor				1.00	1.00

Lane Group Results

X, volume / capacity				0.53	0.29
d, Delay for Lane Group [s/veh]				85.91	77.86
Lane Group LOS				F	E
Critical Lane Group				Yes	No
50th-Percentile Queue Length [veh]				11.75	5.22
50th-Percentile Queue Length [ft]				293.67	130.54
95th-Percentile Queue Length [veh]				17.37	8.97
95th-Percentile Queue Length [ft]				434.20	224.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.91	85.91	77.86
Movement LOS											F	F	E
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			83.31			
Approach LOS	A			A			A			F			
d_I, Intersection Delay [s/veh]	83.31												
Intersection LOS	F												
Intersection V/C	0.125												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	120.00	120.00
I_p,int, Pedestrian LOS Score for Intersection	2.374	2.365	2.010	2.253
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0	467
d_b, Bicycle Delay [s]	120.00	120.00	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	2.055
Bicycle LOS	A	A	A	B

Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	10.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.372

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	85	79	37	134	228	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	79	37	134	228	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	20	9	34	57	12
Total Analysis Volume [veh/h]	85	79	37	134	228	49
Pedestrian Volume [ped/h]	246		645		5	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	597	651	649	743	614	771
Degree of Utilization, x	0.14	0.12	0.06	0.18	0.37	0.06

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.49	0.41	0.18	0.65	1.71	0.20
95th-Percentile Queue Length [ft]	12.37	10.30	4.53	16.37	42.83	5.08
Approach Delay [s/veh]	9.38		8.61		11.23	
Approach LOS	A		A		B	
Intersection Delay [s/veh]	10.00					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	2	8	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	8	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	2	8	0	0	0
Pedestrian Volume [ped/h]	0		296		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.62	12.17
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.01	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.37	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.23		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.086

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	10	0	0	4	85	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	0	0	4	85	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	0	0	1	21	28
Total Analysis Volume [veh/h]	10	0	0	4	85	113
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.09	0.10
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	9.47	9.15
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.02	0.01	0.00	0.00	0.70	0.70
95th-Percentile Queue Length [ft]	0.47	0.23	0.00	0.00	17.56	17.56
d_A, Approach Delay [s/veh]	7.24		0.00		9.28	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	9.01					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type:	Two-way stop	Delay (sec / veh):	8.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Future.vistro

Scenario 5 FP 2031 (Fully Occupied) AM

Report File: S:\...\11 FP Full AM.pdf

1/7/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Left	0.507	12.8	B
102	Union Station North Driveway & North Internal T-Intersectio	All-way stop	HCM 6th Edition	EB Left	0.255	9.0	A
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.133	8.1	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	EB Thru	0.645	28.8	C
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	EB Left	0.263	9.1	A
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.4	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.000	11.4	B
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.507

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	97	74	777	83	84	1430
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	74	777	83	84	1430
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	19	194	21	21	358
Total Analysis Volume [veh/h]	97	74	777	83	84	1430
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_j Volume / Saturation Flow Rate	0.06	0.05	0.26	0.26	0.15	0.45
s, saturation flow rate [veh/h]	1603	1431	1683	1628	578	3204
c, Capacity [veh/h]	220	197	1395	1350	469	2657
d1, Uniform Delay [s]	95.02	94.14	4.70	4.76	8.12	6.32
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	6.26	5.41	0.57	0.62	0.83	0.79
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.44	0.38	0.31	0.32	0.18	0.54
d, Delay for Lane Group [s/veh]	101.28	99.55	5.28	5.38	8.96	7.11
Lane Group LOS	F	F	A	A	A	A
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh]	6.02	4.56	5.13	5.20	1.40	11.27
50th-Percentile Queue Length [ft]	150.56	113.95	128.36	130.09	35.03	281.79
95th-Percentile Queue Length [veh]	10.05	8.06	8.85	8.94	2.52	16.78
95th-Percentile Queue Length [ft]	251.18	201.48	221.26	223.61	63.05	419.44

