SUBREGIONAL MOBILITY MATRIX
SAN FERNANDO VALLEY

Project No. PS-4010-3041-YY-01-01

Final Report – Final

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March 2015

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Subregional Mobility Matrix
San Fernando Valley
PS-4010-3041-YY-01-01

Prepared for:

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Quality Review Tracking

Version #	Date	Reviewer Signature	Description/Comments
Draft	1/30/15	STV Reviewer: Tyler Bonstead	TRB
Final	3/11/15	STV Reviewer: Tyler Bonstead	TRB

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

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List of Terms and Acronyms

Acronyms	Definitions
AB	Assembly Bill
ADT	Average Daily Traffic
BRT	Bus Rapid Transit
CalEnvironScreen	California Environmental Health Hazard Screening Tool
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
COG	Council of Governments
CSTAN	Los Angeles Countywide Strategic Truck Arterial Network
ITS	Intelligent Transportation Systems
LADOT	Los Angeles Department of Transportation
LOS	Level-of-Service
LRT	Light Rail Transit
LRTP	Long Range Transportation Plan
LVMCOG	Las Virgenes/Malibu Council of Governments
MAP-21	Moving Ahead for Progress in the 21st Century Act
Metro	Los Angeles County Metropolitan Transportation Authority
MPO	Metropolitan Planning Organization
O&M	Operations and Maintenance

Acronyms	Definitions
OPR	Governor's Office of Planning and Research
NCTC	North County Transportation Coalition
PCH	Pacific Coast Highway
PDT	Project Development Team
PeMS	Caltrans Freeway Performance Monitoring System
SB	Senate Bill
SBCCOG	South Bay Cities Council of Governments
SCS	Sustainability Communities Strategy
SFV	San Fernando Valley
SFVCOG	San Fernando Valley Council of Governments
SGVCOG	San Gabriel Valley Council of Governments
SRTP	Short Range Transportation Plan
STAA	Surface Transportation Assistance Act
TDM	Transportation Demand Management
TIP	Transportation Improvement Program
TSM	Transportation Systems Management
VMT	Vehicle Miles Traveled
WCCOG	Westside Cities Council of Governments

0.0 EXECUTIVE SUMMARY

0.1 Mobility Matrix Overview

In February 2014, the Los Angeles County Metropolitan Transportation Authority (Metro) Board approved the holistic, countywide approach for preparing Mobility Matrices for Central Los Angeles, the Las Virgenes/ Malibu Council of Governments (LVMCOG), North County Transportation Coalition (NCTC), San Fernando Valley Council of Governments (SFVCOG), San Gabriel Valley Council of Governments (SGVCOG), South Bay Cities Council of Governments (SBCCOG) and Westside Cities Council of Governments (WCCOG) (see Figure ES-1). The Gateway Cities COG is developing its own Strategic Transportation Plan which will serve as its Mobility Matrix.

For the purposes of the Mobility Matrix work, cities with membership in two subregions selected one in which to participate. The cities of La Cañada Flintridge, Pasadena, and South Pasadena chose the SGVCOG, and Burbank and Glendale chose the SFVCOG. The City of Santa Clarita opted to be included in the SFVCOG instead of the NCTC. Boundaries between the WCCOG and Central Los Angeles, and the WCCOG and SBCCOG, were modified based on Metro Board direction in January 2015.

In January 2015, the Metro Board created the Regional Facilities category. Regional Facilities include projects and programs related to Los Angeles County's four commercial airports (Los Angeles International Airport, Burbank Bob Hope Airport, Long Beach Airport, and Palmdale Regional Airport), the two seaports (Port of Los Angeles and Port of Long Beach), and Union Station. The projects/programs related to Regional Facilities have been removed from the subregional Mobility Matrices.

0.2 Project Purpose

The Mobility Matrix will serve as a starting point for the update of the Metro Long-Range Transportation Plan (LRTP) currently scheduled for adoption in 2017. This San Fernando Valley Mobility Matrix, along with concurrent efforts in other Metro subregions, includes the development of subregional goals and objectives to guide future transportation investments, an assessment of baseline transportation system conditions to identify critical needs and deficiencies, and an initial screening of projects and programs based on their potential to address subregional objectives and countywide performance themes.

The Mobility Matrix includes a preliminary assessment of anticipated investment needs and project and program implementation over the short-term (0-10 years), mid-term (11-20 years) and long-term (20+ years) timeframes. The Mobility Matrix does not prioritize projects, but rather serves as a basis for further quantitative analysis to be performed during the Metro LRTP update, expected in 2017.

Figure ES-1. Los Angeles County Mobility Matrix Subregions

NORTH COUNTY

Palmdale Regional Airport

SAN FERNANDO VALLEY

Burbank Bob Hope Airport

LAS VIRGENES/ MALIBU

WESTSIDE

CENTRAL
Los Angeles Union Station

SAN GABRIEL VALLEY

Los Angeles International Airport

GATEWAY CITIES

SOUTH BAY

Long Beach Airport

SANTA CATALINA ISLAND

Port of Long Beach

Port of Los Angeles

0 2½ 5 10 Miles

N
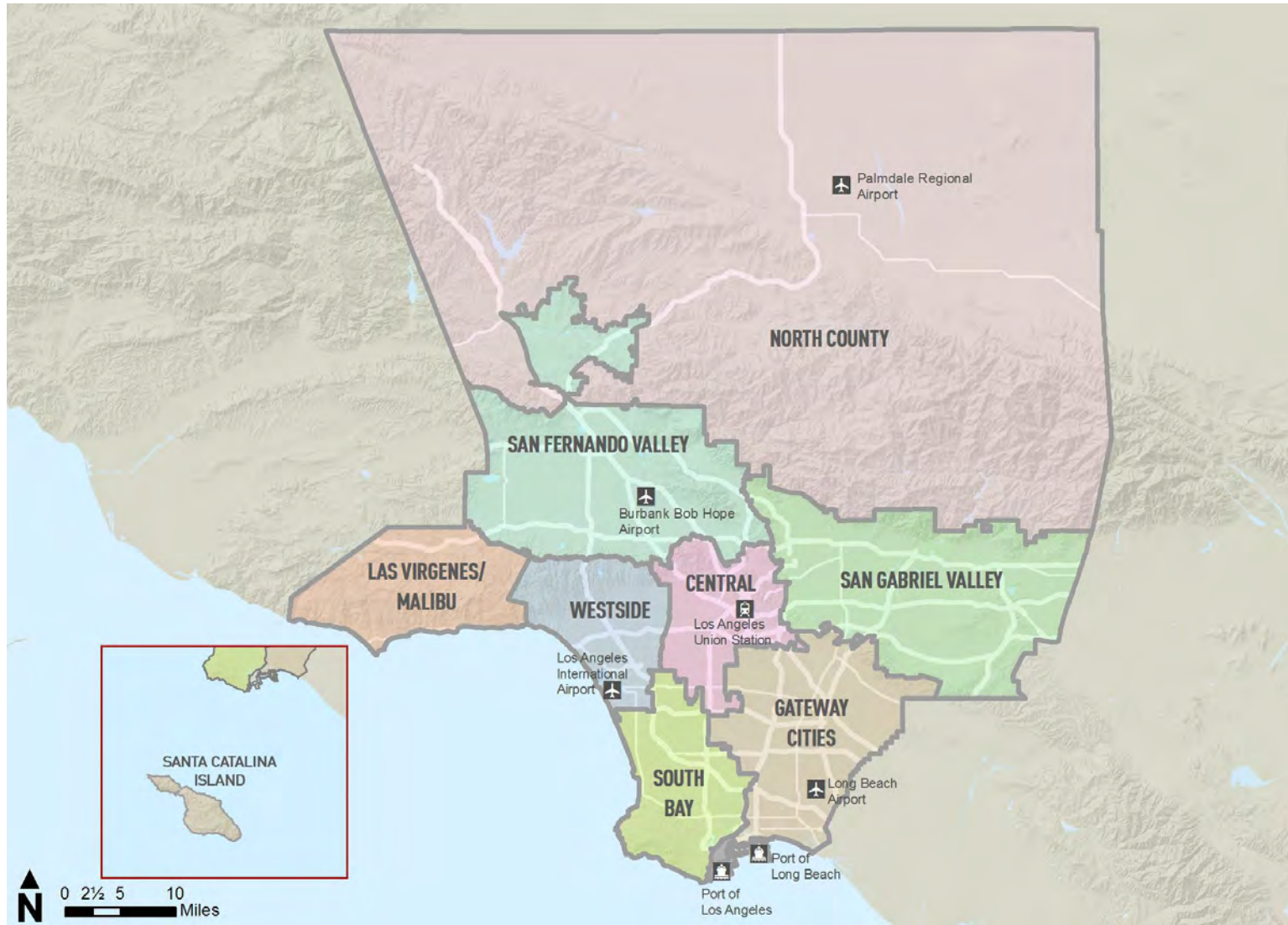
SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

0.3 Process

To ensure proposed projects and programs reflect the needs and interests of the subregion, the Mobility Matrices followed a "bottoms-up" approach guided by a Project Development Team (PDT) selected by the subregion, consisting of city, stakeholder, and subregional representatives. The SFVCOG PDT consisted of representatives from the following jurisdictions and stakeholder agencies: SFVCOG, City of Burbank, City of Glendale, City of Los Angeles, City of Santa Clarita, City of San Fernando, Los Angeles County Department of Public Works, California Department of Transportation (Caltrans), Burbank Bob Hope Airport, and Metrolink. The PDT met six times over the eight-month study period to guide the creation of strategic goals and objectives, determine a subregional priority package of projects and programs, oversee the project and program evaluation process, and review and approve all work products associated with the Subregional Mobility Matrix.

0.4 Subregional Overview

The SFVCOG was formed in 2010 with the adoption of a Joint Powers Agreement by the City and County of Los Angeles along with the Cities of Burbank, Glendale, San Fernando and Santa Clarita. The main purpose of the SFVCOG is to develop and implement subregional policies and plans that are unique to the greater San Fernando Valley region, and to voluntarily and cooperatively resolve differences among the COG members.

The Baseline Conditions Report, included as Appendix B, identified several key findings regarding the SFVCOG Mobility Matrix Subregion, including but not limited to:

- Employment and residential growth will mostly be concentrated in Santa Clarita. Burbank's employment growth is expected to be twice that of population, while San Fernando has the inverse trend. Employment growth will concentrate around existing job centers, including Universal City and Warner Center.

- The study area features a larger population of at-risk residents compared to the County average, especially in communities around the major freeways.

- Most commute trips stay within the SFVCOG study area, indicating a high jobs/housing balance in the Mobility Matrix Subregion.

- An extensive bikeway system is planned for the study area, but currently there is only a limited network. Collisions involving pedestrians and bicyclists have been gradually rising over the past five years.

- The Mobility Matrix Subregion has many transit options, with multiple express and commuter lines, the Metro Orange and Red Lines, municipal/local services in the cities, and also two Metrolink lines. However, some areas have infrequent service and coverage.

1.5   Goals and Objectives

Members of the PDT helped define the goals and objectives for the SFVCOG Mobility Matrix Subregion. The goals are consistent with the county's overall framework, which consists of six broad themes common among all subregions (see Figure ES-2). The goals also reflect subregional priorities, and are based on recent studies, cities' general plans, and discussions with city staff. The SFV PDT developed goal statements intended to address transportation needs, to guide the evaluation of proposed projects/programs, and ultimately to inform Metro's forthcoming LRTP update.

SFVCOG Mobility Matrix Goal Statements

■   Increase Multimodal Mobility Options for SFVCOG Residents, Visitors, and Businesses.

■   Implement operational and capacity projects that improve safety and enhance connectivity.

■   Ensure that investments balance mobility, environmental, and livability needs.

■   Maintain and Preserve the Transportation System

Figure ES-2. Common Countywide Themes for All Mobility Matrices

Mobility

Develop projects and programs that improve traffic flow, relieve congestion, and enable residents, workers, and visitors to travel freely and quickly throughout Los Angeles County.

Safety

Make investments that improve access to transit facilities; enhance safety, or correct unsafe conditions in areas of heavy traffic, high transit use, and dense pedestrian activity where it is not a result of lack of normal maintenance.

Sustainability

Ensure compliance with sustainability legislation (Senate Bill [SB] 375) by reducing greenhouse gas emissions to meet the needs of the present without compromising the ability of future generations to meet their own needs.

Economy

Develop projects and programs that contribute to job creation and business expansion resulting from improved mobility.

Accessibility

Invest in projects and programs that improve access to destinations such as jobs, recreation, medical facilities, schools, and others. Access to transit service within reasonable walking or cycling range.

State of Good Repair

Ensure funds are set aside to cover the cost of rehabilitating, maintaining, and replacing transportation assets.

0.6   Subregional Projects and Programs

An initial project and program list was compiled from Metro's December 2013 subregional project lists, which included unfunded LRTP projects; unfunded Measure R scope elements; and subregional needs submitted in response to requests by Directors Antonovich and Dubois. The project and program list was updated through the outreach process to incorporate input from the PDT members and other subregion stakeholders.

A total of 162 transportation improvement projects were identified for the SFVCOG Mobility Matrix subregion. Many of the smaller projects were combined or grouped into larger programs or consolidated improvements for ease of analysis and reporting. Some of the larger improvements were maintained as individual projects for evaluation purposes. Table ES-1 lists the number of transportation improvement projects included in each Mobility Matrix program.

Table ES-1. San Fernando Valley Transportation Programs

Mobility Matrix Program	Total Projects
Arterials Program	45
Goods Movement Program	3
Highway Program	47
Active Transportation Program	29
Transit Program	29
Regional Facilities	9

The SFVCOG project list includes transportation improvement priorities identified in countywide planning documents and by local jurisdictions. Arterial and highway projects compose the majority of the project list. Active transportation and transit projects together make up about one-third of the total list.

The SFVCOG Mobility Matrix includes improvements that address both existing deficiencies in the transportation system as well as anticipated future needs. The SFVCOG Mobility Matrix:

■   Addresses subregional demand for greater travel time reliability and efficiency, including arterial and freeway interchange improvements; proposed enhancements on Metrolink lines; increased commuter and shuttle bus service; and expanded park-and-ride facilities.

■   Facilitates more robust transportation system demand management through technology applications and multimodal improvements such as Intelligent Transportation Systems (ITS), park-and-ride facilities, circulation improvements for transit access, and expanded transit services.

■   Improves subregional active transportation options through bicycle and pedestrian projects, including city bicycle master plans and pedestrian bridges, as well as promotes Complete Streets and first-last mile programs.

■   Supports the subregional and countywide priority of maintaining a state of good repair for the transportation system.

These improvements are intended to keep the multimodal transportation system functioning smoothly in the future in order to retain and attract business and development in the subregion.

0.7 Evaluation

Each project or program was evaluated in an initial, high-level screening based on its potential to contribute to subregional goals and objectives under each of the six countywide Mobility Matrix themes identified in Figure ES-2. Due to the limited timeframe for the Mobility Matrix completion and incomplete or inconsistent project/program details and data, this evaluation was qualitative in nature. The evaluation serves not as a prioritization, but as a preliminary screening process to identify projects and programs with the potential to address subregional and countywide transportation goals. This merely serves as a starting point for more quantitative analysis during the Metro LRTP update process.

Projects or programs received a single score for each subregional goal, as outlined in Table ES-2. Generally speaking, projects or programs that contribute to subregional goals on a larger scale received a higher benefit rating. Note that cost effectiveness was not considered in the application of performance evaluation scores.

The preliminary performance evaluation shown in Table ES-3 represents a collaborative effort spanning many months, and incorporates input from Metro, consultants and the SFVCOG PDT. A full description of the evaluation methodology can be found in Appendix C.

Table ES-2. Evaluation Methodology

To Achieve the following score in a single theme:	Project must meet the corresponding criterion:
● HIGH BENEFIT	Significantly benefits one or more theme goals or metrics on a **subregional** scale
◑ MEDIUM BENEFIT	Significantly benefits one or more theme goals or metrics on a **corridor or activity center** scale
◔ LOW BENEFIT	Addresses one or more theme goals or metrics on a **limited/localized** scale (e.g., at a single intersection)
○ NEUTRAL BENEFIT	Has no cumulative positive or negative impact on theme goals or metrics
— NEGATIVE IMPACT	Results in cumulative negative impact on one or more theme goals or metrics

Table ES-3. Performance Evaluation – Summary by Subprogram

ID	# of Projects	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Arterials							
Tunnel Projects	2	◑	○	○	○	○	○
Grade Separation Projects	5	●	●	◑	◑	○	◕
Extension or New Road Projects	12	●	○	○	◔	○	○
Widening Programs/Projects	17	◑	○	—	○	○	◕
State of Good Repair/Safety Programs	1	◑	◑	◔	◔	○	●
TSM	8	◑	○	◔	○	○	○
Goods Movement							
Grade Crossing Safety Improvement Programs	1	○	●	○	●	◕	◑
Arterial Programs	1	○	◑	○	●	○	◑
Rail Programs	1	●	◕	◕	●	○	◕

ID	# of Projects	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Highways							
Arterial Interchange Programs/Projects	21	●	○	○	○	○	◔
Freeway Interchange Projects	6	●	◔	○	○	○	◔
Freeway Corridor Projects	13	●	○	—	○	○	○
Soundwall Projects	2	○	○	◑	○	○	○
State of Good Repair/Safety Programs	2	◑	◑	◔	◑	○	●
TSM	3	◑	◔	○	○	○	○
Active Transportation							
Bicycle/Pedestrian Programs/Projects	11	◑	◑	●	○	●	○
ADA Access	1	○	●	○	○	◑	○
Pedestrian Bridges	3	○	●	○	○	◑	○
Complete Streets Program	4	○	●	◑	●	●	○
Sustainability Programs	3	○	○	●	○	○	○
Park and Ride Projects/Programs	4	◔	○	◑	◑	◑	◔
TDM Program	1	◑	○	●	●	◑	○
Mobility Hubs/First-Last Mile Programs	2	●	○	●	○	●	○

S U B R E G I O N A L   M O B I L I T Y   M A T R I X   –   S A N   F E R N A N D O   V A L L E Y

ID	# of Projects	Mobility •Reduce Travel Times •Increase Reliability •Improve System Connectivity	Safety •Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	Sustainability •Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	Economy •Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	Accessibility •Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	State of Good Repair •Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Transit							
Bus Programs/Projects	15	●	○	◑	○	●	○
Commuter Rail Programs	2	●	◑	●	●	◔	◑
Real-Time Travel Information	1	◑	◔	◔	○	◑	○
State of Good Repair/Safety Programs	1	◑	●	◑	○	○	●
Transit Center	2	◔	◔	◑	◑	◑	○
BRT Projects	3						
Burbank to Hollywood BRT: Downtown Burbank to Hollywood		◑	○	◑	●	●	○
Pasadena to North Hollywood BRT: Via SR-134 through Glendale & Burbank		●	○	●	●	●	○
Metro Orange Line: Bus operational improvements (shorter headways, grade separations, crossing gates, etc)		●	◑	●	●	◑	○
Rail Projects	3						
Metro Red Line Extension: North Hollywood to Sylmar		●	○	●	●	●	○
Glendale Downtown Streetcar		●	○	●	●	●	○
Metro Orange Line conversion to LRT		●	○	●	●	◑	○
Rail or Bus Projects	2						
Sepulveda Pass Transit Corridor		●	◑	●	◑	●	○

S U B R E G I O N A L   M O B I L I T Y   M A T R I X – S A N   F E R N A N D O   V A L L E Y

ID	# of Projects	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
East San Fernando Valley Transit Corridor		◐	◐	◐	◐	●	○
Regional							
Clybourn Ave: Grade separation at railroad tracks / Vanowen St / Empire Ave		●	●	◐	◐	○	◔
Hollywood Way: Widen to 6 lanes from Thornton Ave to Glenoaks Blvd		◐	○	○	○	○	◔
I-5/Buena Vista Ave: Reconfigure ramps and connect with Winona Ave		●	○	○	○	○	◔
Hollywood Way/San Fernando Rd Metrolink station pedestrian bridge		○	●	○	○	◐	○
Burbank Airport: CNG Refueling Station		○	○	●	○	○	○
Metro Orange Line Extension: North Hollywood to Bob Hope Airport		●	○	●	●	●	○
Burbank/Glendale LRT: From LA Union Station to Burbank Airport		●	◐	●	◐	●	○
Pasadena to Burbank Airport LRT: Via SR-134 / I-5 through Glendale & Burbank		◐	◔	◔	◔	◔	○
Metro Red Line Extension: North Hollywood to Burbank Airport		◔	◔	◔	◔	◔	○

0.8 Findings

Arterial and Highway projects perform well under the Mobility theme, as they primarily focus on improving system connectivity and travel time reliability. Their Safety ratings tend to be mixed; some projects, such as grade separations, have clear safety benefits, but projects such as road widenings may actually decrease safety. It was also difficult assigning a Sustainability rating for many roadway projects, due to a lack of traffic and GHG emissions modeling. A few road widening projects address known hot spots, but many of these types of projects received a Negative Impact rating, due to anticipated induced demand and increased emissions.

The Active Transportation projects score highly under the Safety, Sustainability, and Accessibility themes. The projects involving bicycle and pedestrian improvements accomplish several goals in multiple themes; this seems to reinforce the PDT's commitment to improving active transportation facilities. Park-and-ride projects also score moderately well in almost all of the themes.

The Transit projects score highly for Mobility, Sustainability, and Accessibility. The Transit category also contains several high-profile projects, such as Metro Orange and Red Line extensions, new LRT lines, the Sepulveda Pass Transit Corridor, and the East San Fernando Valley Transit Corridor.

Finally, the project/program list contains a few programs which address state of good repair specifically, while some of the roadway projects would entail resurfacing. However, most of the projects score Neutral/No Benefit

under the theme of State of Good Repair, since the majority of projects involve new infrastructure or have no need for or impact on maintenance or rehabilitation.