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	101.28	99.55	5.32	5.38	8.96	7.11
Movement LOS	F	F	A	A	A	A
d_A, Approach Delay [s/veh]	100.53		5.33		7.21	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	12.85					
Intersection LOS	B					
Intersection V/C	0.507					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.379	2.759	2.807
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	4.842	5.381
Bicycle LOS	D	E	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.255

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	14	34	0	3	91	149	161	0	22	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	34	0	3	91	149	161	0	22	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	9	0	1	23	37	40	0	6	0	0	0
Total Analysis Volume [veh/h]	14	34	0	3	91	149	161	0	22	0	0	0
Pedestrian Volume [ped/h]	1			24			30			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	693	702	816	630	798	658
Degree of Utilization, x	0.07	0.13	0.18	0.26	0.03	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.22	0.46	0.66	1.01	0.08	0.00
95th-Percentile Queue Length [ft]	5.57	11.53	16.62	25.29	2.12	0.00
Approach Delay [s/veh]	8.58	8.30		10.00		0.00
Approach LOS	A	A		A		A
Intersection Delay [s/veh]	8.98					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	8.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.133

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+					
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	0	4	3	93	10	0	0	0	0	5	0	41
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	4	3	93	10	0	0	0	0	5	0	41
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	1	23	3	0	0	0	0	1	0	10
Total Analysis Volume [veh/h]	0	4	3	93	10	0	0	0	0	5	0	41
Pedestrian Volume [ped/h]	16			1			6			27		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	800	700	776	739	677	874
Degree of Utilization, x	0.01	0.13	0.01	0.00	0.01	0.05

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.46	0.04	0.00	0.02	0.15
95th-Percentile Queue Length [ft]	0.66	11.42	0.98	0.00	0.56	3.69
Approach Delay [s/veh]	7.54	8.51		0.00	7.13	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	8.06					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	28.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	r			r t			r+			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
Base Volume Input [veh/h]	0	697	27	61	1115	329	100	56	20	111	60	42
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	697	27	61	1115	329	100	56	20	111	60	42
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	174	7	15	279	82	25	14	5	28	15	11
Total Analysis Volume [veh/h]	0	697	27	61	1115	329	100	56	20	111	60	42
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	5	0	0	5	0	0	5	0	0	5	0
Maximum Green [s]	0	30	0	0	30	0	0	30	0	0	30	0
Amber [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
All red [s]	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0
Split [s]	0	178	0	0	178	0	0	62	0	0	62	0
Vehicle Extension [s]	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0
Minimum Recall		No			No			No			No	
Maximum Recall		No			No			No			No	
Pedestrian Recall		No			No			No			No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	C	R	L	C	C	L	C	C	R
C, Cycle Length [s]	240	240	240	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	0.00	2.00	2.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	174	174	174	174	174	58	58	58	58
g / C, Green / Cycle	0.73	0.73	0.73	0.73	0.73	0.24	0.24	0.24	0.24
(v / s)_j Volume / Saturation Flow Rate	0.22	0.02	0.09	0.44	0.45	0.04	0.19	0.15	0.03
s, saturation flow rate [veh/h]	3204	1431	673	1683	1554	1163	658	1149	1431
c, Capacity [veh/h]	2323	1037	461	1220	1127	146	180	302	346
d1, Uniform Delay [s]	11.60	9.25	17.08	16.24	16.54	101.53	98.72	81.00	71.10
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.33	0.05	0.59	2.26	2.60	6.07	20.78	7.47	0.72
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.30	0.03	0.13	0.61	0.62	0.33	0.71	0.57	0.12
d, Delay for Lane Group [s/veh]	11.93	9.30	17.67	18.50	19.14	107.60	119.50	88.47	71.81
Lane Group LOS	B	A	B	B	B	F	F	F	E
Critical Lane Group	No	No	No	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh]	6.99	0.44	1.49	21.29	20.57	3.15	8.91	10.21	2.13
50th-Percentile Queue Length [ft]	174.69	10.96	37.29	532.17	514.30	78.84	222.64	255.37	53.29
95th-Percentile Queue Length [veh]	11.32	0.79	2.68	28.85	28.01	5.68	13.80	15.46	3.84
95th-Percentile Queue Length [ft]	283.07	19.73	67.12	721.33	700.26	141.91	344.99	386.41	95.93

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	11.93	9.30	17.67	18.71	19.14	110.72	119.50	119.50	88.47	88.47	71.81
Movement LOS		B	A	B	B	B	F	F	F	F	F	E
d_A, Approach Delay [s/veh]		11.83		18.76			116.20			85.19		
Approach LOS		B		B			F			F		
d_I, Intersection Delay [s/veh]	28.80											
Intersection LOS	C											
Intersection V/C	0.645											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.888	3.001	2.170	2.351
Crosswalk LOS	C	C	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	1450	1450	483	483
d_b, Bicycle Delay [s]	9.08	9.08	69.01	69.01
I_b,int, Bicycle LOS Score for Intersection	2.157	2.801	1.850	1.911
Bicycle LOS	B	C	A	A

Sequence

Ring 1	2	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	9.1
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.263

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	24	57	105	127	164	117
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	24	57	105	127	164	117
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	14	26	32	41	29
Total Analysis Volume [veh/h]	24	57	105	127	164	117
Pedestrian Volume [ped/h]	327		201		9	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	618	651	669	770	623	785
Degree of Utilization, x	0.07	0.06	0.16	0.17	0.26	0.15

Movement, Approach, & Intersection Results




95th-Percentile Queue Length [veh]	0.21	0.20	0.55	0.59	1.05	0.52
95th-Percentile Queue Length [ft]	5.25	4.96	13.86	14.71	26.35	13.06
Approach Delay [s/veh]	8.77		8.65		9.52	
Approach LOS	A		A		A	
Intersection Delay [s/veh]	9.08					
Intersection LOS	A					

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	0	14	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	14	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	4	0	0	0
Total Analysis Volume [veh/h]	0	0	14	0	0	0
Pedestrian Volume [ped/h]	0		305		2	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.25	0.00	8.71	12.38
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.03	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.66	0.33	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.25		10.55	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	7.25					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	11.4
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	169	0	0	0	0	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	169	0	0	0	0	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	42	0	0	0	0	3
Total Analysis Volume [veh/h]	169	0	0	0	0	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.10	0.00	0.00	0.00	0.00	0.01
d_M, Delay for Movement [s/veh]	7.48	0.00	0.00	0.00	11.40	8.36
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh]	0.35	0.17	0.00	0.00	0.03	0.03
95th-Percentile Queue Length [ft]	8.71	4.35	0.00	0.00	0.84	0.84
d_A, Approach Delay [s/veh]	7.48		0.00		8.36	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	7.54					
Intersection LOS	B					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐		⇐		⇐T	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.07	0.07
d_A, Approach Delay [s/veh]	3.61		0.00		8.32	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.32					
Intersection LOS	A					

J1559- LINK US MWD Analysis

Vistro File: S:\...\Future.vistro

Scenario 6 FP 2031 (Fully Occupied) PM

Report File: S:\...\12 FP Full PM.pdf

1/7/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
101	Union Station North Driveway & E Cesar Chavez	Signalized	HCM 6th Edition	NB Right	0.487	17.1	B
102	Union Station North Driveway & North Internal T-Intersectio	All-way stop	HCM 6th Edition	EB Left	0.482	11.5	B
103	Union Station North Driveway & South Internal T-Intersection	All-way stop	HCM 6th Edition	SB Left	0.127	7.5	A
104	Alameda & Los Angeles St (North)	Signalized	HCM 6th Edition	WB Left	0.125	83.3	F
106	Union Station Driveway & West Internal Circulation Road (North)	All-way stop	HCM 6th Edition	EB Left	0.385	10.3	B
108	Union Station Driveway & MWD West Valet Parking Driveway	Two-way stop	HCM 6th Edition	WB Right	0.000	12.2	B
110	MWD East Driveway to Parking Garage	Two-way stop	HCM 6th Edition	EB Left	0.000	9.4	A
111	MWD Truck Dock	Two-way stop	HCM 6th Edition	EB Left	0.000	8.5	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. for all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report

Intersection 101: Union Station North Driveway & E Cesar Chavez

Control Type:	Signalized	Delay (sec / veh):	17.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.487