Overall, most projects perform very well under one or two Mobility Matrix themes, while also providing some secondary benefits in other themes. When looking at the scores for all six Mobility Matrix themes, the Active Transportation and Transit projects appear to achieve more subregional goals. This is not surprising since the subregional goals emphasize safety, travel by fuel-efficient modes, and first-mile/last-mile connections. However, the Arterial, Goods Movement, and Highway projects are also important in increasing the reliability of the roadway network, and have State of Good Repair benefits.

The full list of the project ratings can be found in Appendix D.

0.9 Implementation Timeframes and Cost Estimates

The Mobility Matrix included the development of high-level, rough order-of-magnitude planning-cost ranges for short-, mid-, and long-term subregional funding needs. Table ES-4 indicates anticipated Mobility Matrix cost estimate ranges by project type and implementation timeframe.

Due to variations in project scope and available cost data, costs estimated for use in the Mobility Matrix are not intended to be used for future project-level planning.

Rather, the cost ranges developed via this process constitute a high-level, rough order-of-magnitude planning estimate range for short-, mid-, and long-term subregional funding needs for the Mobility Matrix effort only. For the most part, these estimates do not include vehicles, operating, maintenance and financing costs. More detailed analysis will be conducted in the Metro LRTP update process, which may necessitate refinement of project/program details and associated cost estimates. A full description of the cost estimation methodology can be found in Appendix C.

Projects or programs that cross subregional boundaries may be included in multiple subregional project lists. Where the same projects or programs are included in multiple subregions, the cost estimates include the total estimated project cost, not the cost share for each subregion. The cost sharing will be determined as part of future efforts.

Finally, due to lack of available data and the short timeframe of the Mobility Matrix effort, some of the projects and programs have missing cost estimates or do not include operations and maintenance (O&M) costs. Where O&M costs were available, they were included for the applicable timeframes. O&M costs will be revisited as part of the Metro LRTP update.

0.10   What's Next

The Mobility Matrix is the first step in identifying SFVCOG transportation projects and programs that require funding. This important work effort serves as a

"bottoms-up" approach towards updating Metro's LRTP in the future. Three major next steps should arise out of the Mobility Matrix process:

- **SFVCOG Prioritization of Projects.** This Mobility Matrix study does not prioritize projects. Instead, it provides some of the information needed for decision makers to prioritize projects/programs in the next phase of work, and an unconstrained list of all potential transportation projects/programs in the region. In preparation for a potential ballot measure and LRTP update (as described further below), the SFVCOG should decide how it wants to prioritize these projects/programs assuming a constrained funding scenario.

- **Metro Ballot Measure Preparations.** Metro will continue working with the PDTs of all the Subregions, as it starts developing a potential ballot measure. Part of the ballot measure work would involve geographic equity determination, as well as determining the amount of funding available for each category of projects/programs and subregion of the County.

- **Metro LRTP Update.** The potential ballot measure would then feed into a future Metro LRTP update and be integrated into the LRTP Finance Plan. If additional funding becomes available through a ballot measure or other new funding sources or initiatives, the list of projects developed through the Mobility Matrix and any subsequent list developed by the subregion could be used to update the constrained project list for the LRTP moving forward.

Table ES-4. Rough Order-of-Magnitude Project Cost Estimates and Categorizations (2015 dollars)

Type / Category	Arterial	Goods Movement	Highway	Active Transport.	Transit	Total
Short-Term (0-10 yrs)	18 Projects $270M - $410M	3 Projects $50M - $75M	12 Projects $140M - $220M	24 Projects $120M - $210M	18 Projects $980M - $1.5B	75 Projects $1.6B - $2.4B
Mid-Term (11-20 yrs)	31 Projects $500M - $910M	3 Projects $50M - $75M	29 Projects $2.4B - $3.7B	21 Projects $150M - $240M	19 Projects $5.3B - $9B	103 Projects $8.4B - $14B
Long-Term (>20 yrs)	22 Projects $390M - $760M	3 Projects $50M - $75M	32 Projects $ 4.8B - $7.3B	7 Projects $10M - $26M	13 Projects $5.2B - $8.9B	77 Projects $10B - $17B
Total	45 Projects $1.2B - $2.1B	3 Projects $150M - $230M	47 Projects $7.3B - $11B	29 Projects $280M - $480M	29 Projects $11B - $20B	153 Projects $20B - $33B

Note: Some individual projects within the subprogram have missing costs, but they are not expected to greatly increase the overall cost of the program.

Regional Facilities projects and programs at Bob Hope Airport are not included in the table.

Some highway and transit projects are counted in multiple timeframes, thus total project counts for those types will not match totals row. Estimates under-represent operations and maintenance costs due to limited project data availability. Costs also may be underestimated where cost estimate ranges are still under development.

Projects or programs that cross subregional boundaries may be included in multiple subregional project lists. Where the same projects or programs are included in multiple subregions, the cost estimates include the total estimated project cost, not the cost share for each subregion. Any subregional cost-sharing agreements will be determined through future planning efforts.

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

1.0   INTRODUCTION

1.1   Mobility Matrix Overview

In February 2014, the Los Angeles County Transportation Authority (Metro) Board approved the holistic countywide approach for preparing Mobility Matrices for the San Gabriel Valley Council of Governments (SGVCOG), Central Los Angeles, Cities Council of Governments (WCCOG), San Valley Council of Governments (SFVCOG), Las Virgenes/Malibu Council of Governments North County Transportation Coalition (NCTC), and South Bay Cities Council of Governments (SBCCOG) Figure 1-1). The Gateway Cities COG is developing own Strategic Transportation Plan which will serve their Mobility Matrix. The SFVCOG Mobility Matrix Subregion is presented in

Figure 1-2.

For the purposes of the Mobility Matrix work, cities with membership in two subregions selected one in which to participate. The cities of La Cañada Flintridge, Pasadena, and South Pasadena chose the SGVCOG, and Burbank and Glendale chose the SFVCOG. The City of Santa Clarita opted to be included in the SFVCOG instead of the NCTC.

In response to Metro Board direction in January 2015, the boundary between the WCCOG and the Central Los Angeles subregion was revised to roughly follow La Brea Avenue from north to south. The border between the WCCOG and the SBCCOG was revised to transfer a small portion of the City of Inglewood from the WCCOG subregion to the SBCCOG. The border between the Central Los Angeles subregion and the SBCCOG was revised to transfer an area of South Los Angeles from the SBCCOG to the Central Los Angeles Subregion.

Also in January 2015, the Metro Board created the Regional Facilities category. Regional Facilities include projects and programs related to Los Angeles County's four commercial airports (Los Angeles International Airport, Burbank Bob Hope Airport, Long Beach Airport, and Palmdale Regional Airport), the two seaports (Port of Los Angeles and Port of Long Beach), and Union Station. The projects/programs related to the Regional Facilities will be included in a separate report.

1.2   Project Purpose

The purpose of the San Fernando Valley Subregional Mobility Matrix is to establish subregional transportation goals and objectives, and to identify and evaluate projects and programs that meet these goals and objectives, and that will serve as a starting point for the update of the Metro Long Range Transportation Plan (LRTP) currently scheduled for adoption in 2017. This Mobility Matrix, along with concurrent efforts in other Metro subregions, includes the development of subregional goals and objectives to guide future transportation investments, an assessment of baseline transportation system conditions to identify critical needs and deficiencies, and an initial screening of project and programs based on their potential to address subregional objectives and countywide performance themes. The Mobility Matrix includes a preliminary assessment of anticipated

investment needs and project and program implementation over the short-term (2015-2024), mid-term (2025-2034) and long-term (2035-2045) time frames. The Mobility Matrix does not prioritize projects, but rather serves as a basis for a Strategic Transportation Plan for future transportation investments over the next 20 plus years.

Figure 1-1. Los Angeles County Mobility Matrix Subregions
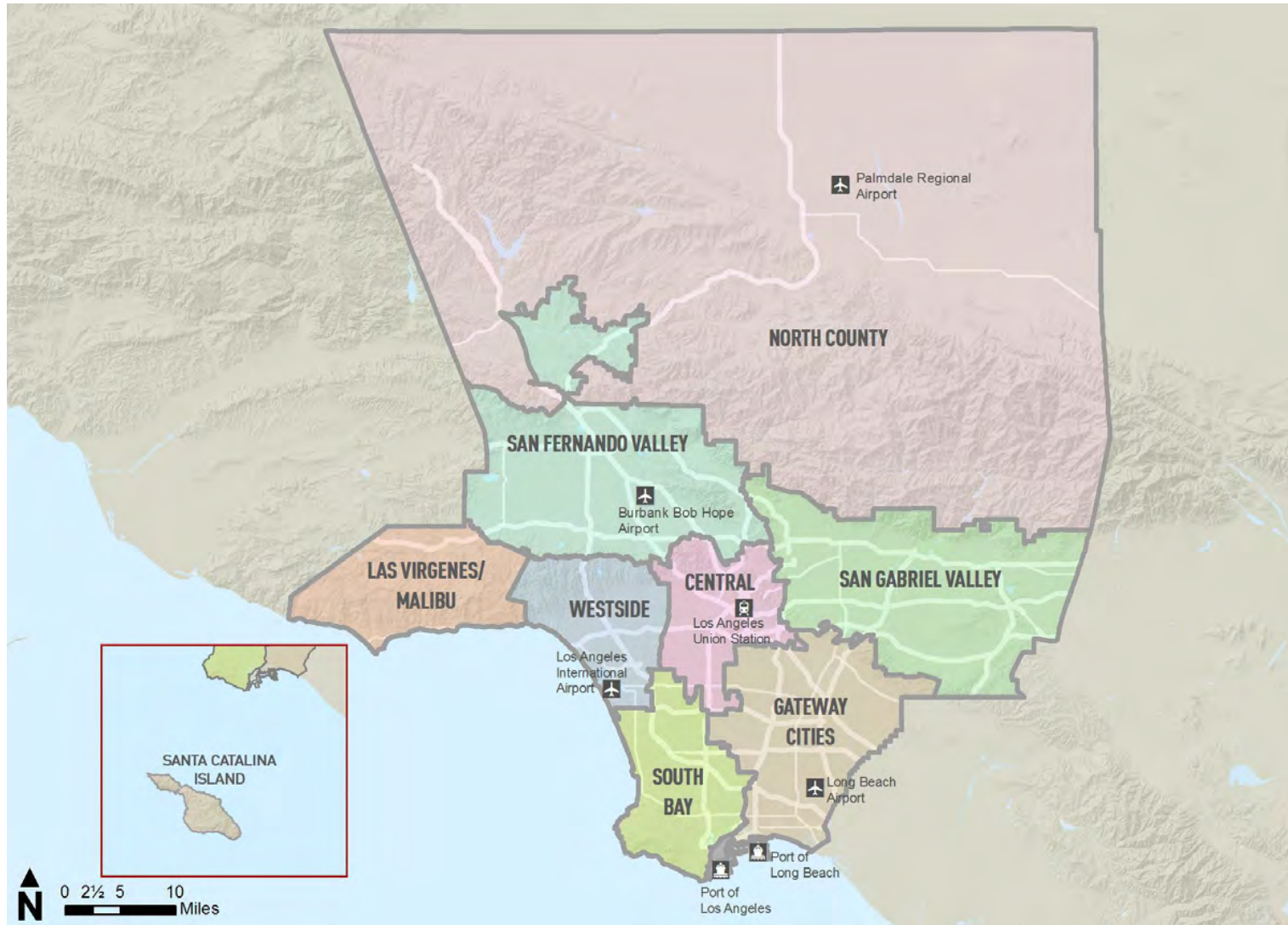
Source: STV, 2015

S U B R E G I O N A L   M O B I L I T Y   M A T R I X   —   S A N   F E R N A N D O   V A L L E Y

Figure 1-2. San Fernando Valley Mobility Matrix Study Area
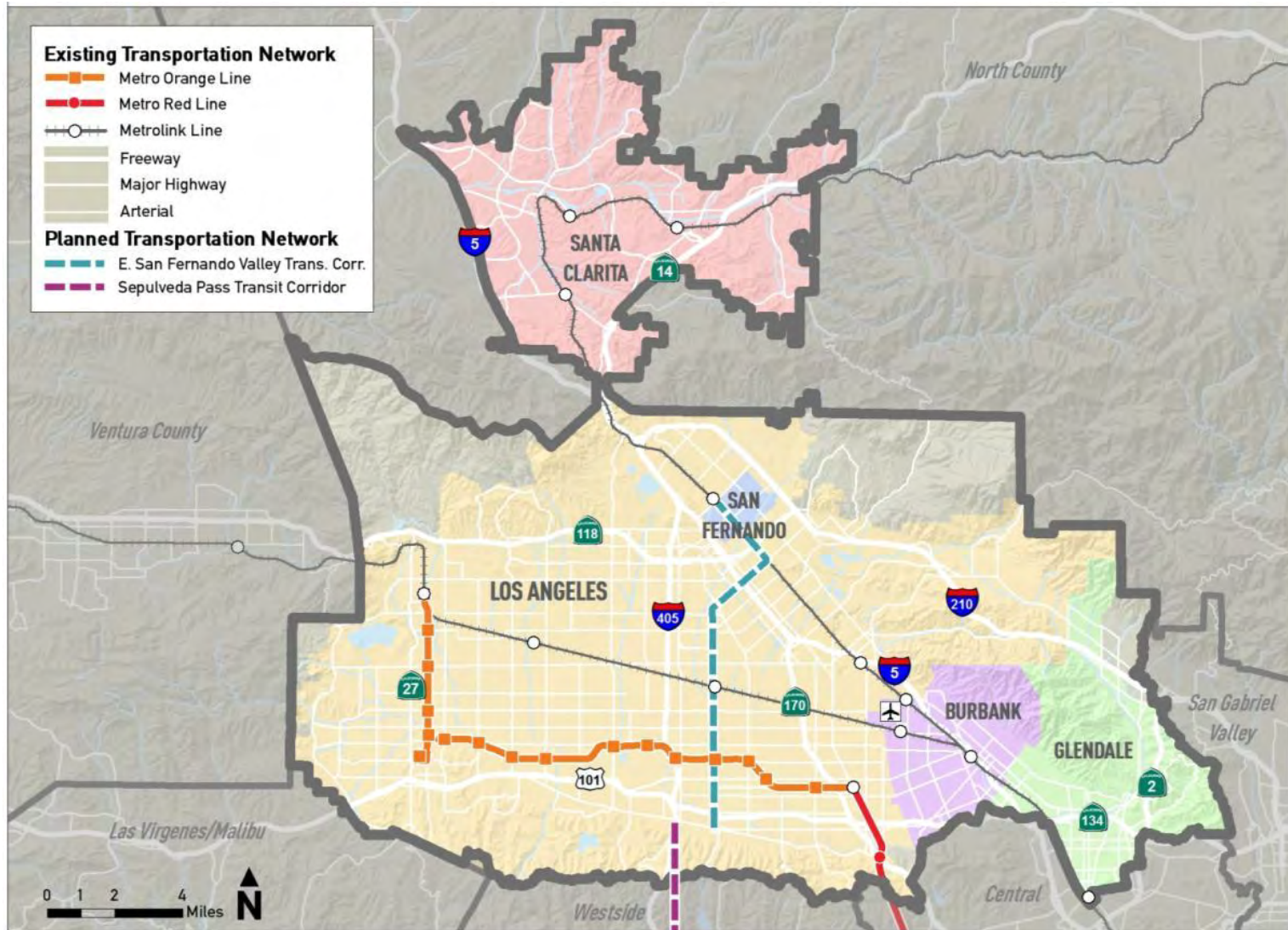
Source: STV, 2015

S U B R E G I O N A L   M O B I L I T Y   M A T R I X – S A N   F E R N A N D O   V A L L E Y

1.3 Developed by Subregional Jurisdictions and Stakeholders

To ensure proposed projects and programs reflect the needs and interests of the subregion, the Mobility Matrices followed a "bottoms-up" approach guided by a Project Development Team (PDT) selected by the subregion, consisting of city, stakeholder, and subregional representatives. The SFV PDT consisted of representatives from the following jurisdictions and stakeholder agencies:

- SFVCOG
- City of Burbank
- City of Glendale
- City of Los Angeles
- City of Santa Clarita
- City of San Fernando
- Los Angeles County Public Works
- California Department of Transportation
- Metrolink
- Southern California Association of Governments
- Burbank Bob Hope Airport

The SFV PDT met six times over the eight-month study period to guide the creation of strategic goals and objectives, determine a subregional priority package of projects and programs, oversee the project and program evaluation process, and review and approve all work products associated with the Subregional Mobility Matrix.

In addition, targeted outreach was conducted with city staff and other stakeholders on an as-needed basis to confirm project and program details. Coordination activities for this project are summarized in Appendix A.

1.4 What's in it for the Subregion?

The Mobility Matrix serves as a vehicle for communicating subregional needs into Metro's LRTP update, providing:

- **A process for developing consensus.** Through the PDT and targeted outreach, the Mobility Matrix stakeholders built consensus around goals and objectives for improving mobility within the subregion, in order to more consistently address their priority transportation issues and proposed improvements in the next LRTP and beyond.

- **An initial framework for LRTP performance analysis.** The consensus-building process included articulating a set of subregional goals and objectives; an initial screening of potential projects and programs to address those goals and objectives; and development of a set of proposed performance measures.

- **An approved list of projects and programs.** The Mobility Matrix provides a list projects and programs approved by the subregion which is intended to address transportation system deficiencies and needs.

- **Draft investment needs and implementation time frames.** Based on high-level estimates of project/program readiness and project costs, the Mobility Matrix presents the subregional investment

needs to be considered in the next LRTP over its 30-year time horizon.

1.5 Policy Context

The Subregional Mobility Matrix process was undertaken in the context of federal, state and local policies and is intended to complement local and regional planning efforts. A sampling of relevant policies considered during the development of subregional objectives and project and program evaluation includes:

1.5.1 Federal

- The Moving Ahead for Progress in the 21st Century Act (MAP-21), the 2012 Federal Transportation Authorization Bill, places a greater emphasis on performance-based planning for metropolitan planning organizations (MPOs), LRTPs, and the Transportation Improvement Program (TIP).

1.5.2 State

- Assembly Bill (AB) 32, the Global Warming Solutions Act of 2006, set greenhouse gas (GHG) mitigation targets for California with a goal of reducing GHG emissions to 1990 levels by the year 2020 across all sectors.

- Senate Bill (SB) 375, the Sustainable Communities and Climate Protection Act of 2006, authorized the Air Resources Board (ARB) to set regional targets for GHG emissions reductions from passenger vehicles, and directed California MPOs to prepare a Sustainable Communities Strategy (SCS), incorporating land use, housing, and transportation

strategies intended to help regions meet GHG emissions reduction targets.

- SB 743 (2013), the Jobs and Economic Improvement Through Environmental Leadership Act, directed the Governor's Office of Planning and Research (OPR) to develop a new approach for analyzing transportation impacts under the California Environmental Quality Act (CEQA). The law provides exemptions to CEQA requirements for certain types of development located in transit-priority areas that are consistent with adopted SCS or alternative planning strategies. An outcome of this Bill is the use of vehicle miles traveled (VMT) rather than level-of-service (LOS) metrics in CEQA transportation analysis. Whereas LOS evaluation prioritizes capacity expansion projects that reduce delay or congestion, VMT reduction can be attributed to projects that encourage ridesharing, transit use, transit-oriented development, and active transportation projects that contribute to the reduction of vehicle travel. In short, SB 743 allows for the use of VMT, rather than delay or congestion, to prioritize transportation investments. OPR has yet to establish comprehensive guidelines for the implementation of SB 743.

1.5.3 Local

- Metro's LRTP, a 30-year transportation planning document required for obtaining federal funding, was last updated in 2009. The Mobility Matrix will serve as an initial step in the 2017 LRTP update.

- Local Option Sales Tax Measures. Los Angeles County voters have approved three half-cent sales tax ballot measures over the past three decades: Proposition A,

Proposition C, and Measure R. Unlike the first two tax measures, which do not expire and did not designate funding for specific projects, Measure R expires in 30 years and contains a specific expenditure plan. Metro is considering placing a new sales tax on the 2016 Ballot. Through the Mobility Matrix process, subregional stakeholders began the project/program vetting process by identifying goals and priorities specific to their subregion. These goals and unmet needs will help focus potential additional funding on key subregional projects and programs.

1.6   Document Overview

The Subregional Mobility Matrix contains the following chapters:

■ Chapter 2.0 – Subregional Overview. An overview of the SFVCOG Mobility Matrix Subregion, including key trends and issues impacting the subregional transportation system and highlighting critical needs.

■ Chapter 3.0 – Subregional Goals and Objectives. A summary of SFVCOG Mobility Matrix Subregion objectives that guide subregional transportation investments.

■ Chapter 4.0 – Subregional Mobility Matrix. An initial evaluation of subregional priority projects and programs for consideration in the LRTP.

■ Chapter 5.0 – Implementation Timeframes and Cost Estimates. A proposed categorization of project and program implementation, including short-, mid- and long-term investment needs, as well as what the subregion foresees as its next steps.

■ Appendices – Includes a log of the PDT and outreach process; baseline conditions report; methodology memorandum; a full project list with evaluation and categorization.

2.0 SUBREGIONAL OVERVIEW

This chapter presents an overview of the 2014 baseline transportation conditions within the SFVCOG Mobility Matrix Subregion. It provides key information, at the subregional level, that can be used to understand the major transportation conditions and issues in the area, and is used to assist in the subregional needs assessment as well as project/program level assessment.