Intersection Setup

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Approach	Northbound		Eastbound		Westbound	
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Union Station North Driveway		Eastbound		Cesar E Chavez Ave	
Base Volume Input [veh/h]	129	144	1163	87	66	1237
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	129	144	1163	87	66	1237
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	36	291	22	17	309
Total Analysis Volume [veh/h]	129	144	1163	87	66	1237
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0		0		0	
v_di, Inbound Pedestrian Volume crossing m	0		0		0	
v_co, Outbound Pedestrian Volume crossing	0		0		0	
v_ci, Inbound Pedestrian Volume crossing mi	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-
Minimum Green [s]	5	0	5	0	0	5
Maximum Green [s]	30	0	30	0	0	30
Amber [s]	3.0	0.0	3.0	0.0	0.0	3.0
All red [s]	1.0	0.0	1.0	0.0	0.0	1.0
Split [s]	37	0	203	0	0	203
Vehicle Extension [s]	3.0	0.0	3.0	0.0	0.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	0.0	2.0
Minimum Recall	No		No			No
Maximum Recall	No		No			No
Pedestrian Recall	No		No			No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	240	240	240	240	240	240
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	2.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	2.00	2.00
g_i, Effective Green Time [s]	33	33	199	199	199	199
g / C, Green / Cycle	0.14	0.14	0.83	0.83	0.83	0.83
(v / s)_j Volume / Saturation Flow Rate	0.08	0.10	0.37	0.38	0.17	0.39
s, saturation flow rate [veh/h]	1603	1431	1683	1643	400	3204
c, Capacity [veh/h]	220	197	1395	1362	316	2657
d1, Uniform Delay [s]	97.08	99.26	5.57	5.65	11.60	5.70
k, delay calibration	0.50	0.50	0.50	0.50	0.50	0.50
l, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	10.89	21.26	1.04	1.12	1.49	0.59
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.59	0.73	0.45	0.46	0.21	0.47
d, Delay for Lane Group [s/veh]	107.97	120.52	6.61	6.77	13.09	6.29
Lane Group LOS	F	F	A	A	B	A
Critical Lane Group	No	Yes	No	No	No	Yes
50th-Percentile Queue Length [veh]	8.33	9.91	8.86	9.00	1.40	8.78
50th-Percentile Queue Length [ft]	208.22	247.66	221.49	225.05	35.01	219.62
95th-Percentile Queue Length [veh]	13.06	15.07	13.74	13.92	2.52	13.65
95th-Percentile Queue Length [ft]	326.55	376.71	343.52	348.07	63.01	341.14

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	107.97	120.52	6.68	6.77	13.09	6.29
Movement LOS	F	F	A	A	B	A
d_A, Approach Delay [s/veh]	114.59		6.69		6.64	
Approach LOS	F		A		A	
d_I, Intersection Delay [s/veh]	17.09					
Intersection LOS	B					
Intersection V/C	0.487					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	111.17
I_p,int, Pedestrian LOS Score for Intersection	2.375	2.815	2.855
Crosswalk LOS	B	C	C
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	120.00	120.00	120.00
I_b,int, Bicycle LOS Score for Intersection	4.132	5.164	5.207
Bicycle LOS	D	F	F

Sequence

Ring 1	-	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	8	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report

Intersection 102: Union Station North Driveway & North Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	11.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.482

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	22	106	0	10	35	92	303	0	11	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	22	106	0	10	35	92	303	0	11	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	6	27	0	3	9	23	76	0	3	0	0	0
Total Analysis Volume [veh/h]	22	106	0	10	35	92	303	0	11	0	0	0
Pedestrian Volume [ped/h]	3			21			64			0		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	654	626	730	628	795	629
Degree of Utilization, x	0.20	0.07	0.13	0.48	0.01	0.00

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.72	0.23	0.43	2.63	0.04	0.00
95th-Percentile Queue Length [ft]	18.06	5.79	10.77	65.65	1.05	0.00
Approach Delay [s/veh]	9.84	8.53		13.43		0.00
Approach LOS	A	A		B		A
Intersection Delay [s/veh]	11.48					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 103: Union Station North Driveway & South Internal T-Intersection

Control Type:	All-way stop	Delay (sec / veh):	7.5
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.127

Intersection Setup

Name	Northbound			Southbound			Eastbound			Westbound		
Approach												
Lane Configuration	+						+			T		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Northbound			Southbound			Eastbound			Westbound		
Base Volume Input [veh/h]	1	6	1	31	12	0	1	1	1	1	0	115
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	1	6	1	31	12	0	1	1	1	1	0	115
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	2	0	8	3	0	0	0	0	0	0	29
Total Analysis Volume [veh/h]	1	6	1	31	12	0	1	1	1	1	0	115
Pedestrian Volume [ped/h]	11			0			9			20		

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	752	681	752	776	697	908
Degree of Utilization, x	0.01	0.05	0.02	0.00	0.00	0.13

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.03	0.14	0.05	0.01	0.00	0.43
95th-Percentile Queue Length [ft]	0.81	3.57	1.22	0.29	0.11	10.83
Approach Delay [s/veh]	7.84	8.05		7.66	7.25	
Approach LOS	A	A		A	A	
Intersection Delay [s/veh]	7.48					
Intersection LOS	A					

Intersection Level Of Service Report
Intersection 104: Alameda & Los Angeles St (North)

Control Type:	Signalized	Delay (sec / veh):	83.3
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	Alameda St											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration	r			r t			r+			+r		
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Alameda St											
	0	604	15	72	836	174	441	94	110	141	62	97
Base Volume Input [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	151	4	18	209	44	110	24	28	35	16	24
Total Analysis Volume [veh/h]	0	604	15	72	836	174	441	94	110	141	62	97
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing m	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing mi	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	Yes
Signal Coordination Group	-
Cycle Length [s]	240
Coordination Type	Time of Day Pattern Coordinated
Actuation Type	Fixed time
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	0	0	0	0	0	0	0	0	0	0	4	0
Auxiliary Signal Groups													
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-	-
Minimum Green [s]	0	0	0	0	0	0	0	0	0	0	0	5	0
Maximum Green [s]	0	0	0	0	0	0	0	0	0	0	0	30	0
Amber [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
All red [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	60	0
Vehicle Extension [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	0.0
Walk [s]	0	0	0	0	0	0	0	0	0	0	0	5	0
Pedestrian Clearance [s]	0	0	0	0	0	0	0	0	0	0	0	10	0
Rest In Walk												No	
I1, Start-Up Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
I2, Clearance Lost Time [s]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
Minimum Recall												No	
Maximum Recall												No	
Pedestrian Recall												No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group				C	R
C, Cycle Length [s]				240	240
L, Total Lost Time per Cycle [s]				4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]				0.00	0.00
l2, Clearance Lost Time [s]				2.00	2.00
g_i, Effective Green Time [s]				56	56
g / C, Green / Cycle				0.23	0.23
(v / s)_i Volume / Saturation Flow Rate				0.12	0.07
s, saturation flow rate [veh/h]				1626	1431
c, Capacity [veh/h]				380	334
d1, Uniform Delay [s]				80.59	75.66
k, delay calibration				0.50	0.50
l, Upstream Filtering Factor				1.00	1.00
d2, Incremental Delay [s]				5.32	2.19
d3, Initial Queue Delay [s]				0.00	0.00
Rp, platoon ratio				1.00	1.00
PF, progression factor				1.00	1.00

Lane Group Results

X, volume / capacity				0.53	0.29
d, Delay for Lane Group [s/veh]				85.91	77.86
Lane Group LOS				F	E
Critical Lane Group				Yes	No
50th-Percentile Queue Length [veh]				11.75	5.22
50th-Percentile Queue Length [ft]				293.67	130.54
95th-Percentile Queue Length [veh]				17.37	8.97
95th-Percentile Queue Length [ft]				434.20	224.23

Movement, Approach, & Intersection Results

d_M, Delay for Movement [s/veh]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	85.91	85.91	77.86
Movement LOS											F	F	E
d_A, Approach Delay [s/veh]	0.00			0.00			0.00			83.31			
Approach LOS	A			A			A			F			
d_I, Intersection Delay [s/veh]	83.31												
Intersection LOS	F												
Intersection V/C	0.125												