A Baseline Conditions Report was prepared for the SFVCOG Mobility Matrix Subregion. The following information was assessed as part of this baseline conditions analysis effort:

- Existing projects and studies;

- Demographics: Land uses, population and employment change projected from 2014 to 2024, and environmental justice measures (transit- dependent communities and disadvantaged/at-risk communities, such as pollution burden, poverty, asthma, education rates, etc.);

- Travel markets: an assessment of trip origins and destinations to, from, and within the subregion, as well as subregional commute travel mode choice;

- Freeways: average daily traffic flow and peak hour speeds

- Arterial roadways: daily traffic flow and peak hour speeds

- Goods movement: designated truck routes per the cities' Mobility Plans, Surface Transportation

Assistance Act (STAA), and the Draft Countywide Strategic Truck Arterial Network (CSTAN) within the area

- Active transportation: existing and proposed bicycle routes, and bicycle/pedestrian-involved collisions

- Transit: bus routes, passenger rail routes, Metrolink routes, and average weekday boardings

The following sections summarize the results of the Mobility Matrix baseline conditions analysis. The full Baseline Conditions Report can be found in Appendix B.

2.1 Land Use and Demographics

About 40% of the study area is zoned residential, and one-third zoned as open and vacant land. The City of Los Angeles -SFV and the City of San Fernando have half of their land area zoned as single family housing, while Burbank and Glendale have slightly higher concentrations of multi-family housing. Commercial properties make up 9% of the study area, with major shopping centers in Glendale, Santa Clarita, and near Warner Center. The City of San Fernando has a high percentage of commercial land uses, 17%, due to the City's commercial corridor specific plans. Industrial land uses are concentrated along the Metrolink corridors, and represent 5% of the study area.

2.1.1 Population and Employment

According to the Southern California Association of Governments (SCAG) population and employment estimates and forecasts developed for the Metro 2014 Short Range Transportation Plan (SRTP), both population

and jobs are expected to grow by about 7%. . Burbank, however, stands out with employment projected to grow twice as much as population, while San Fernando has the inverse trend. From 2014 to 2024, residential and employment growth will mostly be concentrated in Santa Clarita. Employment growth will mostly concentrate around existing job centers, including Universal City and Warner Center. Figure 2-1 shows the forecasted change in population and employment.

2.1.2 Environmental Justice

Concentrations of minority and low-income communities were identified using U.S. Census Bureau American Community Survey (ACS) 2012 data and also the California Environmental Health Hazard Screening Tool (CalEnviroScreen). CalEnviroScreen aggregates variables that indicate certain types of socioeconomic vulnerability or physical exposure, such as low income, low education attainment, linguistic isolation, pollution exposure, hazardous waste exposure, or traffic exposure. The resulting indexed score shows the communities most disproportionately burdened by multiple types of exposure and risk, with a high score indicating higher levels of exposure and risk. The CalEnviroScreen scores are shown in Figure 2-2.

According to the CalEnviroScreen scores, Santa Clarita has the lowest risk in the SFVCOG Mobility Matrix Subregion, as their pollution burdens are fairly low, and there are relatively few low-income and minority populations. Burbank and Glendale's scores are mixed; they have high environmental pollution scores near the

freeways, but their demographic scores are average compared to the rest of the Subregion.

The City of San Fernando and the eastern portion of the San Fernando Valley in Los Angeles face the highest risks. The proximity to freeways and the socioeconomic characteristics of those communities contribute to higher pollution burdens. Additionally, many of these communities with the highest percentiles for pollution risk also overlap with communities with transit-dependent populations.

Figure 2-1. Projected Changes in Employment and Residents, 2014-2024
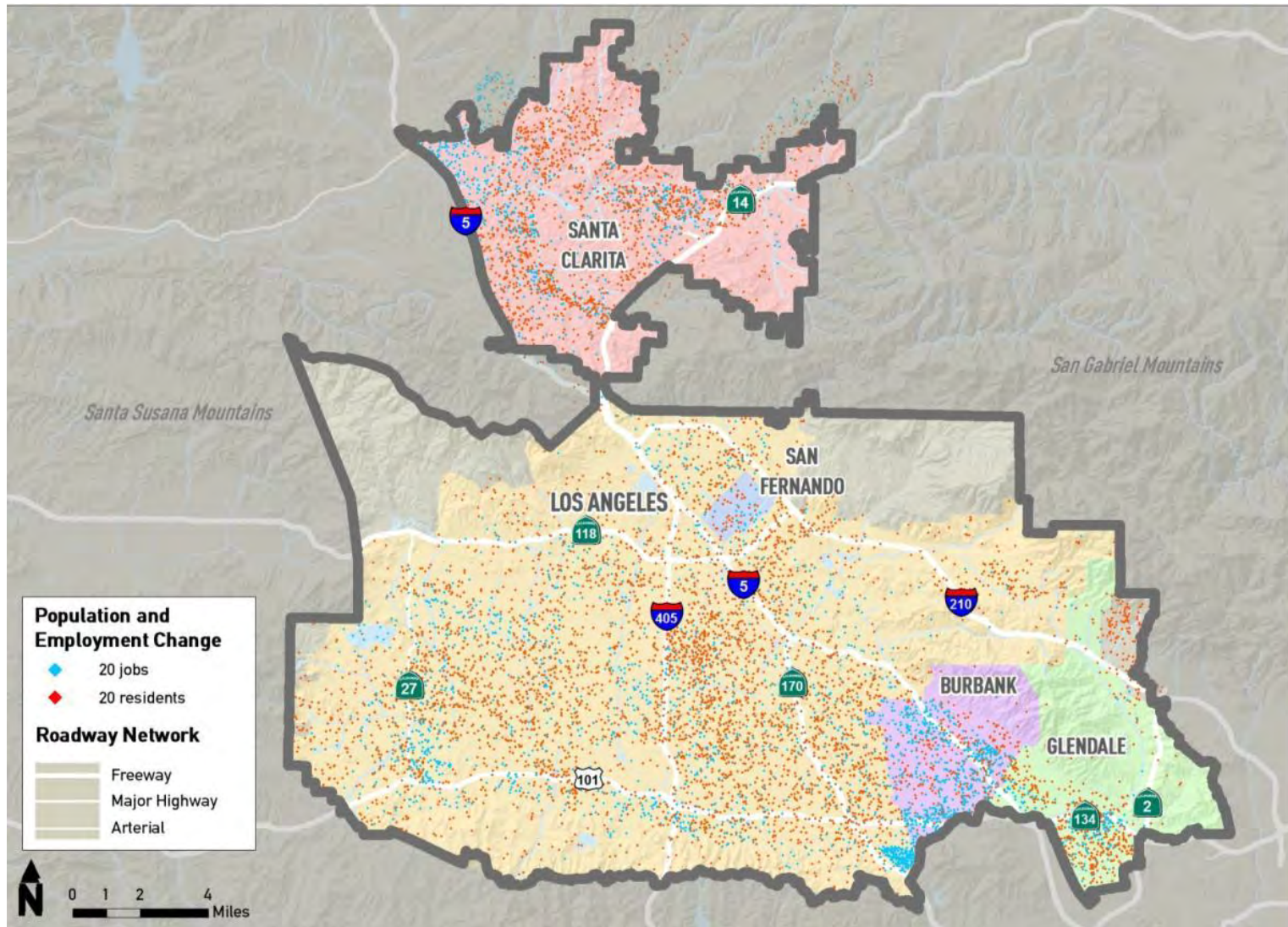
Source: STV, 2015; Metro 2014 SRTP

Figure 2-2. Pollution Burdens and Vulnerable Populations, Relative to Los Angeles County
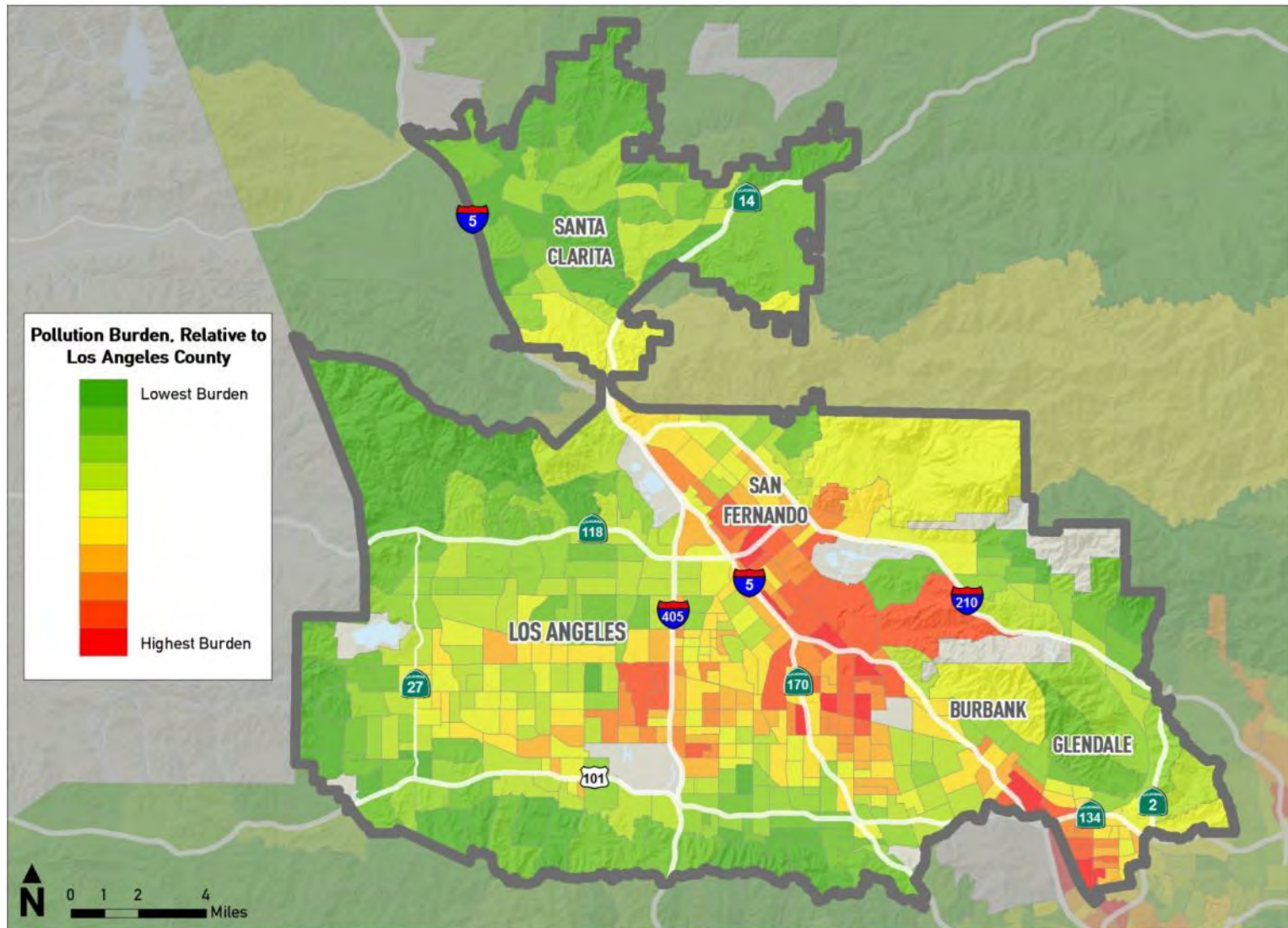
Source: STV, 2015; CalEPA, 2014

S U B R E G I O N A L   M O B I L I T Y   M A T R I X   –   S A N   F E R N A N D O   V A L L E Y

2.2   Travel Patterns

Subregional trip patterns were developed for the study area using the Metro 2014 SRTP model. The model data were summarized for two conditions: Total Daily Person Trips and AM Peak Hour Home-Based Work Person Trips. The model was used to determine the number of trips to and from the Mobility Matrix Subregion, as well as trips within the Subregion. This provides a general understanding of the major patterns of trip movements associated with people who live and work in the SFVCOG Mobility Matrix Subregion.

Table 2-1 provides an estimate of average weekday vehicle travel both to and from the SFVCOG study area and neighboring Mobility Matrix subregions in 2014. Figure 2-3 illustrates the daily person trips, which include all trips made for any reason throughout the day.

Table 2-1. Daily Trip Productions and Attractions (2014)

To/from Subregion	Trips Produced	% of Trips Produced	Trips Attracted	% Trips Attracted
San Fernando Valley	5,423,329	76%	5,423,329	78%
Central Los Angeles	402,330	6%	354,161	5%
San Gabriel Valley	220,114	3%	217,582	3%
Westside	327,866	5%	173,019	2%
Ventura Co	126,223	2%	144,677	2%
Gateway Cities	130,503	2%	123,663	2%
North County	134,642	2%	193,705	3%
Other	325,702	5%	312,461	5%
Total	7,090,709	100%	6,942,597	100%

Source: Iteris, 2014; Metro 2014 SRTP

Note: Trip patterns are based on aggregation of trip table data from the Travel Demand Model utilized for the Metro 2014 SRTP formatted by Los Angeles County subregional boundaries, as depicted in the Mobility Matrix work effort, which do not exactly correspond to the 2009 Metro LRTP subregional boundaries.

Figure 2-3. 2014 Average Daily Trips To/From SFVCOG Mobility Matrix Subregion
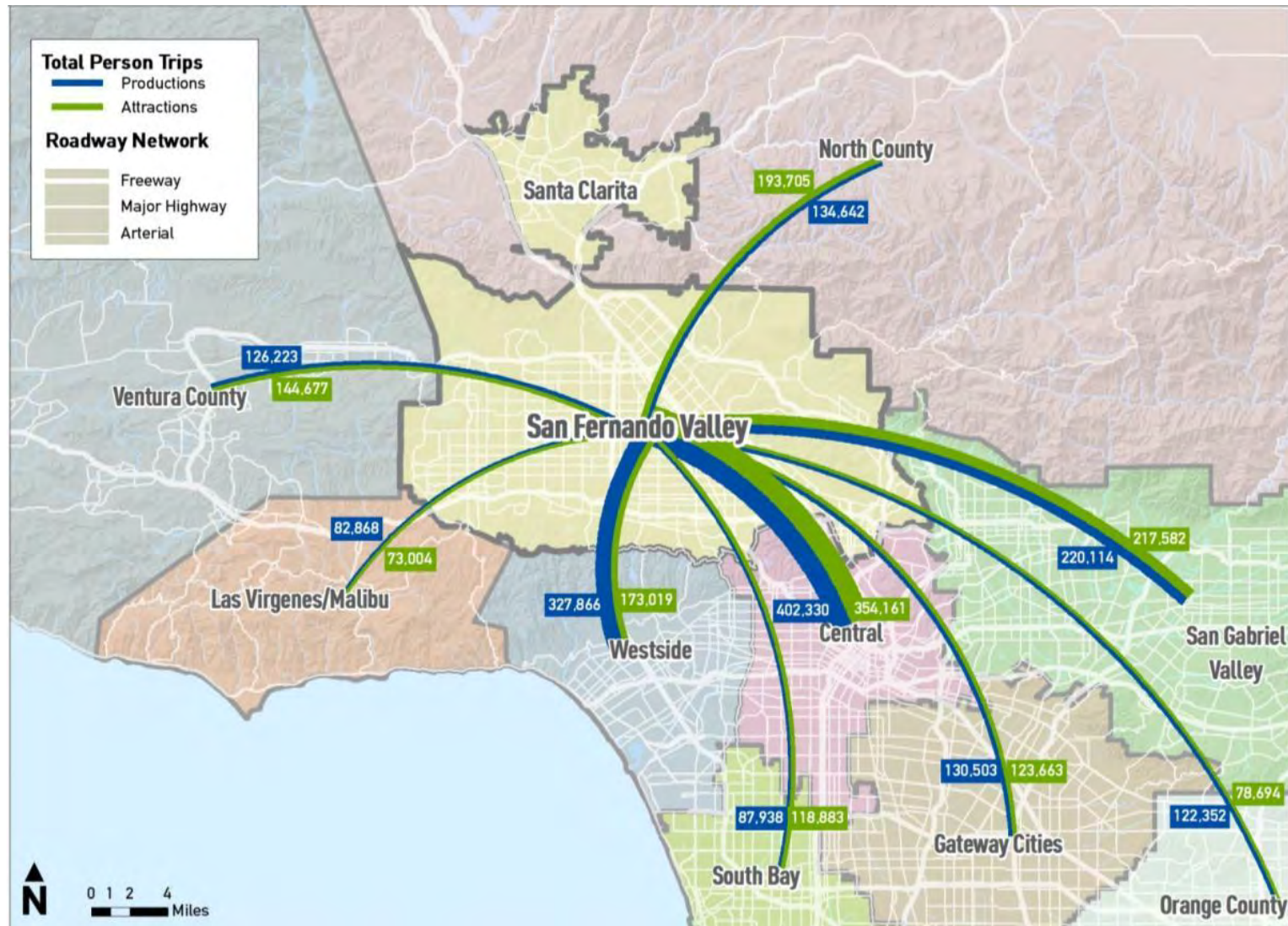
Source: STV, 2015; Iteris, 2014; Metro 2014 SRTP. Note: See Page 2-1 regarding subregional boundaries.

The model shows approximately 7 million total daily trips are produced and 7 million attracted each day for the SFVCOG study area. Over three-quarters of those trips stay within the SFVCOG Mobility Matrix Subregion. This indicates a higher job/housing balance in the Subregion, as many of the trips each day do not leave the Subregion. The highest trip producer and attractor areas are the Central and Westside Mobility Matrix Subregions, with approximately 5% and 4% of daily trips to and from the San Fernando Valley, respectively.

Home-based work trips are trips from home to work and back. For AM peak hour home-based-work trips, almost 60% of all the morning commute trips stay within the study area, indicating that a substantial portion of the residents in the SFVCOG Mobility Matrix Subregion live and work in the Subregion. The Central and the Westside Mobility Matrix Subregions are the two biggest producers and attracters of AM trips. Of all the outbound work trips, 12% go to the Westside, and 11% go to the Central area. About 7% of the incoming trips come from the Central area. The work trip interaction with the remaining Mobility Matrix subregions and the San Fernando Valley is relatively balanced, with most of the other areas each accounting for less than 5% of the trip interactions per Mobility Matrix subregion.

2.3   Vehicle Travel

2.3.1   Freeways

The Caltrans Freeway Performance Monitoring System (PeMS) was used to assess freeway volumes and speeds. Within the study area, Caltrans PeMS monitoring

locations were available through the freeway system at various locations. October 2013 speed data were reviewed, with only typical weekdays (non-holiday Tuesdays, Wednesdays and Thursdays) as a basis for the average speed data extraction. Speeds were extracted over the 24 hours of every weekday, with the peak hours chosen based on the slowest observed speeds during the peak commute period.

The highest freeway volumes in the SFV area occur on US-101 east of I-405, where the daily traffic flow is just over 350,000 vehicles. Other freeway segments that carry over 300,000 vehicles per day include I-405 between SR-118 and US-101: US-101 west of I-405; and I-5 just south of SR-118. Most of the remaining freeway segments experience a daily flow of less than 200,000 vehicles per day. The SR-210 and routes in the Santa Clarita Valley carry fewer daily travelers, compared to the rest of the study area. Freeway volumes in the SFV Mobility Matrix subregion are shown in Figure 2-4.

During the AM peak hour, speeds under 30 mph are experienced along I-405 southbound, SR-101 in both directions throughout much of the study area, on I-5 southbound, along SR-14 southbound, and along a portion of SR-210 eastbound just north of SR-2. These slow patterns reflect inbound work commute trips from the SFVCOG Mobility Matrix Subregion to employment opportunities to the south. During the PM peak hour, the opposite patterns are seen, with significant slowing along I-405 northbound, SR-14 northbound, and I-210 northbound. Much of US-101 is congested during the evening, in addition to portions of SR-118 eastbound and I-5 southbound.

Figure 2-4. Average Daily Traffic Volumes on SFVCOG Mobility Matrix Subregion Freeways
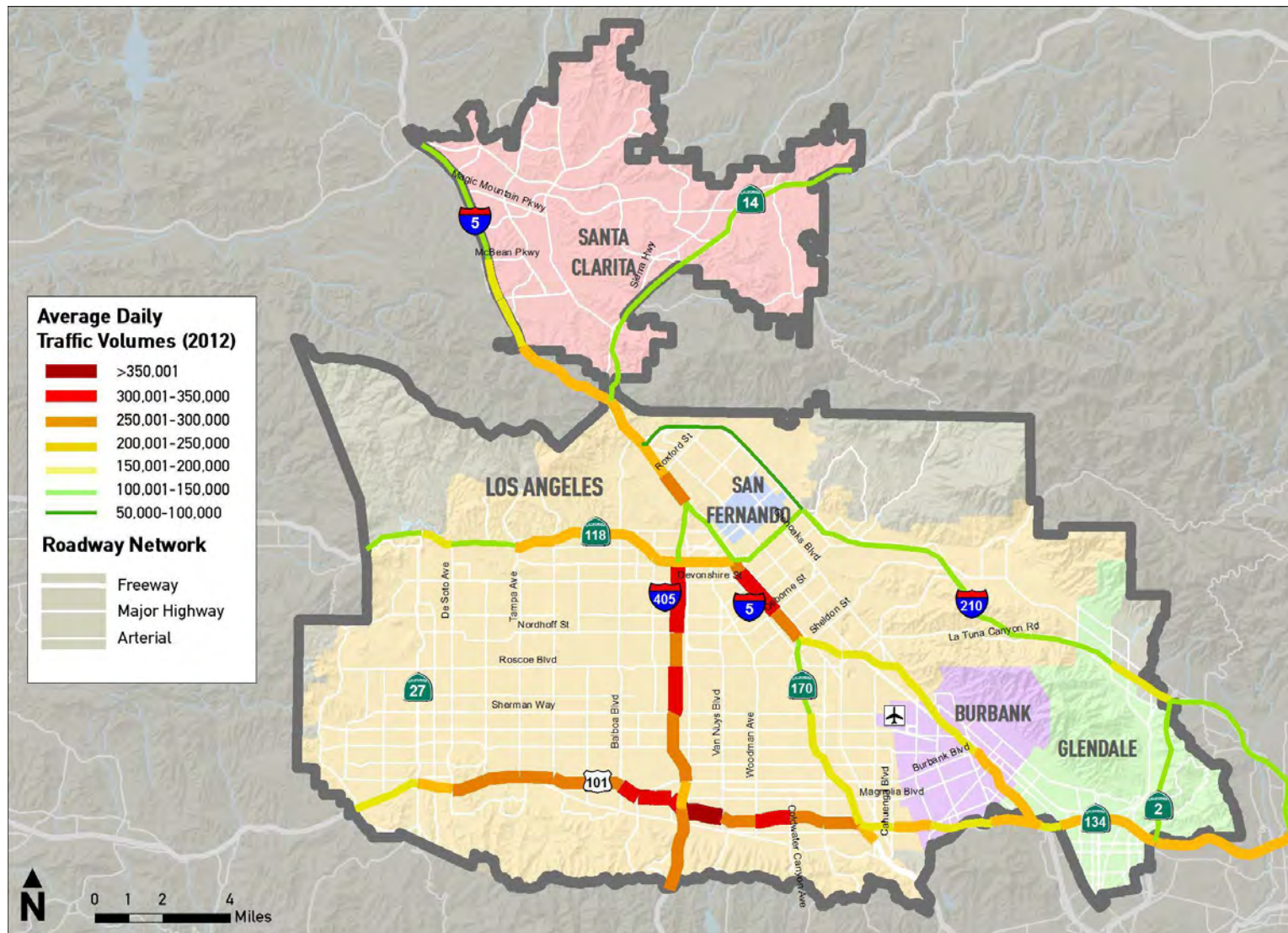
Source: STV, 2015; Iteris, 2014; Caltrans, 2014

2.3.2 Arterial Roadways

Unlike the freeway PeMS system, there is no single comprehensive source of daily traffic flow information on arterial roadways. Due to the lack of available count-based arterial volume data, the Metro 2014 SRTP model was used to identify daily volumes on selected key arterial corridors. Peak hour traffic speeds on the arterial roadways were analyzed through the use of iPeMS system. The iPeMS gathers vehicle probe data along arterials and then delivers real-time and predictive traffic analytics. For this analysis, vehicle probe data were assessed for the months of January through April 2013, and for the hours of 7:30-8:30 AM and 4:30 to 5:30 PM.

Some of the highest arterial volumes (over 40,000 ADT) are seen on east/west oriented routes in the SFV area, including Nordhoff Street, Roscoe Boulevard, Sherman Way, Victory Boulevard, and portions of Ventura Boulevard. North/south streets carrying high volumes include Canoga Avenue, De Soto Avenue, Winnetka Avenue, and Tampa Avenue. In the Santa Clarita Valley, higher volumes are seen on portions of Sierra Highway, Soledad Canyon Road, Bouquet Canyon Road, and McBean Parkway.

Peak hour slowing occurs on many of the major arterial roadways during one or both peak hours, and especially at intersections with other major arterials. The roadways with the largest segments with slow speeds include: Ventura Boulevard, Van Nuys Boulevard, Lankershim Boulevard, Hollywood Way, Glenoaks Boulevard, Beverly Glen Boulevard, and Reseda Boulevard. While these roadways experience significant slowing in many areas

within the SFVCOG Mobility Matrix Subregion, other arterials also experience slowing in more isolated segments.

2.3.3 Goods Movement

The study area contains several municipal routes which have been designated for use by trucks. Most of the municipal truck routes are in the City of Los Angeles, and include major corridors such as De Soto Avenue, Sepulveda Boulevard, San Fernando Boulevard, and Glenoaks Boulevard. STAA routes are relatively few in the SFVCOG Mobility Matrix Subregion, and mainly follow state routes such as portions of SR-27. The Draft CSTAN routes overlap with many of the municipal-designated truck routes, with greater coverage in Santa Clarita and Burbank.

2.4 Active Transportation

Each of the cities in the subregion has some designated bike routes, although network coverage varies widely. Santa Clarita has a significant network of Class I bike paths, while the other cities mostly have Class II or III lanes and routes. All the cities have a bicycle master plan, which when fully implemented, will approximately double the total mileage of bikeways. A large percentage of the new bikeways are attributable to the City of Los Angeles' bicycle-friendly streets, although half of the planned routes in the Subregion are lanes or paths.

2.5 Transit

Metro operates a grid of local and Rapid buses, which carry between 1,000 and 15,000 passengers per day. The Metro Orange Line runs through the San Fernando Valley from Chatsworth/Warner Center to the North Hollywood Metro Red Line station, connecting to Downtown Los Angeles. It serves over 26,000 passengers per day.

There are many express and commuter buses operating throughout the SFVCOG Mobility Matrix Subregion. Santa Clarita Transit operates several commuter bus lines, from the Santa Clarita Valley to major employment destinations such as Warner Center, and North Hollywood. Ridership ranges from about 300 to 700 daily passengers. The Los Angeles Department of Transportation (LADOT) also has several commuter lines through the SFVCOG Mobility Matrix Subregion, with destinations including Downtown Los Angeles, Thousand Oaks, Warner Center, Simi Valley, and Pasadena; daily ridership ranges from 350 to 1,000 passengers.

As for local bus service, Glendale, Burbank, and Santa Clarita each run their own municipal transit services, with most lines carrying fewer than 1,000 passengers per day. Three LADOT DASH shuttles circulate around Northridge, Panorama City, and Studio City, with fairly high ridership. The City of San Fernando operates a trolley service. Additionally, Santa Clarita, Glendale, and Los Angeles offer dial-a-ride services.

The follow agencies operate in the SFVCOG Mobility Matrix Subregion:

- Los Angeles Metro – Metro currently operates 39 bus routes within the subregion (27 local routes, six Rapid/BRT routes, five local Central Business District (CBD) routes, and the Orange Line BRT).

- Glendale Beeline – Glendale operates seven local routes and two express routes in the city.

- Burbank Bus – Burbank operates four local routes in the city.

- LADOT – LADOT operates four commuter express routes and two DASH routes in the subregion.

- Santa Clarita Transit – Santa Clarita Transit operates six express routes and 12 local routes in the subregion.

- San Fernando – San Fernando operates one trolley in the city.

While there are many transit options in the Subregion, several areas have infrequent service and coverage. The transit lines are shown in Figure 2-5.

Commuter rail service in the SFVCOG Mobility Matrix Subregion area is provided by the Metrolink Antelope Valley and Ventura County Lines, shown in Figure 2-6. The Antelope Valley Line carries about 5,800 passengers a day on weekdays, and the Ventura County Line carries about 3,835 passengers.

Figure 2-5. Existing Bus Service and Average Weekday Boardings

Source: STV, 2015

S U B R E G I O N A L   M O B I L I T Y   M A T R I X   –   S A N   F E R N A N D O   V A L L E Y

Figure 2-6. Existing Fixed Guideway Lines
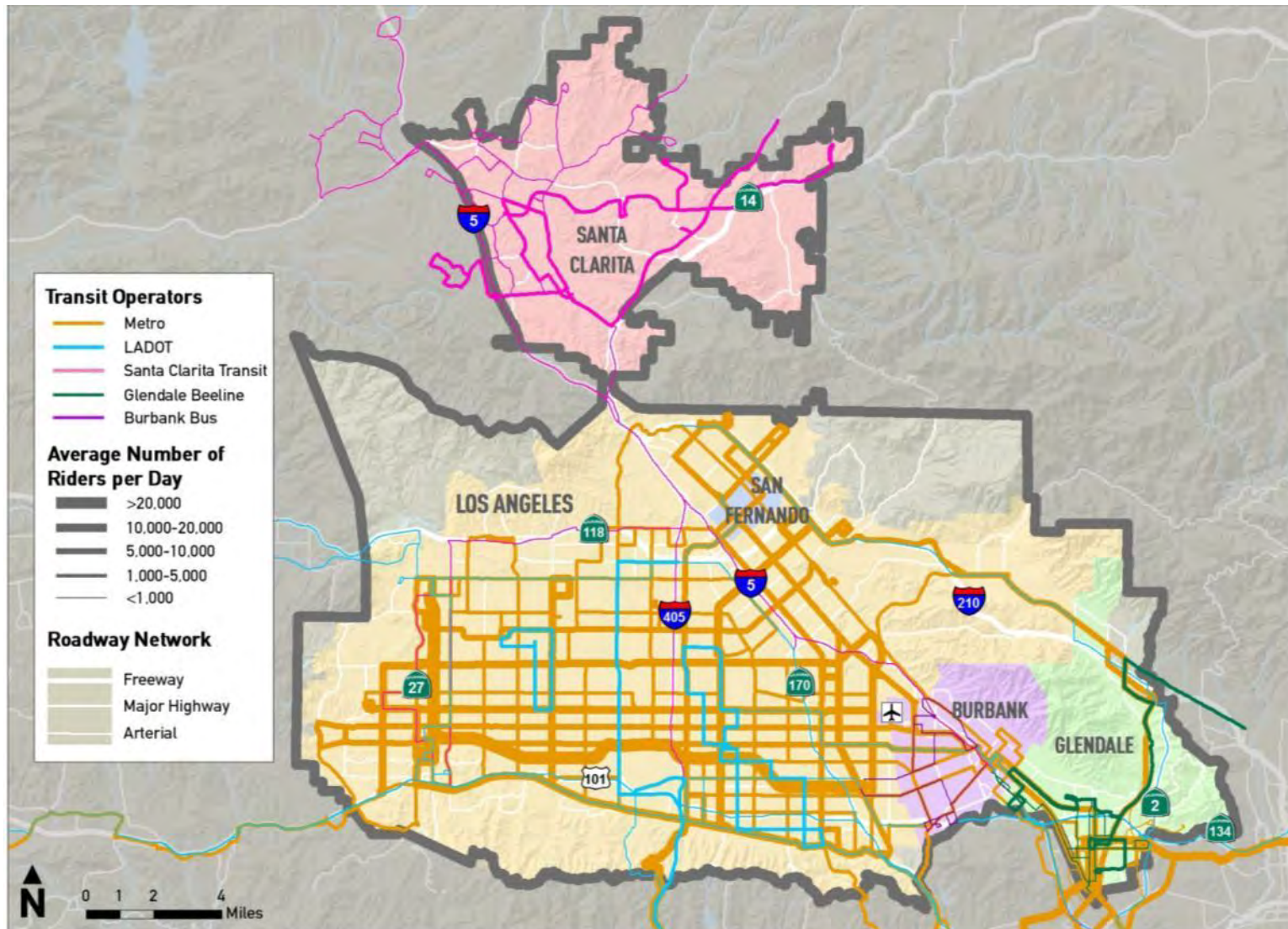
Source: STV, 2015

3.0 GOALS AND OBJECTIVES

This section describes the goals and objectives of the SFVCOG Mobility Matrix Subregion. The goals are consistent with the county's overall goals framework, which consists of six broad themes common among all the subregions. The goals also reflect the Subregion's priorities, and are based on recent studies, cities' general plans, and discussions with the cities and SFVCOG.

3.1 Mobility Matrix Themes

Six themes guide the development of the Mobility Matrix. The themes are defined in Figure 3-1. These were developed in consultation with Metro and the Mobility Matrix consultant teams to highlight the importance of recent federal and state legislation and to reflect the shared concerns of all Los Angeles County jurisdictions. Each program considered in the Mobility Matrices receives one evaluation score for each of the six themes.

Figure 3-1. Common Countywide Themes for All Mobility Matrices

Mobility

Develop projects and programs that improve traffic flow, relieve congestion, and enable residents, workers, and visitors to travel freely and quickly throughout Los Angeles County.

Safety

Make investments that improve access to transit facilities; enhance safety, or correct unsafe conditions in areas of heavy traffic, high transit use, and dense pedestrian activity where it is not a result of lack of normal maintenance.

Sustainability

Ensure compliance with sustainability legislation (Senate Bill [SB] 375) by reducing greenhouse gas emissions to meet the needs of the present without compromising the ability of future generations to meet their own needs.

Economy

Develop projects and programs that contribute to job creation and business expansion resulting from improved mobility.

Accessibility

Invest in projects and programs that improve access to destinations such as jobs, recreation, medical facilities, schools, and others. Access to transit service within reasonable walking or cycling range.

State of Good Repair

Ensure funds are set aside to cover the cost of rehabilitating, maintaining, and replacing transportation assets.

Although the new projects or programs proposed by the subregion do not necessarily require repair or maintenance, State of Good Repair is included as a Mobility Matrix theme because it is a priority for Metro and local jurisdictions.

MAP-21 calls for a renewed focus on ensuring transportation infrastructure is maintained in good conditions. The federal bill includes national performance measures for interstate highway conditions, and a requirement that state and metropolitan plans indicate how project selection helps achieve these targets. There are similar requirements for federally-funded transit projects, where agencies must develop transit asset management plans and system condition reporting.

The State of Good Repair theme is included in the Mobility Matrix to ensure its compliance with this renewed federal attention to system preservation, and it also highlights projects and programs that help Los Angeles County achieve its countywide goal of maintaining a state of good repair on transportation infrastructure.

3.2 Subregional Priorities

The PDT was asked to consider the six Mobility Matrix themes and develop goals and objectives for each theme which reflected subregional priorities. Overall, there is a strong commitment to increasing multimodal travel options, which would help shift people from cars to more fuel-efficient and environmentally beneficial modes of travel. Physical roadway improvements are not seen as a solution to congestion, but rather, the cities are more

interested in implementing transportation demand management (TDM) strategies, developing better active transportation facilities, and using technology to improve operations and reduce vehicle trips. Additionally, there is strong interest in supporting the development of transit hubs.

The subregion also proposed improvements to key freeway interchanges and on major corridors, which have huge impacts on regional travel. Many of the proposed projects focus on operational upgrades, rather than on increasing overall capacity. Most cities expressed a need for freeway ramp improvements and for better maintenance of existing roads. Grade separations and crossings emerged as an important topic during discussions of goods movement and commuter rail, with an emphasis on safety improvements.

Table 3-1 lists the goals and performance measure for each goal.

Table 3-1. Goals and Performance Measures for the SFVCOG Mobility Matrix Subregion

Theme	Goal	Performance Measure
Mobility	**Reduce travel times** – The cities are interested in alleviating congestion through TDM measures.	**Travel Time** – Reduce an individual's time spent traveling
	Increase reliability – While faster travel times are important, travel time reliability is also a priority for the subregion for major roadways as well as for transit.	**Reliability** – Improve the consistency, predictability, and on-time performance of travel
	Connect and coordinate transit systems and other modes serving the area – There are multiple public transportation providers, including Metro, Metrolink, and municipal transit operators. There is a need for greater coordination between the many agencies.	**System Connectivity** – Improve intermodal connections and reduce transit system gaps
Safety	**Ensure safety for all existing and future users of the transportation system** – There is a desire to provide safe interactions between all modes of travel.	**Safety** – Improve safety for all modes of travel
	Reduce conflicts between modes e.g. grade separations – The safest grade crossings do not exist – convert at-grade crossings to grade separations.	**Mode Conflicts** – Reduce mode conflicts, through separating different modes of travel
	Improve security within existing systems – The cities wish to improve safety within public transportation systems, which can also help make transit a more attractive option.	**Transit Safety/Security** – Improve safety/security of riders and decrease in incidents
Sustainability	**Reduce GHG emissions** – The subregion is interested in pursuing clean vehicle technologies to help meet SB 375 targets.	**GHG Emissions** – Reduce GHG emissions due to shift to more efficient modes, reduced trips, shorter trips, etc
	Maintain community character by protecting quality of life and the environment – Cities wish to preserve the existing community character.	**Quality of Life** – Preserve quality of life in community
	Encourage mode transfer from automobiles to more efficient modes – Encouraging drivers to use other modes, such as bicycling or transit, can help the environment, while improving the efficiency of the roadway system.	**Mode Share** – Increase percentage of trips by modes other than auto

Theme	Goal	Performance Measure
Economy	**Provide adequate means to safely move goods** – The subregion sees considerable goods movement on its freeway corridors and rail lines; there is a need to both maintain and improve the infrastructure.	**Goods Movement Impact** – Accommodate trucks and other goods movement vehicles away from neighborhoods, etc
	Improve the jobs-housing balance to reduce the number and length of vehicle trips – Improving the jobs-housing balance can reduce the number and length of vehicle trips.	**Total Trips** – Reduce number and length of vehicle trips
	Make investments that promote economic vitality, including accommodating visitors – Transportation investments should not only focus on short-term job creation, but should also spur sustained economic growth.	**Economic Output** – Improve productivity for businesses and households and increase regional economic benefits from construction spending
Accessibility	**Integrate transit, bicycle/pedestrian facilities, jobs, and residents at key hubs** – There is a strong interest in supporting the development of transit hubs and mixed use projects as part of TDM strategies.	**Transit Hub** – Support the development of transit hubs and key activity centers
	Accommodate persons with disabilities/seniors/comply with the American Disabilities Act – Improvements are needed for pedestrian and transit infrastructure to increase safety and connectivity and to provide a comfortable environment.	**Dependent Populations Served** – Increase access to transportation services for those with high levels of transit dependence
	Improve first/last mile connections to transit – Better connections to transit are needed in order to reduce the reliance on automobiles.	**First/Last Mile Connections** – Serve as many houses, jobs, and activity centers as possible
State of Good Repair*	**Preserve transportation assets and infrastructure** – There is a need to focus on maintaining existing infrastructure, and less on building new roads.	**Life of Facility or Equipment** – Increase the number of viable years before assets need to be replaced or updated
	Minimize impact of goods movement on local streets and arterials – There is a need to designate arterials for heavy trucks to keep them off of local streets and neighborhoods.	**Goods Movement Impact** – Improve designated goods movement corridors to reduce impact on local streets
	Prioritize maintenance so assets are kept in a state of good repair – It is necessary to address delayed maintenance, by devoting more funds towards operations and maintenance, rather than focusing on rehabilitation after infrastructure has broken down.	**Maintenance Funding** – Devote funds towards operations and maintenance

* - State of Good Repair is treated differently than the other five themes as discussed on Page 3-2

4.0 SUBREGIONAL MOBILITY MATRIX

An initial SFVCOG Mobility Matrix Subregion project and program list was prepared consisting of Metro's December 2013 subregional project lists, which included: unfunded LRTP projects; unfunded Measure R scope elements; and subregional needs submitted in response to a request by Directors Antonovich and Dubois. The project and program list was then updated through the outreach process and incorporates input from the PDT members and other subregion stakeholders. The list reflects not only the subregional transportation needs within the cities, but also includes many projects with wider subregional and regional impacts.

This chapter summarizes the needs of the SFVCOG Mobility Matrix Subregion, as demonstrated by the project list, and describes the high-level evaluation of project performance.

4.1 Project List

A total of 162 projects and programs were identified for the SFVCOG Mobility Matrix Subregion. The projects are divided into six broad categories: Arterial, Goods Movement, Highways, Active Transportation, Transit, and Regional Facilities. Within each category, the projects are grouped by similarity into subcategories.

While the Subregion as a whole did not identify increasing roadway capacity as a key goal, the project/program list contains many road widening and road extensions, most of which are located in Santa Clarita and in Los Angeles-SFV. Freeway interchange

improvements and upgrading highway transportation systems management (TSM) are also important to the study area. Rail safety emerged as one of the priorities, with several grade separation and crossing safety improvements proposed throughout the Subregion.

Active transportation and transit projects make up about one-third of the project list. The cities are very interested in building out their bicycle networks, as well as improving pedestrian and bicycle bridges and other existing facilities. The cities were also interested in improving their local bus service and transit infrastructure. The list also contains several high-profile transit projects, such as converting the Metro Orange Line to light rail transit (LRT) and extending the Metro Red Line to the Burbank airport.

The PDT members submitted many projects and programs within their own jurisdictions, but there was also a consensus on a several programs that would benefit the entire subregion. The project list includes several general programs such as State of Good Repair, Intelligent Transportation Systems (ITS), TDM strategies, and first-mile/last-mile programs.

Finally, the list contains a "Regional Facilities" category, which is comprised of several projects related to accessing Burbank Bob Hope Airport, a major regional travel destination located in the San Fernando Valley.

Figure 4-1 shows the projects and programs in the study area. A full list of the projects and programs can be found

in Appendix D. Additionally, an interactive website allowing users to view Mobility Matrix project locations and information is under development and will be available upon completion of this effort.