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	0.0	0.0
M_corner, Corner Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft ² /ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	111.17	111.17	120.00	120.00
I_p,int, Pedestrian LOS Score for Intersection	2.374	2.365	2.010	2.253
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0	467
d_b, Bicycle Delay [s]	120.00	120.00	120.00	70.53
I_b,int, Bicycle LOS Score for Intersection	1.560	1.560	1.560	2.055
Bicycle LOS	A	A	A	B

Intersection Level Of Service Report

Intersection 106: Union Station Driveway & West Internal Circulation Road (North)

Control Type:	All-way stop	Delay (sec / veh):	10.3
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.385

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	85	164	41	134	228	49
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	85	164	41	134	228	49
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	21	41	10	34	57	12
Total Analysis Volume [veh/h]	85	164	41	134	228	49
Pedestrian Volume [ped/h]	246		645		5	

Intersection Settings

Lanes

Capacity per Entry Lane [veh/h]	608	646	633	723	592	737
Degree of Utilization, x	0.20	0.19	0.06	0.19	0.39	0.07

Movement, Approach, & Intersection Results

95th-Percentile Queue Length [veh]	0.76	0.71	0.21	0.68	1.81	0.21
95th-Percentile Queue Length [ft]	19.05	17.71	5.18	16.92	45.21	5.33
Approach Delay [s/veh]	9.86		8.81		11.73	
Approach LOS	A		A		B	
Intersection Delay [s/veh]	10.34					
Intersection LOS	B					

Intersection Level Of Service Report

Intersection 108: Union Station Driveway & MWD West Valet Parking Driveway

Control Type:	Two-way stop	Delay (sec / veh):	12.2
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Westbound	
Approach						
Lane Configuration	⇌		⇌		⇌	
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Westbound	
Base Volume Input [veh/h]	0	2	8	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	2	8	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	1	2	0	0	0
Total Analysis Volume [veh/h]	0	2	8	0	0	0
Pedestrian Volume [ped/h]	0		296		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	0.00	0.00	7.23	0.00	8.62	12.17
Movement LOS	A	A	A	A	A	B
95th-Percentile Queue Length [veh]	0.00	0.00	0.01	0.01	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.37	0.19	0.00	0.00
d_A, Approach Delay [s/veh]	0.00		7.23		10.40	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	5.79					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 110: MWD East Driveway to Parking Garage

Control Type:	Two-way stop	Delay (sec / veh):	9.4
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇐⇐		⇐⇐		⇐	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	14	0	0	0	0	198
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	0	0	0	0	198
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	0	0	0	0	50
Total Analysis Volume [veh/h]	14	0	0	0	0	198
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.18
d_M, Delay for Movement [s/veh]	7.24	0.00	0.00	0.00	9.43	9.06
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.03	0.01	0.00	0.00	0.67	0.67
95th-Percentile Queue Length [ft]	0.65	0.33	0.00	0.00	16.65	16.65
d_A, Approach Delay [s/veh]	7.24		0.00		9.06	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	8.94					
Intersection LOS	A					

**Intersection Level Of Service Report
Intersection 111: MWD Truck Dock**

Control Type: Two-way stop
 Analysis Method: HCM 6th Edition
 Analysis Period: 15 minutes

Delay (sec / veh): 8.5
 Level Of Service: A
 Volume to Capacity (v/c): 0.000

Intersection Setup

Name	Northbound		Southbound		Eastbound	
Approach						
Lane Configuration	⇄		⇄		⇄	
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Northbound		Southbound		Eastbound	
Base Volume Input [veh/h]	0	0	0	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	0	0	0	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	0	0	0	0	0	0
Total Analysis Volume [veh/h]	0	0	0	0	0	0
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.22	0.00	0.00	0.00	8.52	8.32
Movement LOS	A	A	A	A	A	A
95th-Percentile Queue Length [veh]	0.00	0.00	0.00	0.00	0.00	0.00
95th-Percentile Queue Length [ft]	0.00	0.00	0.00	0.00	0.00	0.00
d_A, Approach Delay [s/veh]	3.61		0.00		8.42	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	4.01					
Intersection LOS	A					

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