Figure 4-1. Projects and Programs Overview
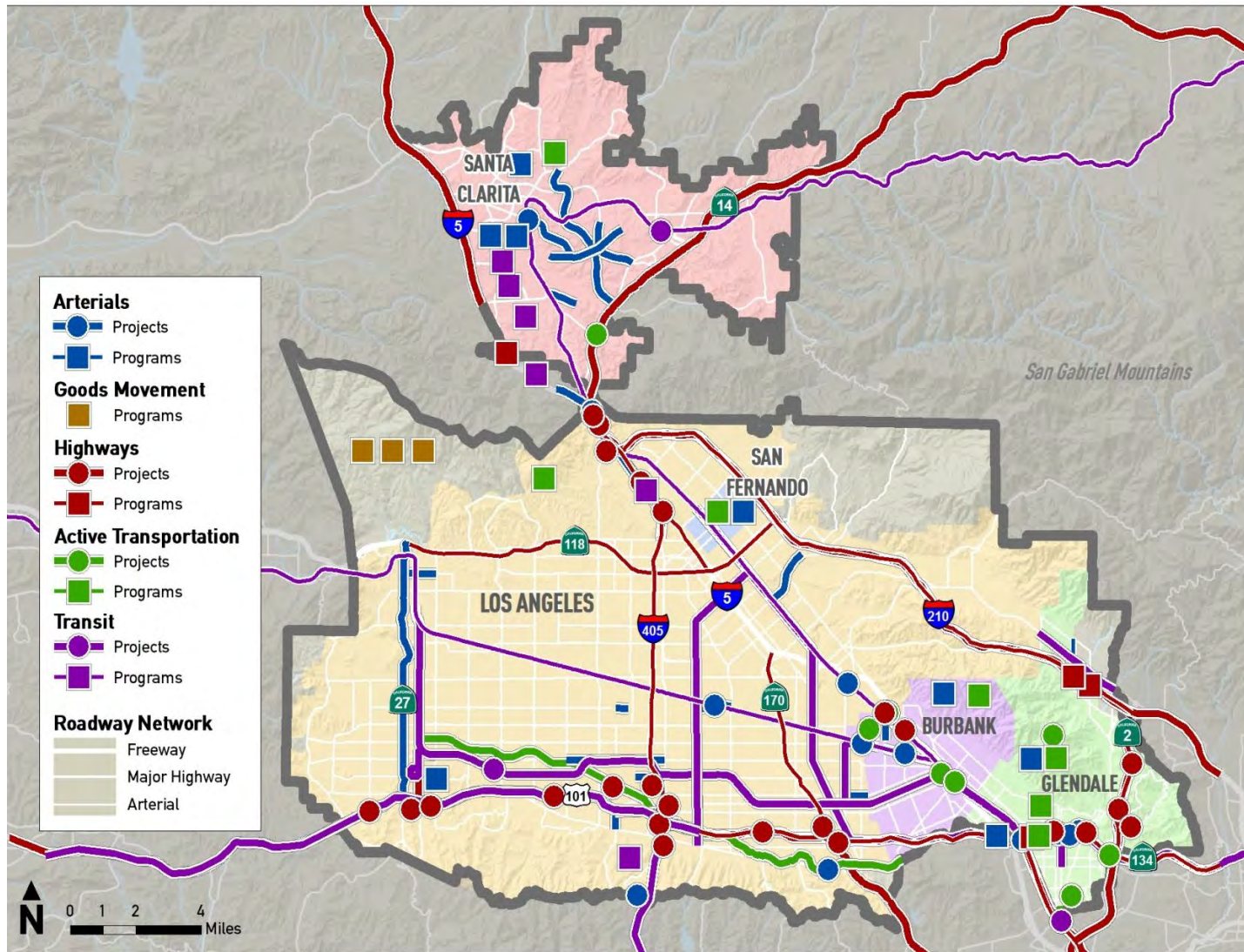
Source: STV Inc, 2015

4.2 Evaluation

The evaluation is meant to identify at a high level of analysis the subregional projects and programs that have the potential to address subregional and countywide transportation goals for later quantitative analysis in the LRTP update. The Mobility Matrix does not prioritize the projects, but rather is to be used as a screening tool and a starting point for the LRTP update process. The evaluation is qualitative in nature, due to a limited time frame for completion and largely incomplete and inconsistent project/program details and data. The evaluation methodology shown in Table 4-1 represents a collaborative effort spanning many months, and incorporates input from subregional representatives across Los Angeles County.

A full description of the evaluation methodology can be found in Appendix C.

4.2.1 Evaluation Matrix

Due to the subregional scale of the study, many of the smaller projects were combined or grouped together into larger subcategories or programs for ease of analysis. The evaluation assigns ratings at the subcategory level for each of the six Mobility Matrix themes. As discussed in Chapter 3, each Mobility Matrix theme has three corresponding goals; projects were rated based on their potential to contribute to one or more of the subregional goals. The ratings are shown in Table 4-2.

Table 4-1. Evaluation Methodology

To achieve the following score in a single theme:	Project must meet the corresponding criterion:
HIGH BENEFIT ●	■ Significantly benefits one or more theme goals or metrics on a <u>subregional</u> scale
MEDIUM BENEFIT ◑	■ Significantly benefits one or more theme goals or metrics on a <u>corridor or activity center</u> scale
LOW BENEFIT ◕	■ Addresses one or more theme goals or metrics on a <u>limited/localized</u> scale (e.g., at a single intersection)
NEUTRAL BENEFIT ○	■ Has no cumulative positive or negative impact on theme goals or metrics
NEGATIVE IMPACT ▬	■ Results in cumulative negative impact on one or more theme goals or metrics

Table 4-2. Performance Evaluation – Summary by Subprogram

ID	# of Projects	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Arterials							
Tunnel Projects	2	◐	○	○	○	○	○
Grade Separation Projects	5	●	●	◐	◐	○	◔
Extension or New Road Projects	12	●	○	○	◔	○	○
Widening Programs/Projects	17	◐	○	—	○	○	◔
State of Good Repair/Safety Programs	1	◐	◐	◔	◔	○	●
TSM	8	◐	○	◔	○	○	○
Goods Movement							
Grade Crossing Safety Improvement Programs	1	○	●	○	●	◔	◐
Arterial Programs	1	○	◐	○	●	○	◐
Rail Programs	1	●	◔	◔	●	○	◔

ID	# of Projects	**Mobility**	**Safety**	**Sustainability**	**Economy**	**Accessibility**	**State of Good Repair**
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Highways							
Arterial Interchange Programs/Projects	21	●	○	○	○	○	◔
Freeway Interchange Projects	6	●	◔	○	○	○	◔
Freeway Corridor Projects	13	●	○	—	○	○	○
Soundwall Projects	2	○	○	◑	○	○	○
State of Good Repair/Safety Programs	2	◑	◑	◔	◑	○	●
TSM	3	◑	◔	○	○	○	○
Active Transportation							
Bicycle/Pedestrian Programs/Projects	11	◑	◑	●	○	●	○
ADA Access	1	○	●	○	○	◑	○
Pedestrian Bridges	3	○	●	○	○	◑	○
Complete Streets Program	4	○	●	◑	●	●	○
Sustainability Programs	3	○	○	●	○	○	○
Park and Ride Projects/Programs	4	◔	○	◑	◑	◑	◔
TDM Program	1	◑	○	●	●	◑	○
Mobility Hubs/First-Last Mile Programs	2	●	○	●	○	●	○

S U B R E G I O N A L   M O B I L I T Y   M A T R I X – S A N   F E R N A N D O   V A L L E Y

ID	# of Projects	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Transit							
Bus Programs/Projects	15	●	○	◑	○	●	○
Commuter Rail Programs	2	●	◑	●	●	◔	◑
Real-Time Travel Information	1	◑	◔	◔	○	◑	○
State of Good Repair/Safety Programs	1	◑	●	◑	○	○	●
Transit Center	2	◔	◔	◑	◑	◑	○
BRT Projects	3						
Burbank to Hollywood BRT: Downtown Burbank to Hollywood		◑	○	◑	●	●	○
Pasadena to North Hollywood BRT: Via SR-134 through Glendale & Burbank		●	○	●	●	●	○
Metro Orange Line: Bus operational improvements (shorter headways, grade separations, crossing gates, etc)		●	◑	●	●	◑	○
Rail Projects	3						
Metro Red Line Extension: North Hollywood to Sylmar		●	○	●	●	●	○
Glendale Downtown Streetcar		●	○	●	●	●	○
Metro Orange Line conversion to LRT		●	○	●	●	◑	○
Rail or Bus Projects	2						
Sepulveda Pass Transit Corridor		●	◑	●	◑	●	○
East San Fernando Valley Transit Corridor		◑	◑	◑	◑	●	○

S U B R E G I O N A L   M O B I L I T Y   M A T R I X – S A N   F E R N A N D O   V A L L E Y

ID	# of Projects	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair
		•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation
Regional							
Clybourn Ave: Grade separation at railroad tracks / Vanowen St / Empire Ave		●	●	◐	◐	○	◔
Hollywood Way: Widen to 6 lanes from Thornton Ave to Glenoaks Blvd		◐	○	○	○	○	◔
I-5/Buena Vista Ave: Reconfigure ramps and connect with Winona Ave		●	○	○	○	○	◔
Hollywood Way/San Fernando Rd Metrolink station pedestrian bridge		○	●	○	○	◐	○
Burbank Airport: CNG Refueling Station		○	○	●	○	○	○
Metro Orange Line Extension: North Hollywood to Bob Hope Airport		●	○	●	●	●	○
Burbank/Glendale LRT: From LA Union Station to Burbank Airport		●	◐	●	◐	●	○
Pasadena to Burbank Airport LRT: Via SR-134 / I-5 through Glendale & Burbank		◐	◔	◔	◔	◔	○
Metro Red Line Extension: North Hollywood to Burbank Airport		◔	◔	◔	◔	◔	○

4.3   Findings

Overall, most projects perform very well under one or two Mobility Matrix themes, while also providing some secondary benefits in other themes. Only a few arterial and freeway projects receive negative scores \under the Sustainability theme, but the negative impacts should be weighed against the positive mobility effects these projects might bring. Some projects have many Neutral/No Benefit scores, but that does not mean they do not provide benefits; rather, those projects tend to be tightly focused on one theme.

Arterial and Highway projects perform well under the Mobility theme, as they primarily focus on improving system connectivity and travel time reliability. Their Safety ratings tend to be mixed; some projects, such as grade separations, have clear safety benefits, but other projects, such as road widenings, may actually decrease safety for pedestrians. It was also difficult assigning a Sustainability rating for many of the roadway improvement projects, due to a lack of traffic and GHG emissions modeling. While there are a few road widening projects that address known hot spots and congested corridors, many of the arterial and highway widening projects received a Negative Impact rating, due to anticipated induced demand and increased emissions. The roadway and highway projects typically had no impact on Accessibility, so they were rated as Neutral/No Benefit for that theme.

The Active Transportation projects score highly under the Safety, Sustainability, and Accessibility themes. The projects involving bicycle and pedestrian improvements accomplish several goals in multiple themes; this seems

to reinforce the PDT's commitment to improving active transportation facilities. Park-and-ride projects also score moderately well in almost all of the themes.

Many of the Transit projects are related to improving existing bus service, and they score highly for Mobility, Sustainability, and Accessibility. The Transit category also contains several high-profile projects, such as Metro Orange and Red Line extensions, new LRT lines, the Sepulveda Pass Transit Corridor, and the East San Fernando Valley Transit Corridor. Most of these high profile projects score positively under nearly every theme, as they accomplish many of the PDT members' goals.

Finally, the project/program list contains a few programs which address state of good repair specifically, while some of the roadway projects would entail resurfacing. However, most of the projects score Neutral/No Benefit under the theme of State of Good Repair, since the majority of projects involve new infrastructure or have no need for or impact on maintenance or rehabilitation.

When looking at the scores for all six Mobility Matrix themes, the Active Transportation and Transit projects appear to achieve more subregional goals. This is not surprising since the subregional goals emphasize safety, encouraging travel by fuel-efficient modes, and improving first-mile/last-mile connections. However, the Arterial, Goods Movement, and Highway projects are also important in increasing the reliability of the roadway network and have State of Good Repair benefits.

The full list of the project ratings can be found in Appendix D.

5.0 IMPLEMENTATION TIMEFRAMES AND COST ESTIMATES

5.1 Implementation Timeframes

The projects and programs described in Chapter 4 were categorized into the three different timeframes based on a number of factors, including their readiness, need, funding availability or potential, and phasing. A 20-plus year timeframe was used as the basis for categorizing projects, with breakpoints at the ten and twenty year timeframes. The timeframes correspond to when the projects are completed and in operation. Some projects span multiple timeframes, particularly those involving on-going operations or maintenance and programs.

Metro, Mobility Matrix consultants, PDT members, cities and other stakeholders worked collaboratively to determine project implementation timeframes. A full description of the categorization methodology can be found in Appendix C. Table 5-1 provides a summary of the categorizations.

Most of the projects in the SFVCOG Mobility Matrix Subregion fall into the short- and mid-term timeframes, and the long-term projects typically are those which are phased across the 20-plus time period. The emphasis on the shorter term is partially a result of the bottoms-up approach, whereby cities submitted projects intended to address their immediate needs.

Only a few of the Arterial projects are classified as short-term, and they are located in Santa Clarita, which is experiencing significant growth. Most of the other Arterial projects are expected to be fully implemented or completed in 10 or more years, which reflects the SFVCOG Subregion's lower priority of expanding roadway capacity. A few projects will be phased throughout the short- to long-term; they include the General Plan improvements in Burbank and Santa Clarita, and also the improvements in the Warner Center Specific Plan.

The Highway projects are skewed towards the longer term, as many of the projects propose significant changes such as adding lanes or modifying complex freeway interchanges. Examples include widening the US-101 or rebuilding the I-5/SR-14/I-210 interchange. However, several TSM and arterial interchange improvements that could be implemented in the short- or mid-term.

The majority of the Active Transportation projects fall into shorter timeframes, although bikeway improvement projects are phased, in accordance to the cities' bicycle master plans. All of the PDT members cited safety as an immediate priority, which explains the shorter timeframes for the Active Transportation category.

The timeframes for Transit projects vary greatly. Several projects are expected to be ongoing throughout the 20-plus timeframe, such as increasing municipal-level transit, improving Metro bus routes, and improving Metrolink service along the two lines in the Subregion. Projects that focus on municipal service are expected to be implemented in fewer than 10 years, while more complex Metro projects involving new LRT or BRT lines are categorized into the mid- and long-term timeframes.

Table 5-1. SFVCOG Mobility Matrix Projects and Programs Categorization Summary

Programs	# of Projects	Timeframe Categories		
		Short-Term (0-10 years)	Mid-Term (11-20 years)	Long-Term (20+ years)
Arterials				
Tunnel Program	2		✓	✓
Grade Separation Program	5	✓	✓	✓
Extension or New Road Program	12	✓	✓	✓
Widening Program	17	✓	✓	✓
State of Good Repair/Safety Program	1	✓	✓	✓
TSM Program	8	✓	✓	✓
Goods Movement				
Grade Crossing Safety Improvement Program	1	✓	✓	✓
Arterial Program	1	✓	✓	✓
Rail Program	1	✓	✓	✓
Highways				
Arterial Interchange Program	21	✓	✓	✓
Freeway Interchange Program	6		✓	✓
Freeway Corridor Program	13		✓	✓
Soundwall Program	2	✓	✓	
State of Good Repair/Safety Program	2	✓	✓	✓
TSM Program	3	✓	✓	
Active Transportation				
Bicycle/Pedestrian Program	11	✓	✓	✓
ADA Access Program	1	✓		
Pedestrian Bridge Program	3	✓	✓	
Complete Streets Program	4	✓	✓	✓
Sustainability Program	3		✓	
Park-and-Ride Program	4	✓	✓	
TDM Program	1	✓	✓	
Mobility Hubs/First-Last Mile Program	2	✓	✓	✓
Transit				
Bus Program	15	✓	✓	✓
BRT Program	3		✓	✓
Commuter Rail Program	2	✓	✓	✓
Real-Time Travel Information Program	1	✓		
Rail Program	3		✓	✓
Rail or Bus Program	2		✓	✓
State of Good Repair/Safety Program	1		✓	✓
Transit Center Program	2	✓	✓	

5.2 Cost Estimates

This section describes the cost range estimates at the program level. Due to variations in project scope and available cost data, costs estimated for use in the Mobility Matrix are not intended to be used for any future project-level planning. Rather, the cost ranges developed via this process constitute a high-level planning estimate for short-, mid-, and long-term subregional funding needs for the Mobility Matrix effort only.

The purpose of this section is to outline the approach for preparing rough order-of-magnitude capital cost estimates for planning purposes. For the most part, these estimates do not include vehicles, operating, maintenance and financing costs. For consistency, all estimated project and program costs were reported in year 2015 dollars, as this is the base year of the 2014 Short Range Transportation Plan. Estimates from prior years were escalated to year 2015 dollars at a three-percent annual rate.

Since the list was compiled from various sources, some of the projects in the list overlap in their scope or purpose, leading to some duplicative costs in the cost matrix. Projects or programs that cross subregional boundaries may be included in multiple subregional project lists. Where the same projects or programs are included in multiple subregions, the cost estimates include the total estimated project cost, not the cost share for each subregion. The cost sharing will be determined as part of future efforts.

Finally, due to lack of available data and the timeframe of the Mobility Matrix effort, some of the projects and programs have missing cost estimates or do not include operations and maintenance (O&M) costs. Where O&M costs were available, they were included for the applicable timeframes. O&M costs will be updated as part of the LRTP as the subregions prioritize their projects and programs. It should be noted that for this reason, the cost established may be understated.

A full description of the cost estimating methodology can be found in Appendix C. Relatively few Arterial projects are expected to be implemented or completed in the short-term; approximately $260 to $410 million is estimated to be needed. The majority of the funding for the Arterial category would go towards mid- and long-term projects, most of which are new roads or road widenings. Overall, $1.1 to $2 billion is projected for the Arterial projects.

The Goods Movement programs focus on improving safety at rail crossings and intersections throughout the Subregion, requiring about $150 to $230 million. The Highway projects and programs require about $7.3 to $11.2 billion, with most of the funding going towards freeway corridor projects in the mid- and long-term. Some costs are missing for individual Highway projects, but they are not expected to significantly change the overall total cost.

The costs for Active Transportation projects are relatively small, compared to the other project categories, at $270 to $450 million over 20-plus years. Most of this funding is expected to be used in the short-and mid-term timeframes, as the cities build out their bicycle plans, construct pedestrian bridges, and implement

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improvements around transit hubs. The small amount of long-term funding is to support a few phased projects.

The cost range for the Transit projects is high, at $11.5 to $19.8 billion. A few of the projects have different mode options with very different costs, and the proposed LRT, BRT, and HRT extensions have high capital costs. The proposed Metrolink improvements would cost between $2.6 to $4.1 billion for the SFVCOG Mobility Matrix Subregion across the entire time period. Most of the proposed transit projects will not only have capital costs, but also have increased operating and maintenance costs throughout the life of the project. Those operating costs are not included in the report. However, some projects have no capital costs at all, since they only propose to increase service. For those projects, the operating and maintenance costs are included in the totals, although they will likely be funded through a different source.

Table 5-2 shows costs by subprogram, divided over the three time periods. Table 5-3 shows the costs for each category of projects as well as timeframes.

Table 5-2. Rough Order-of-Magnitude Capital Cost by Subprogram (2015 thousands of dollars)

Program	# of projects	Projects with Estimated Costs	Projects with Original Costs	Cost Estimates					
				Short-Term		Mid-Term		Long-Term	
				Low	High	Low	High	Low	High
Arterial									
Tunnel Program	2		2	$0	$0	$34,000	$51,000	$34,000	$51,000
Grade Separation Program	5	5		$48,000	$72,000	$96,000	$140,000	$96,000	$140,000
Extension or New Road Program	12	5	7	$120,000	$180,000	$240,000	$520,000	$170,000	$420,000
Widening Program	17	16	1	$78,000	$130,000	$120,000	$180,000	$77,000	$130,000
State of Good Repair/Safety Program	1	1		$5,300	$11,000	$5,300	$11,000	$5,300	$11,000
TSM Program*	8	4	3	$20,000	$30,000	$1,600	$2,400	$70	$110
Goods Movement									
Grade Crossing Safety Improvement Program	1	1		$18,000	$27,000	$18,000	$27,000	$18,000	$27,000
Arterial Program	1	1		$20,000	$30,000	$20,000	$30,000	$20,000	$30,000
Rail Program	1	1		$12,000	$18,000	$12,000	$18,000	$12,000	$18,000
Highway									
Arterial Interchange Program*	21		12	$26,000	$60,000	$120,000	$250,000	$130,000	$200,000
Freeway Interchange Program	6		6	$0	$0	$150,000	$230,000	$670,000	$1,000,000
Freeway Corridor Program*	13		10	$0	$0	$2,000,000	$3,100,000	$4,000,000	$6,100,000
Soundwall Program	2		2	$14,000	$25,000	$1,000	$1,500	$0	$0
State of Good Repair/Safety Program	2	2		$19,000	$28,000	$19,000	$28,000	$19,000	$28,000
TSM Program*	3		2	$77,000	$110,000	$77,000	$110,000	$0	$0

S U B R E G I O N A L   M O B I L I T Y   M A T R I X   –   S A N   F E R N A N D O   V A L L E Y

Program	# of projects	Projects with Estimated Costs	Projects with Original Costs	Cost Estimates					
				Short-Term		Mid-Term		Long-Term	
				Low	High	Low	High	Low	High
Active Transportation									
Bicycle/Pedestrian Program*	11	5	4	$85,000	$150,000	$98,000	$170,000	$2,200	$4,400
ADA Access Program*	1	1		$3,000	$5,500	$0	$0	$0	$0
Pedestrian Bridge Program	3	3		$4,000	$6,000	$15,000	$18,000	$0	$0
Complete Streets Program*	4	2		$3,500	$6,400	$3,000	$4,400	$3,000	$4,400
Sustainability Program*	3	1	1	$1,300	$2,000	$48	$72	$0	$0
Park-and-Ride Program*	4	1	2	$13,000	$21,000	$20,000	$28,000	$0	$0
TDM Program	1	1		$550	$800	$550	$800	$0	$0
Mobility Hubs/First-Last Mile Program	2	2		$9,700	$18,000	$9,700	$18,000	$9,700	$17,600
Transit									
Bus Program*	15	14		$59,000	$99,000	$45,000	$73,000	$38,000	$62,000
BRT Program	3	3		$0	$0	$120,000	$190,000	$120,000	$190,000
Commuter Rail Program	2		2	$900,000	$1,300,000	$900,000	$1,300,000	$900,000	$1,300,000
Real-Time Travel Information Program	1	1		$190	$290	$0	$0	$0	$0
Rail Program	3	3		$0	$0	$3,500,000	$4,100,000	$3,400,000	$4,000,000
Rail or Bus Program	2		2	$0	$0	$730,000	$3,300,000	$730,000	$3,300,000
State of Good Repair/Safety Program	1	1		$0	$0	$15,000	$22,000	$15,000	$22,000
Transit Center Program	2		2	$24,000	$30,000	$10,000	$15,000	$0	$0
Total	**153**			**$1,600,000**	**$2,400,000**	**$8,400,000**	**$14,000,000**	**$10,000,000**	**$17,000,000**

*Some individual projects within the subprogram have missing costs, but they are not expected to greatly increase the overall cost of the program.

S U B R E G I O N A L   M O B I L I T Y   M A T R I X   –   S A N   F E R N A N D O   V A L L E Y

Table 5-3. Rough Order-of-Magnitude Project Cost Estimates and Categorizations (2015 dollars)

Type / Category	Arterial	Goods Movement	Highway	Active Transport.	Transit	Total
Short-Term **(0-10 yrs)**	18 Projects $270M - $410M	3 Projects $50M - $75M	12 Projects $140M - $220M	24 Projects $120M - $210M	18 Projects $980M - $1.5B	75 Projects $1.6B - $2.4B
Mid-Term **(11-20 yrs)**	31 Projects $500M - $910M	3 Projects $50M - $75M	29 Projects $2.4B - $3.7B	21 Projects $150M - $240M	19 Projects $5.3B - $9B	103 Projects $8.4B - $14B
Long-Term **(>20 yrs)**	22 Projects $390M - $760M	3 Projects $50M - $75M	32 Projects $ 4.8B - $7.3B	7 Projects $10M - $26M	13 Projects $5.2B - $8.9B	77 Projects $10B - $17B
Total	45 Projects $1.2B - $2.1B	3 Projects $150M - $230M	47 Projects $7.3B - $11B	29 Projects $280M - $480M	29 Projects $11B - $20B	153 Projects $20B - $33B

Note: Some individual projects within the subprogram have missing costs, but they are not expected to greatly increase the overall cost of the program.

Regional Facilities projects and programs at Bob Hope Airport are not included in the table.

5.3 Funding and Finance

5.3.1 2009 LRTP and Identified Additional Needs

The 2009 LRTP lays out a 30-year strategy for keeping Los Angeles County moving and is based on a financial forecast of continued economic growth and moderate inflation. The 2009 LRTP identifies a $297.6 billion investment in Los Angeles County's transportation system through 2040 and is funded with more than 45 sources of federal, state and local revenue. A majority of funding is locally generated through three half-cent voter initiatives, Propositions A and C and Measure R. These local initiatives, other local sources of revenue such as passenger fares, advertising, real estate rentals, bonding, and competitive grants account for 75 percent of Metro's 30-year financial forecast. Many more projects and programs are needed in Los Angeles County than the transportation funding is available. These additional needs constitute the Strategic Unfunded Plan. However, both the funded 2009 Plan and the Strategic Unfunded Plan will require new funding in order to add projects and services and/or accelerate projects identified for funding. Metro's commitment to maintain and improve Los Angeles County's transportation system will depend on funding availability and strategies for obtaining new or increased funding.

5.3.2 2017 LRTP Update and Exploration of New Funding Options

The 2017 LRTP will incorporate significant changes that have occurred since the 2009 LRTP was adopted, including changes in economic conditions, growth patterns, and the transportation costs and funding

forecast. It is anticipated that this Plan would incorporate existing 2009 LRTP projects as well as new project initiatives such as those that may be identified by the sub regions through the Mobility Matrices process. As with past LRTPs, this update will include recommendations for constrained (funded) projects as well as strategic (unfunded) projects that could be built if additional funding becomes available, consistent with adopted Metro Board priorities and actions. The LRTP update will revise funding recommendations for various major transportation programs, including funds available to the Call for Projects by funding category, Regional Rail/Metrolink, Access Services and other programs. The Plan will also address state of good repair needs, new requirements for sustainability, and other initiatives and policies not anticipated in the 2009 LRTP.

The 2017 LRTP update includes the exploration of several new funding sources beyond those identified in the 2009 LRTP. Most notable is the exploration of a new transportation sales tax measure that could be considered by Los Angeles County voters as soon as November 2016. Approval of a 2016 transportation sales tax measure could significantly augment the availability of new funding included in the LRTP update and increase the size of the constrained plan. In addition to a new transportation sales tax measure, Metro is continuing the exploration of Public-Private Partnerships and congestion pricing for applicable highway and transit projects. Other new funding sources under consideration include, but are not limited to, land value capture around transit stations and California State Cap & Trade funds.

5.4   What's Next?

The Mobility Matrix is the first step in identifying the subregion's transportation projects and programs that require funding. The Mobility Matrix also identifies the subregion's goals and objectives for their unique needs and geographic considerations. The Mobility Matrix work effort resulted in a subregional, project/program list, as well as estimating those projects and program costs. This important work effort serves as a "bottoms-up" approach towards updating Metro's LRTP in the future.

Three major next steps should arise out of the Mobility Matrix process:

■ **SFVCOG Prioritization of Projects** – This Mobility Matrix study does not prioritize projects. Instead, it provides some of the information needed for decision makers to prioritize projects/programs in the next phase of work, and an unconstrained list of all potential transportation projects in the region. In preparation for a potential ballot measure and LRTP update (as described further below), the SFVCOG should decide how it wants to prioritize these projects assuming a constrained funding scenario.

■ **Metro Ballot Measure Preparations** – Metro will continue working with the PDTs of all the Subregions as it starts developing a potential ballot measure. Part of the ballot measure work would involve geographic equity determination, as well as determining the amount of funding available for each category of projects/programs and subregion of the County.

■ **Metro LRTP Update** – The potential ballot measure would then feed into a future Metro LRTP update and be integrated into the LRTP Finance Plan. If additional funding becomes available through a ballot measure or other new funding sources or initiatives, the list of projects developed through the Mobility Matrix and any subsequent list developed by the subregion could be used to update the constrained project list for the LRTP moving forward.

6.0   APPENDICES

The following appendices provide further information on issues discussed in this document.

Appendix A: Meeting Matrix

Appendix B: Baseline Conditions Report

Appendix C: Methodologies

Appendix D: Project Detail Matrix
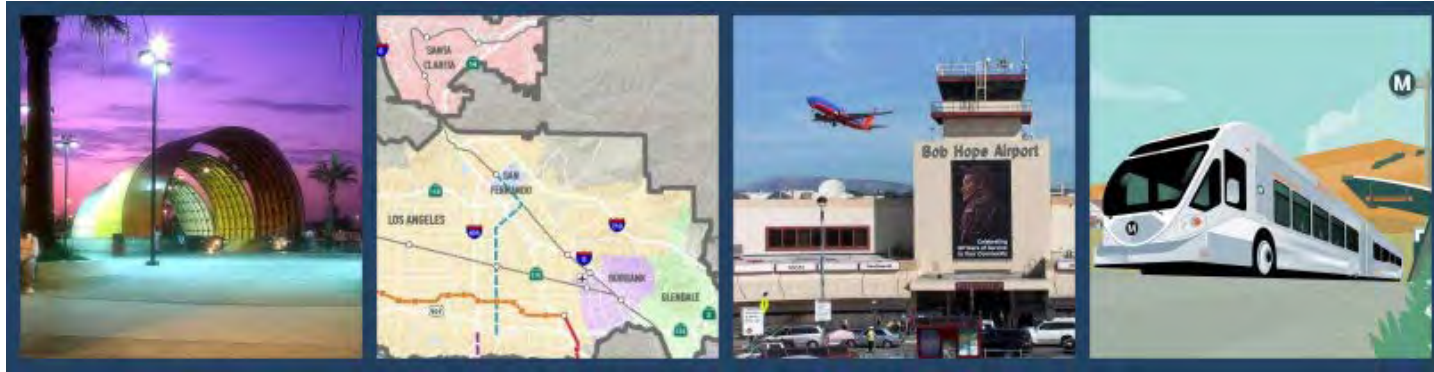
SUBREGIONAL MOBILITY MATRIX
SAN FERNANDO VALLEY

Project No. PS-4010-3041-YY-01-01

Appendix A – Meeting Matrix – Final

Prepared for:

M Metro

Prepared by:

STV Incorporated
1055 West Seventh Street
Suite 3150
Los Angeles, CA 90017

March 2015

Appendix A – Meeting Matrix – Final

Subregional Mobility Matrix
San Fernando Valley
PS-4010-3041-YY-01-01

Prepared for:

Metro
Los Angeles County
Metropolitan Transportation Authority

Prepared by:
STV Incorporated

In Association With:
Iteris, Inc
Katherine Padilla & Associates
Ryan Snyder Associates, LLC

Quality Review Tracking

Version	Date	Reviewer	Reviewer Signature
Draft	1/30/15	STV Reviewer: Tyler Bonstead	TRB
Final	3/11/15	STV Reviewer: Tyler Bonstead	TRB

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The following matrix documents coordination meetings and calls with cities, Project Development Team (PDT) members, and others as part of the San Fernando Valley Subregional Mobility Matrix Study.

Meeting Type	Date/Time	Meeting Location	Discussion Points
PDT Meeting #1	08/25/14 2:00 PM to 3:30 PM	San Fernando City Hall, Community Meeting Room, 117 Macneil St., San Fernando	Obtain consensus on the following issues: ■ Mobility Matrix guiding principles, schedule, and approach ■ Schedule to update initial project list previously submitted by PDT members ■ Sub-regional goals and objectives
One-on-one coordination meetings with PDT members	09/04/14 09/04/14 09/08/14 09/10/14 09/10/14 09/10/14 09/10/14 09/17/14	Caltrans – District 7 Burbank Bob Hope Airport Los Angeles Department of Transportation Glendale Santa Clarita Los Angeles County Burbank San Fernando (Teleconference)	Review of: ■ Initial Project/Program List ■ Literature Review documents
PDT Meeting #2	09/12/14 2:00 PM to 3:30 PM	Bob Hope Airport, Sky Room, 2627 Hollywood Way, Burbank	Obtain Project Development Team (PDT) feedback on the updated candidate project list, document the PDT comments and edits on the sub-regional goals and objectives, and discuss initial approaches and options for performance metrics.
San Fernando Valley Council of Governments (SFVCOG) Board Meeting	09/18/14	Valley Municipal Building, Council Chambers, 14410 Sylvan Street, 2nd Floor, Van Nuys	Obtain approval of initial project/program list

Meeting Type	Date/Time	Meeting Location	Discussion Points
PDT Meeting #3	10/17/14 2:00 PM to 3:30 PM	Marvin Braude Service Center, Room 3 B, 6262 Van Nays Boulevard, Van Nuys	Obtain consensus and feedback on the following issues: ■ Goals and Objectives ■ Draft Performance Metrics ■ Preliminary Baseline Conditions Report ■ Updated List of Projects/Programs ■ Regional Facilities Category of the Mobility Matrix
PDT Meeting #4	11/17/14 2:00 PM to 3:30 PM	Municipal Services Building 633 E. Broadway, Room 105, Glendale	Obtain feedback and consensus on the following issues: ■ Updated Project and Programs List ■ Final Goals and Objectives and Performance Measures ■ Baseline Conditions Report ■ Performance Analysis ■ Project Categorization ■ Mobility Matrix Relationship to Long Range Transportation Plan/Ballot Measure ■ Next Steps.
One-on-one calls with PDT members	12/15/14 12/16/14 12/22/14 01/07/15 01/07/15	Caltrans Los Angeles Department of Transportation Santa Clarita Glendale Burbank	Review of: ■ Initial Performance Analysis Results ■ Project Categorization Recommendations
SFVCOG Transportation Committee Meeting	01/09/15	Community Services Building, 150 N. Third Street, Burbank	Project Update

Meeting Type	Date/Time	Meeting Location	Discussion Points
PDT Meeting #5	01/12/15 10:00 AM to 11:30 AM	Community Services Building, 150 N. Third Street, Burbank	Obtain feedback and consensus on the following issues: ■ Updated Project and Programs List ■ Relationship to Ballot Measure/Metro Long Range Transportation Plan ■ Final Goals and Objectives and Performance Measures ■ Baseline Conditions Report ■ Performance Analysis ■ Project/Program Categorization ■ Cost Estimating Overview ■ Next Steps
PDT Meeting #6	02/09/15 10:00 AM to 11:30 AM	Municipal Services Building, 633 E. Broadway, Room 105, Glendale	Review Draft Cost Estimates and Final Report
SFVCOG Transportation Committee Meeting	03/05/15 (tentative)	Metro (tentative)	Review Final Report
SFVCOG Board Meeting	03/19/15 (tentative)	Valley Municipal Building, Council Chambers, 14410 Sylvan Street, 2nd Floor, Van Nuys (tentative)	Approve Final Report

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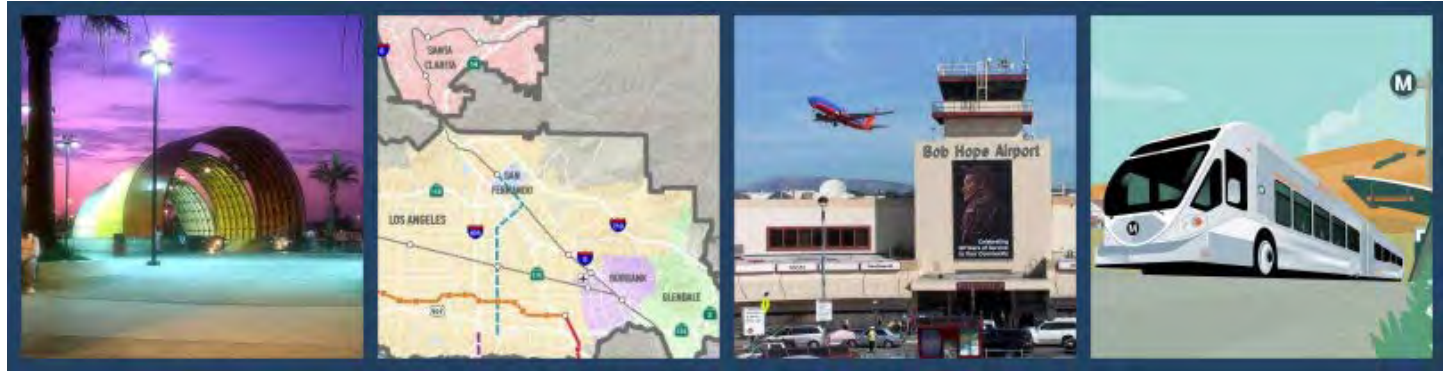
SUBREGIONAL MOBILITY MATRIX
SAN FERNANDO VALLEY
Project No. PS-4010-3041-YY-01-01

Appendix B – Baseline Conditions Report – Final

Prepared for:

Metro

Prepared by:
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1055 West Seventh Street
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March 2015

Appendix B – Baseline Conditions Report – Final

Subregional Mobility Matrix
San Fernando Valley
PS-4010-3041-YY-01-01

Prepared for:

**Los Angeles County
Metropolitan Transportation Authority**

Prepared by:
STV Incorporated

In Association With:
**Iteris, Inc
Katherine Padilla & Associates
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Quality Review Tracking

Version	Date	Reviewer	Reviewer Signature
Draft	11/14/14	STV Reviewer: Tyler Bonstead	TRB
Final	03/11/15	STV Reviewer: Tyler Bonstead	TRB

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List of Terms and Acronyms

Acronyms	Definitions
ADT	Average Daily Traffic
Caltrans	California Department of Transportations
COG	Council of Governments
CSTAN	Los Angeles Countywide Strategic Truck Arterial Network
ITS	Intelligent Transportation Systems
LOS	Level-of-Service
LRTP	Long Range Transportation Plan
Metro	Los Angeles County Metropolitan Transportation Authority
PCH	Pacific Coast Highway
PeMS	Caltrans Freeway Performance Monitoring System
SB	Senate Bill
SFV	San Fernando Valley
SFVCOG	San Fernando Valley Council of Governments
SRTP	Short Range Transportation Plan
STAA	Surface Transportation Assistance Act

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

1.0 INTRODUCTION

1.1 Study Background

The Los Angeles County Metropolitan Transportation Authority (Metro) initiated the development of seven subregional mobility matrices to provide consistent countywide corridor performance criteria to be used to identify and evaluate transportation improvements to address subregional needs. These matrices will provide a performance evaluation methodology to identify short, mid and long term projects through a subregional collaborative process. It is envisioned that these matrices will assist the subregions in identifying projects for future transportation funding as well as future updates to the Metro Long Range Transportation Plan (LRTP).

In February 2014, the Metro Board approved the holistic countywide approach for preparing Mobility Matrices for the San Gabriel Valley Council of Governments (COG), Central Los Angeles, Westside Cities COG, San Fernando Valley COG, Las Virgenes/Malibu COG, North County Transportation Coalition, and South Bay Cities COG. For the purposes of the Mobility Matrix work effort, cities with membership in two COGs were given the opportunity by the Board to select one COG in which to participate. Specifically, the Arroyo Verdugo Cities' local jurisdictions are included in both the SGVCOG and SFVCOG and that subregion decided to have the cities of La Cañada Flintridge, Pasadena and South Pasadena included in the SGVCOG, while Burbank and Glendale are included in the SFVCOG. The City of Santa Clarita opted to be included in the San Fernando Valley COG instead of

North County. The Gateway Cities COG is developing its own Strategic Transportation Plan which will serve as their Mobility Matrix. These subregional boundaries, as defined for the Mobility Matrices, will be used in the analysis of existing conditions. An overview of the subregions being evaluated in the Mobility Matrix Studies is provided in Figure 1-1.

The San Fernando Valley (SFV) Council of Governments (COG) was formed in 2010 with the adoption of a Joint Powers Agreement by the City and County of Los Angeles along with the Cities of Burbank, Glendale, San Fernando and Santa Clarita. The main purpose of the SFVCOG is to develop and implement subregional policies and plans that are unique to the greater San Fernando Valley region, and to voluntarily and cooperatively resolve differences among the COG members. An overview of the SFVCOG borders is shown in Figure 1-2. The long-term goal of the SFVCOG is to build consensus on a vision for a future transportation system that embraces efficiency and innovation for continuous improvement of the quality of life in the subregions. To accomplish this goal, a mobility matrix will be developed for the SFVCOG region as part of this project that identifies and applies screening criteria to corridors in the subregion to develop a framework for potential transportation improvements.

1.2 Report Purpose and Structure

This document establishes baseline conditions in the SFVCOG Mobility Matrix Subregion. It includes existing projects and an overview of the study area's demographics, as well as develops a high level inventory of the transportation facilities being evaluated, including

highways, arterials, transit, bike/pedestrian, and goods movement.

Section 2.0 describes the existing projects and plans in the subregions, and their relationship to the Mobility Matrix goals. The demographics of the study area are covered in Section 3.0. Section 4.0 contains an overview of existing travel patterns. Sections 5.0, 6.0, and 7.0 analyze the freeways and arterials, the active transportation facilities, and transit service in the area, respectively. Finally, Section 8.0 provides a summary and conclusions.

Figure 1-1. Mobility Matrix Subregions – Overview
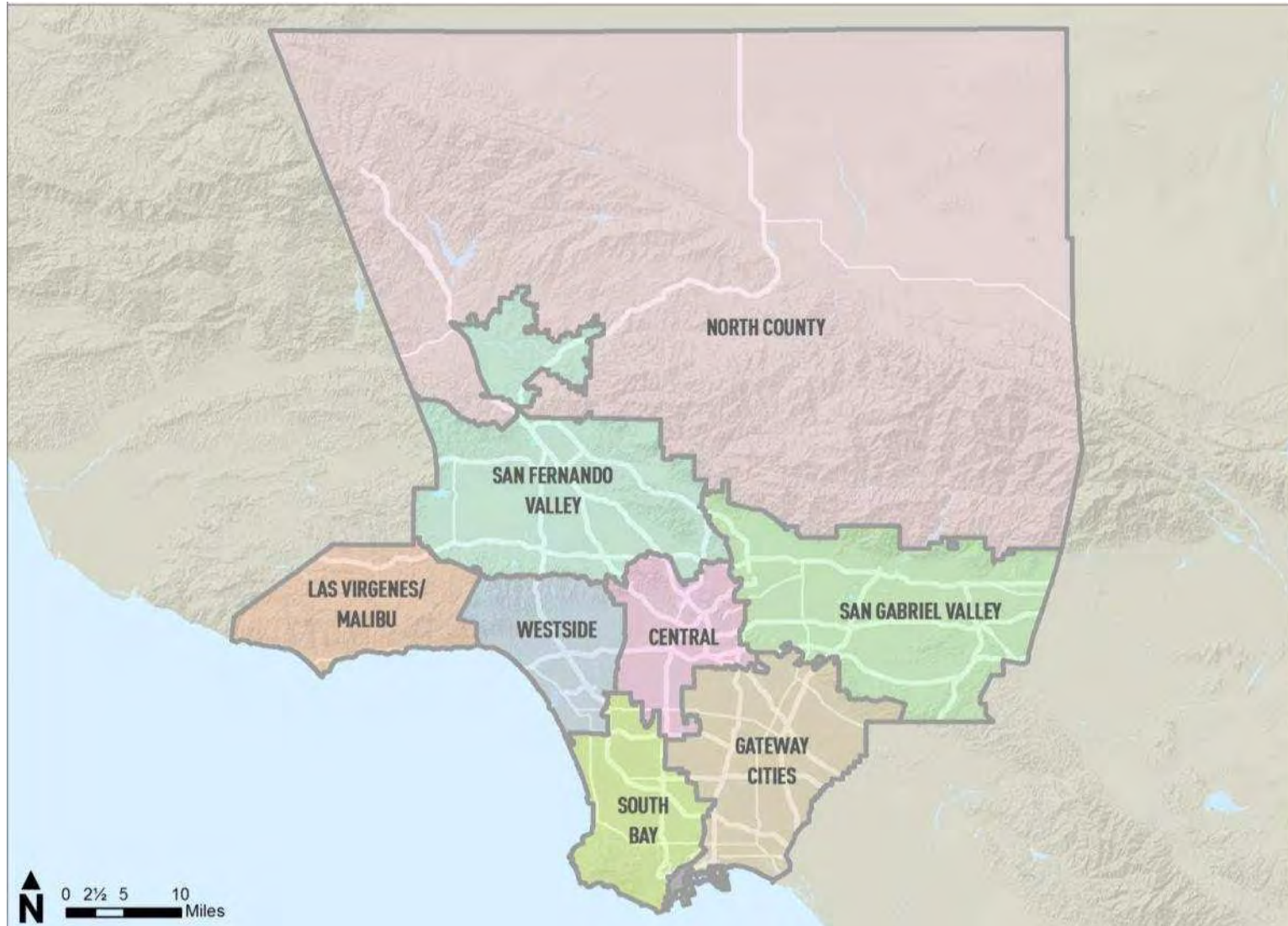
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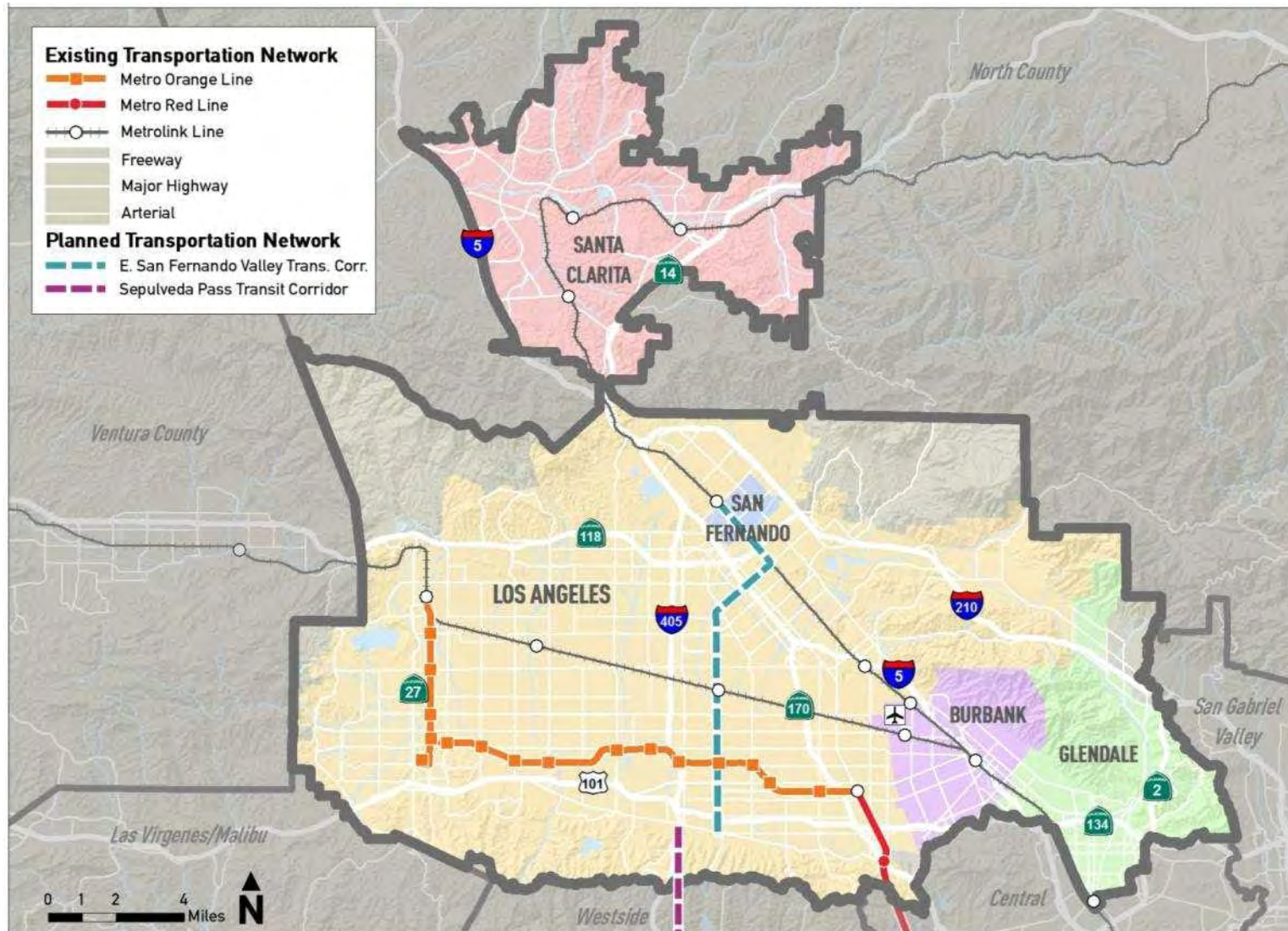
Figure 1-2. San Fernando Valley Mobility Matrix Study Area

Source: STV, 2015

2.0 EXISTING PROJECTS AND STUDIES

Table 2-1 lists projects within the SFVCOG Mobility Matrix Subregion which have been recently completed or are in progress. The projects were drawn from a variety of sources, including the preliminary project list, the cities' General Plans, Metro's Call for Projects, and other regional planning documents. The status of these projects has been confirmed after meeting with representatives from each of the COG cities.

The projects include those which are local in scope, but help achieve the Mobility Matrix goals, as well as projects with wider subregional and regional impacts.

Table 2-1. List of Completed or Funded Projects

Project Type	City/Corridor	Project	Status
Local	Burbank	Burbank-Glendale Traffic System Coordination	Funded
		Traveler Information and Wayfinding System	Funded
		Los Angeles River Bridge	In design
		San Fernando Bikeway	In design
		San Fernando Blvd/Burbank Blvd intersection improvements	In design
	Glendale	Grandview Ave at-grade railroad crossing modifications	Completed
		Sonora Ave at-grade railroad crossing modifications	Completed
		Traffic signal and ITS improvements	Completed
	Los Angeles	Colfax Bridge replacement	Completed
		Widen Tujunga Ave Bridge over LA River	Completed
	Santa Clarita	ITMS Phase IV interconnect gap closure and signal synchronization	Funded
		Citywide wayfinding program for pedestrians and bicyclists	In design
		Golden Valley Rd and SR-14 roadway capacity and intersection improvements	In design
		McBean Parkway widening/gap closure over Santa Clara River	Completed
		Santa Clarita Citywide public information relay system	Completed
		Golden Valley Rd bridge: connecting Soledad Canyon to Newhall Ranch Rd	Completed
		Newhall Ranch Rd from Golden Valley Rd to Bouquet Canyon Rd	Completed
		ITMS Phase III and signal synchronization gap closure	Completed
		McBean Regional Transit Center park-and-ride	Completed
		Newhall Gateway roundabout	Completed
Regional	I-5	I-5/Olive Ave overpass	In design
		I-5/Magnolia Blvd overpass	In design
		I-5 Empire Project	In construction
		I-5/SR-170 Interchange	In construction
		I-5/SR-14 interchange and HOV lanes	Completed
	Metro Orange Line	Orange Line extensions from Canoga Station to Chatsworth Metrolink Station	Completed

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

3.0   STUDY AREA DEMOGRAPHICS

The following section describes general demographic characteristics for the SFVCOG study area. Characteristics that are examined include land use patterns, population and employment, and environmental justice communities.

3.1   Land Use

About one-third of the area is open and vacant land. Housing covers about 37% of the study area. The City of Los Angeles -SFV and the City of San Fernando have half of their land uses covered by single family housing, while Burbank and Glendale have slightly higher concentrations of multi-family housing. Commercial properties make up 9% of the study area, with major shopping centers in Glendale, Santa Clarita, and near Warner Center. The City of San Fernando has a high percentage of commercial land uses, 17%, due to the City's commercial corridor specific plans. Industrial land uses are concentrated along the Metrolink corridors, and represent 5% of the study area.

The SFVCOG Mobility Matrix Subregion's land uses are shown in Table 3-1 and Figure 3-1, with the data and categories taken from the 2008 SCAG land use database.

Table 3-1. Land Uses in Study Area

	Low Density Residential	Medium/High Density Residential	Commercial	Industrial	Public Facilities/ Institutions	Transportation/ Utilities	Mixed Use	Open Space	Vacant	Other
Burbank	36%	9%	7%	7%	3%	7%	2%	3%	27%	1%
Glendale	30%	7%	9%	4%	3%	3%	0%	3%	39%	2%
San Fernando	51%	3%	17%	14%	3%	3%	0%	2%	1%	6%
Santa Clarita	25%	3%	8%	6%	1%	4%	0%	4%	44%	5%
Los Angeles-SFV	45%	5%	11%	5%	5%	6%	0%	4%	18%	3%
SFVCOG Study Area	35%	4%	9%	5%	3%	4%	0%	3%	33%	3%

Source: STV, 2015; SCAG, 2008

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

Figure 3-1. 2008 Land Use – SFVCOG Mobility Matrix Subregion
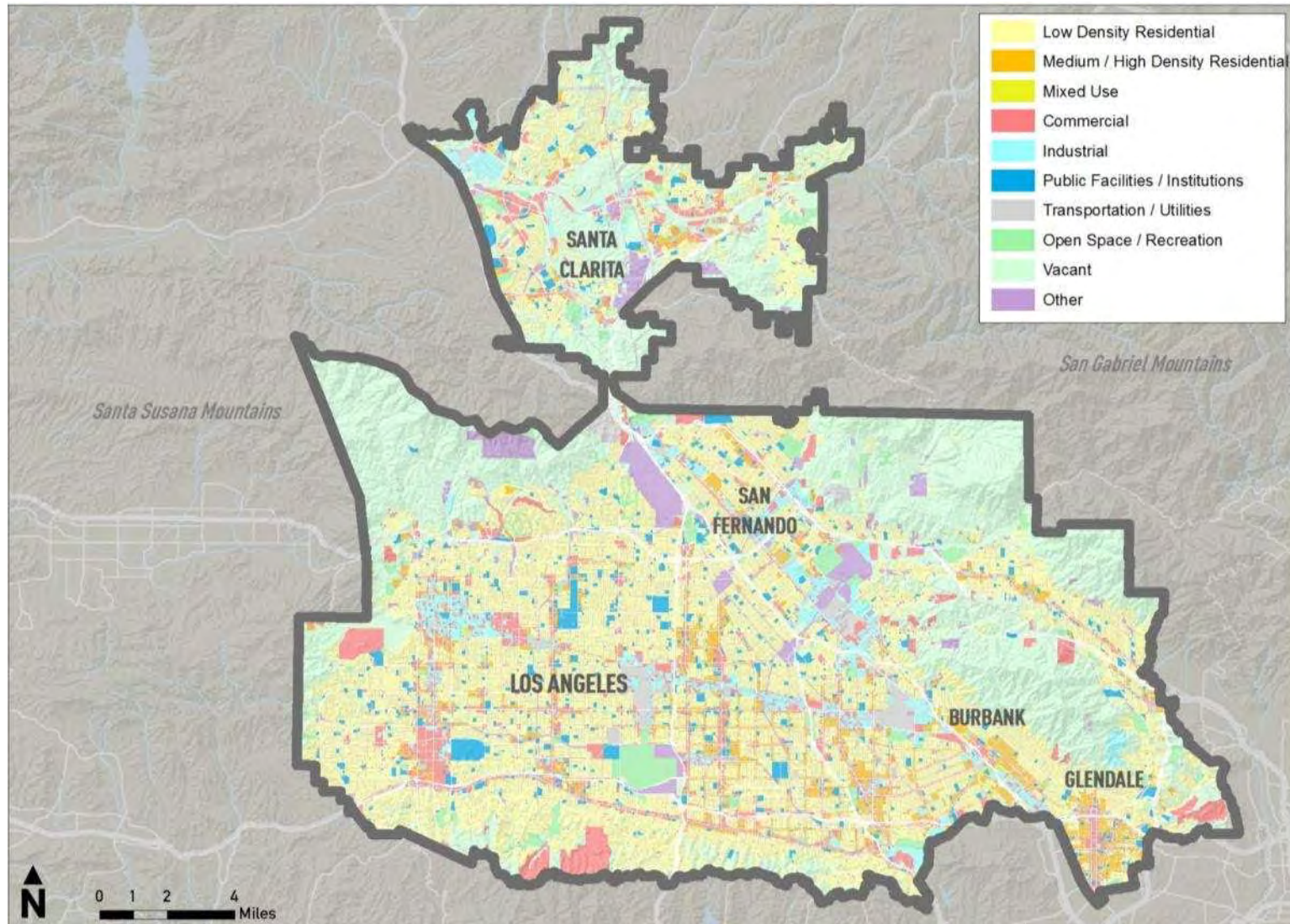
Source: STV, 2015; SCAG, 2008

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

3.2   Population and Employment

3.2.1   2014 Population and Employment

Employment and population density in the SFVCOG Mobility Matrix Subregion varies from city to city. Santa Clarita is the least dense in terms of both employment and population, while the City of San Fernando and the City of Los Angeles-SFV have the highest population densities. Glendale and Burbank are also dense, although their numbers are somewhat skewed by the large amount of open and vacant space in the cities in the Verdugo Hills. Employment is currently highly concentrated around employment centers, such as Warner Center, downtown Burbank, Ventura Boulevard, Media District, and downtown Glendale.

Table 3-2 shows the 2014 population and employment densities for the cities, with data drawn from the Metro 2014 Short Range Transportation Plan (SRTP). Figure 3-2 shows the 2014 population and employment for the study area.

Table 3-2. 2014 Population and Employment Densities – SFVCOG Mobility Matrix Subregion

City	Population Density (residents/sq. mile)	Employment Density (jobs/sq. mile)
Burbank	5,916	4,896
Glendale	6,441	3,159
San Fernando	9,916	6,306
Santa Clarita	3,194	1,442
Los Angeles-SFV	7,413	3,197

Source: STV, 2015; Metro 2014 SRTP

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

Figure 3-2. 2014 Population and Employment – SFVCOG Mobility Matrix Subregion
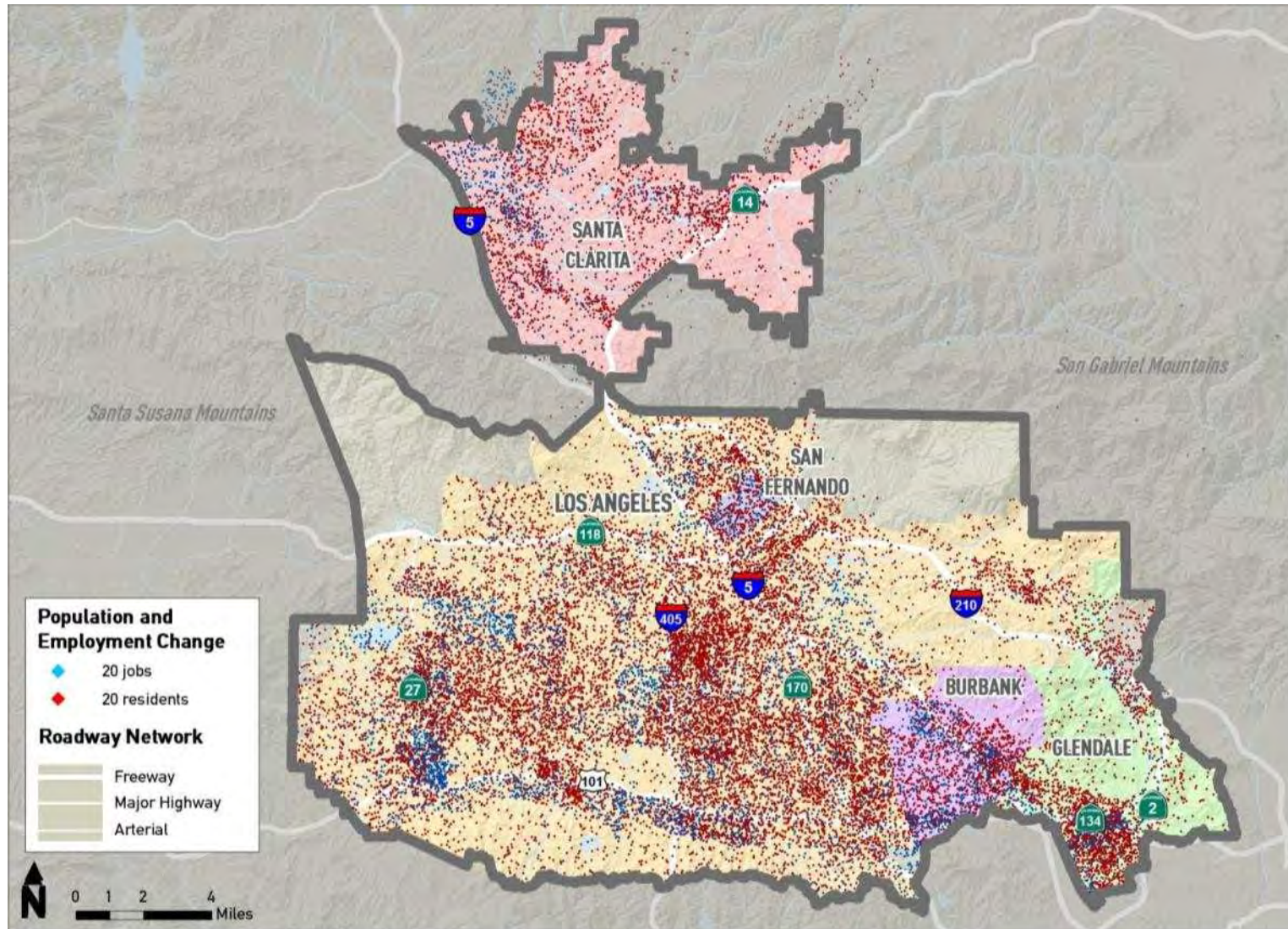
Source: STV, 2015; Metro 2014 SRTP

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3.2.2   Population and Employment Change

The growth rates for jobs and employment are fairly balanced in Glendale, Santa Clarita, and in the San Fernando Valley, as well as for the SFV Mobility Matrix Subregion overall. In Burbank, however, employment growth is twice that of population growth, while San Fernando has the inverse trend. From 2014 to 2024, residential and employment growth will mostly be concentrated in Santa Clarita. Employment growth will mostly concentrate around existing job centers, including Universal City and Warner Center.

Table 3-3 summarizes the changes in population and employments in the cities and in the SFVCOG Mobility Matrix Subregion, with data drawn from Metro's SRTP model. Figure 3-3 shows the projected changes from 2014 to 2024.

Table 3-3. Projected Population and Employment Change, 2014-2024 – SFVCOG Mobility Matrix Subregion

City	Type	2014	2024	*% change*
Burbank	Residents	103,440	109,324	*5.5%*
	Jobs	90,257	101,909	*12.9%*
Glendale	Residents	190,451	199,168	*4.6%*
	Jobs	93,416	97,894	*4.8%*
San Fernando	Residents	23,681	24,665	*4.2%*
	Jobs	15,060	15,490	*2.9%*
Santa Clarita	Residents	205,443	235,885	*14.8%*
	Jobs	92,750	108,829	*17.3%*
Los Angeles-SFV	Residents	1,443,760	1,528,631	*5.9%*
	Jobs	610,539	640,199	*4.9%*
SFVCOG Study Area	Residents	1,966,775	2,097,673	*6.7%*
	Jobs	902,022	964,321	*6.9%*
LA County	Residents	9,401,206	10,075,913	*7.2%*
	Jobs	4,159,639	4,374,145	*5.2%*

Source: STV, 2015; Metro 2014 SRTP

Figure 3-3. Population and Employment Change – 2014-2024 – SFVCOG Mobility Matrix Subregion

Source: STV, 2015; Metro 2014 SRTP
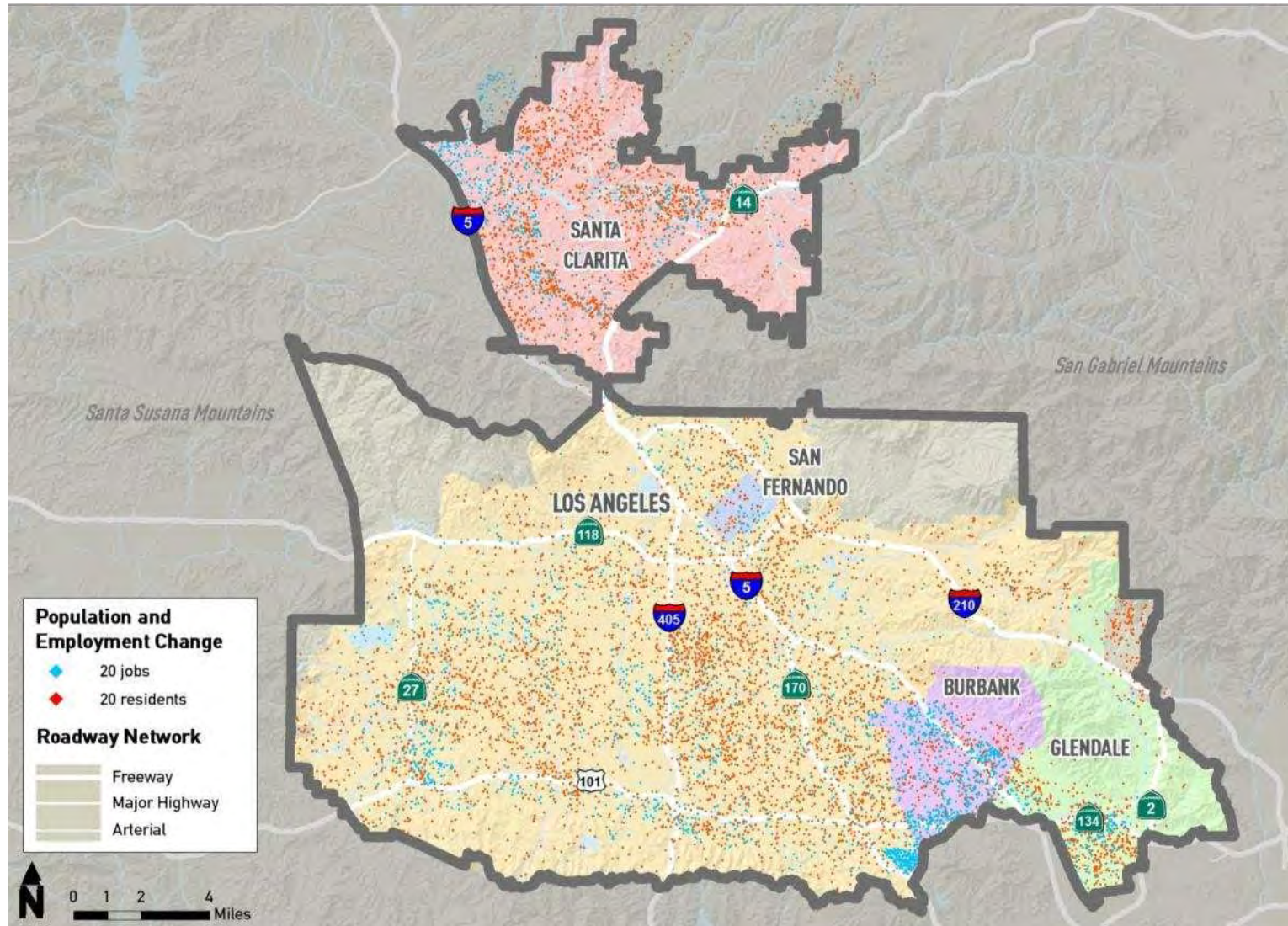
3.3   Environmental Justice Communities

3.3.1   Minority and Low-Income Populations

The SFVCOG Mobility Matrix Subregion has several communities which may bear higher environmental burdens, compared to the rest of the county. The Cities of San Fernando and Los Angeles-SFV both have high percentages of minority and low-income populations, compared to the rest of the study area and to Los Angeles County. The City of San Fernando has the largest minority population in the SFVCOG Mobility Matrix Subregion, 93%, as well as the highest low-income population at 19%. In Los Angeles-SFV, 63% of the population is minority and 15.8% are in poverty. Additionally, most of the areas with transit dependent populations are in Los Angeles-SFV.

Table 3-4 provides an overview of some racial and economic characteristics for the cities in the SFVCOG Mobility Matrix Subregion, with data from the 2010 Census. Figure 3-4 shows the median household income in the study area, using data from the 2013 American Community Survey. Additionally, the map uses data from the Metro 2014 SRTP and shows the areas with transit dependent communities.

Table 3-4. Racial and Economic Characteristics within Study Area

Community	Percentage Total Minority	Median Household Income[1]	Population Living Below Poverty Level
Burbank	42%	$67,662	8%
Glendale	37%	$62,690	13%
San Fernando	93%	$50,768	19%
Santa Clarita	47%	$90,883	8%
Los Angeles-SFV	63%	$63,248	16%
Los Angeles County	72%	$55,476	16%

[1] Median income was determined by averaging the median income of Census tracts groups that were within the study area

Source: STV, 2015; Census, 2010

Figure 3-4. Environmental Justice Communities in Study Area
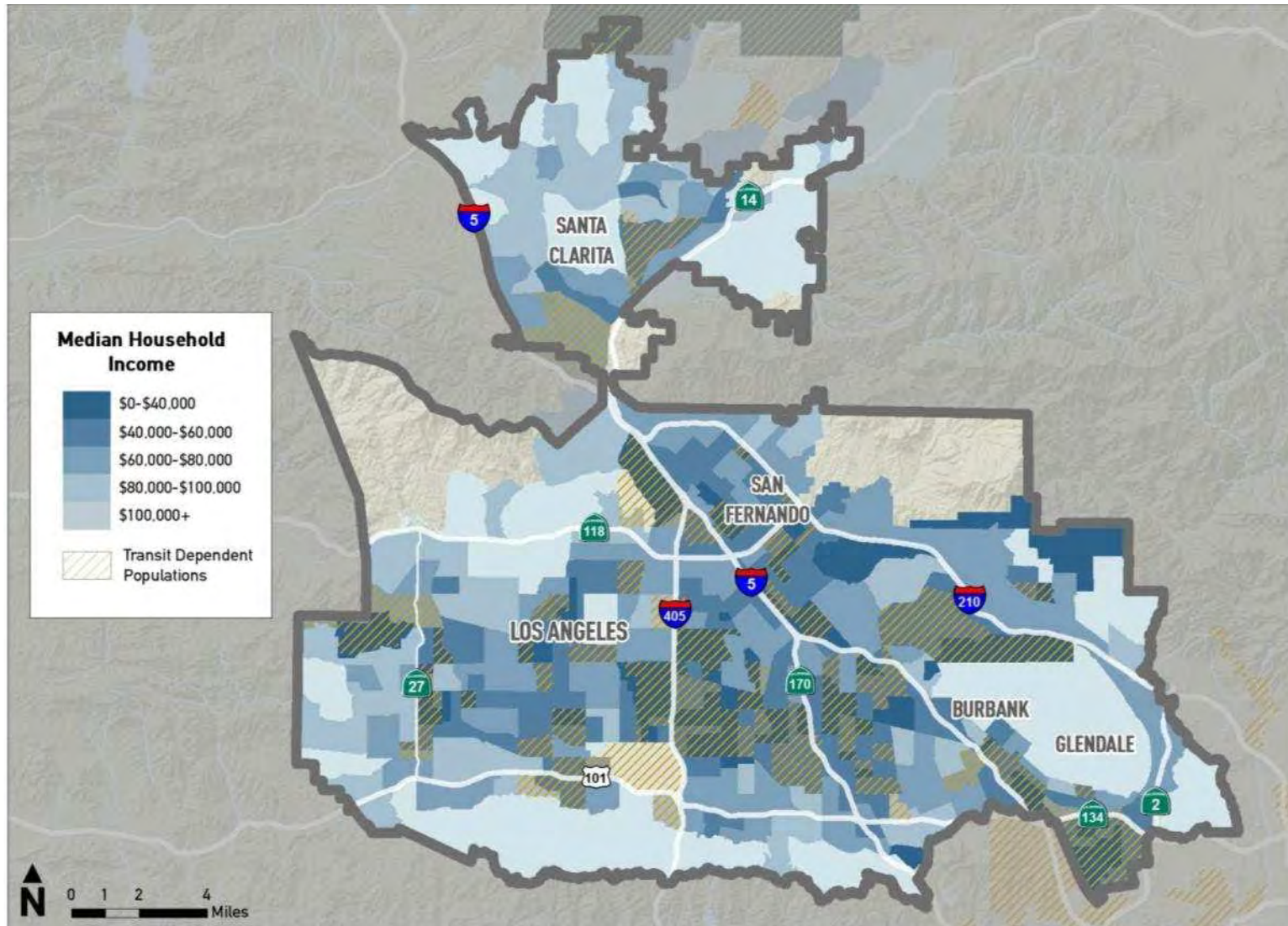
Source: STV, 2015; Metro 2014 SRTP; American Community Survey, 2013

3.3.2   Pollution and Vulnerable Populations

The CalEnviroScreen 2.0 methodology was used to evaluate communities which may be disproportionately burdened by pollution. The CalEnviroScreen scores incorporate a broad range of factors related to pollution and health; they include environmental indicators, such as particulate matter and traffic, and also socioeconomic characteristics, such as elderly populations, poverty levels, and educational attainment. Census tracts with lower scores have a lesser pollution burden, while tracts with higher scores face higher environmental risks and have more sensitive populations.

Santa Clarita has the lowest scores in the SFVCOG Mobility Matrix Subregion, as their pollution burdens are fairly low and there are fewer low-income and minority populations. Burbank and Glendale's scores are mixed, with much higher pollution scores near the freeways, but their population scores overall are average compared to the SFVCOG Mobility Matrix Subregion.

The City of San Fernando and the eastern portion of San Fernando Valley in Los Angeles face the highest risk, on both environmental and socioeconomic counts. The proximity to freeways and socioeconomic characteristics of those communities contribute to a higher pollution burden. Many of these communities in the highest percentiles for pollution risk are also overlap with the ones with transit-dependent populations.

Figure 3-5 illustrates the pollution burdens for the study area, relative to the scores for the entire County. The scores are broken down into percentiles, with green representing the lowest burden and red representing the highest.

Figure 3-5. Pollution Burdens and Vulnerable Populations, Relative to Los Angeles County
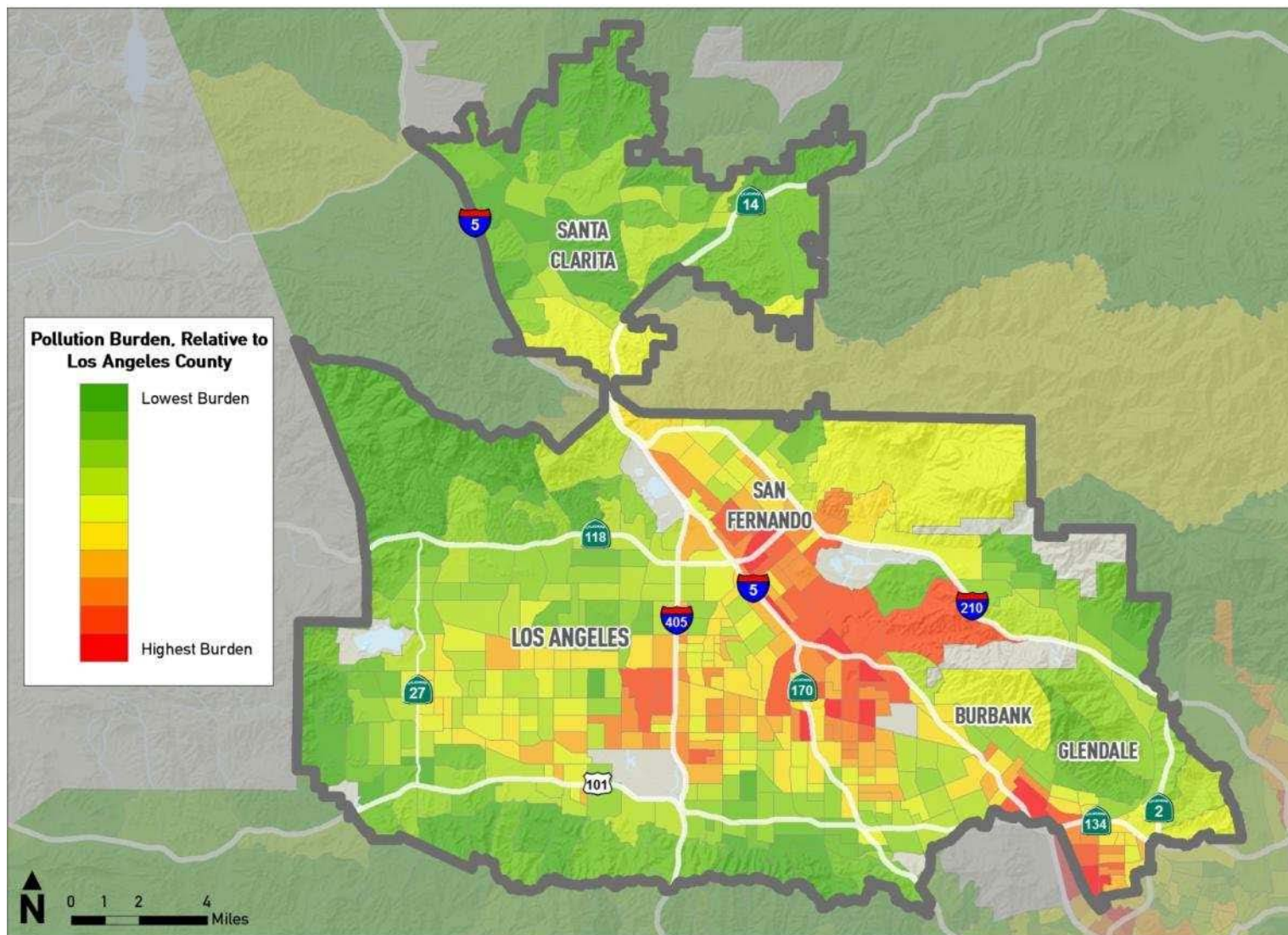
Source: STV, 2015; CalEPA, 2014

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4.0 TRAVEL MARKETS

To set the stage for examining the existing transportation system in the SFVCOG Mobility Matrix Subregion, this section analyzes the key travel markets of the area. This can be used to determine where commuters are heading to/from, and which movements require the most attention for potential improvement programs and projects.

4.1 Definitions

Subregional trip patterns were developed using the Metro model (year 2014). The model data were summarized for two conditions: Total Daily Person Trips, and AM Peak Hour Home Based Work Trips. The model was used to determine the number of trips to and from the SFVCOG Mobility Matrix Subregion to other Southern California destinations, and vice versa. This gives a general understanding of the major travel patterns associated with people who live and work in the SFVCOG Mobility Matrix Subregion.

Some basic definitions that apply to trips as described in this section are as follows:

- **Trip**: One-way journey or movement from a point of origin to a point of destination.
- **Home-based trip**: When the home of the trip maker is either the origin or destination of the trip.
- **Non-home based trip**: Neither end of the trip is the home of the trip maker.
- **Trip Production**: Home end (origin or destination) of a home-based trip, or origin of a non-home-based trip.

- **Trip Attraction**: Non-home end (origin or destination) of a home-based trip, or destination of a non-home based trip.

The plots and data provided show daily person trips, which include all trips made for any reason throughout the day, and home based work trips which are trips from home to work and back.

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4.2 Daily Trip Patterns

The model shows approximately 7 million total daily trips are produced and 7 million attracted each day for the SFV study area. Over three-quarters of those trips stay within the SFVCOG Mobility Matrix Subregion. This indicates a higher job/housing balance in this Mobility Matrix Subregion, as many of the trips each day do not leave the SFV study area.

The highest trip producer and attractor areas are the Central and Westside Mobility Matrix Subregions, with approximately 5% and 4% of daily trips to and from the San Fernando Valley, respectively.

Table 4-1 and Figure 4-1 show the daily trips produced and attracted for the SFVCOG Mobility Matrix Subregion.

Table 4-1. Daily Trip Productions and Attractions (2014) – SFVCOG Mobility Matrix Subregion

To/from Subregion	Trips Produced	% of Trips Produced	Trips Attracted	% Trips Attracted
San Fernando Valley	**5,423,329**	**76%**	**5,423,329**	**78%**
Central Los Angeles	402,330	6%	354,161	5%
San Gabriel Valley	220,114	3%	217,582	3%
Westside	327,866	5%	173,019	2%
Ventura Co	126,223	2%	144,677	2%
Gateway Cities	130,503	2%	123,663	2%
North County	134,642	2%	193,705	3%
Other	325,702	5%	312,461	5%
Total	**7,090,709**	**100%**	**6,942,597**	**100%**

Source: Iteris, 2014; Metro 2014 SRTP

Note: Trip patterns are based on aggregation of trip table data from the Travel Demand Model utilized for the Metro 2014 SRTP formatted by Los Angeles County subregional boundaries, as depicted in the Mobility Matrix work effort, which do not exactly correspond to the 2009 Metro LRTP subregional boundaries.

Figure 4-1. Daily Trip Productions and Attractions (2014) – SFV Mobility Matrix Subregion
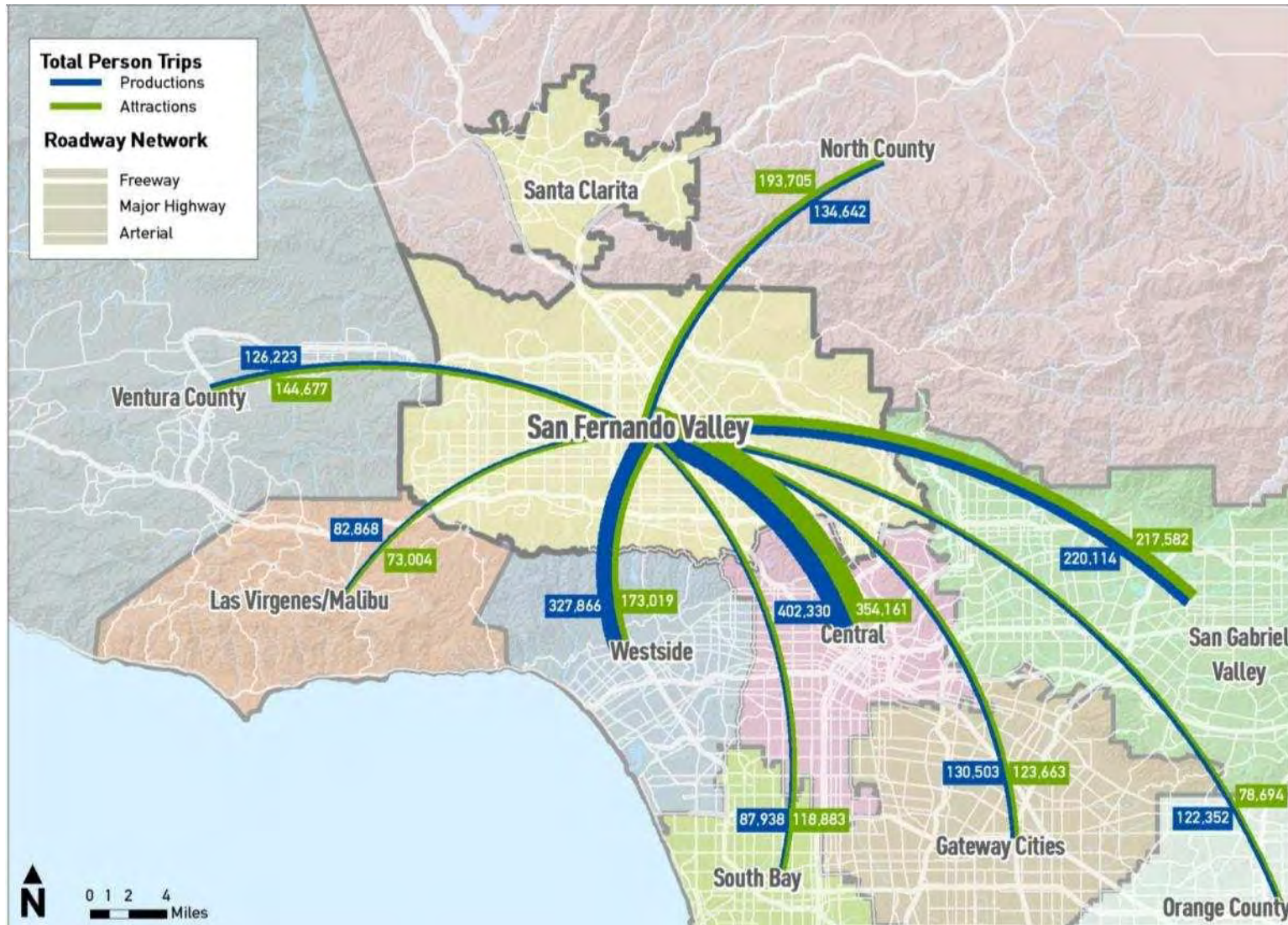
Source: STV, 2015; Iteris, 2014; Metro 2014 SRTP. Note: See Page 4-2 regarding subregional boundaries.

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

4.3   AM Peak Hour Trip Patterns

For AM peak hour home-based-work trips, there are about 933,000 AM outbound trips and 914,400 AM inbound. Almost 60% of all the morning commute trips stay within the study area, indicating that a substantial portion of the residents in the SFVCOG Mobility Matrix Subregion live and work in the SFVCOG Mobility Matrix Subregion.

The Central and the Westside Mobility Matrix Subregions are the two biggest producers and attracters of AM trips. Of all the outbound work trips, 12% go to the Westside, and 11% go to the Central area. About 7% of the incoming trips come from the Central area.

The work trip interaction with the remaining Mobility Matrix subregions and the San Fernando Valley is relatively balanced, with most of the other areas each accounting for less than 5% of the trip interactions per Mobility Matrix subregion.

Table 4-2 lists the trips produced and attracted for the study area. Figure 4-2 illustrates the inbound and outbound directions of the trips.

Table 4-2. AM Peak Hour Home-Based-Work Trip Productions and Attractions (20140 – SFVCOG Mobility Matrix Subregion

To/from Subregion	Trips Produced	% of Trips Produced	Trips Attracted	% of Trips Attracted
San Fernando Valley	**540,788**	**58%**	**540,788**	**59%**
Westside	115,708	12%	36,996	4%
Central Los Angeles	101,897	11%	62,945	7%
San Gabriel Valley	45,049	5%	59,486	7%
Gateway Cities	32,628	3%	33,163	4%
Ventura Co	26,924	3%	50,982	6%
South Bay	22,966	2%	28,304	3%
North County	19,475	2%	61,817	7%
Malibu	16,426	2%	13,679	1%
Other	11,149	1%	26,224	3%
Total	**933,010**	**100%**	**914,384**	**100%**

Source: Iteris, 2014; Metro 2014 SRTP

Note: Trip patterns are based on aggregation of trip table data from the Travel Demand Model utilized for the Metro 2014 SRTP formatted by Los Angeles County subregional boundaries, as depicted in the Mobility Matrix work effort, which do not exactly correspond to the 2009 Metro LRTP subregional boundaries.

Figure 4-2. AM Peak Hour Home-Based-Work Trip Productions and Attractions (2014) – SFVCOG Mobility Matrix Subregion
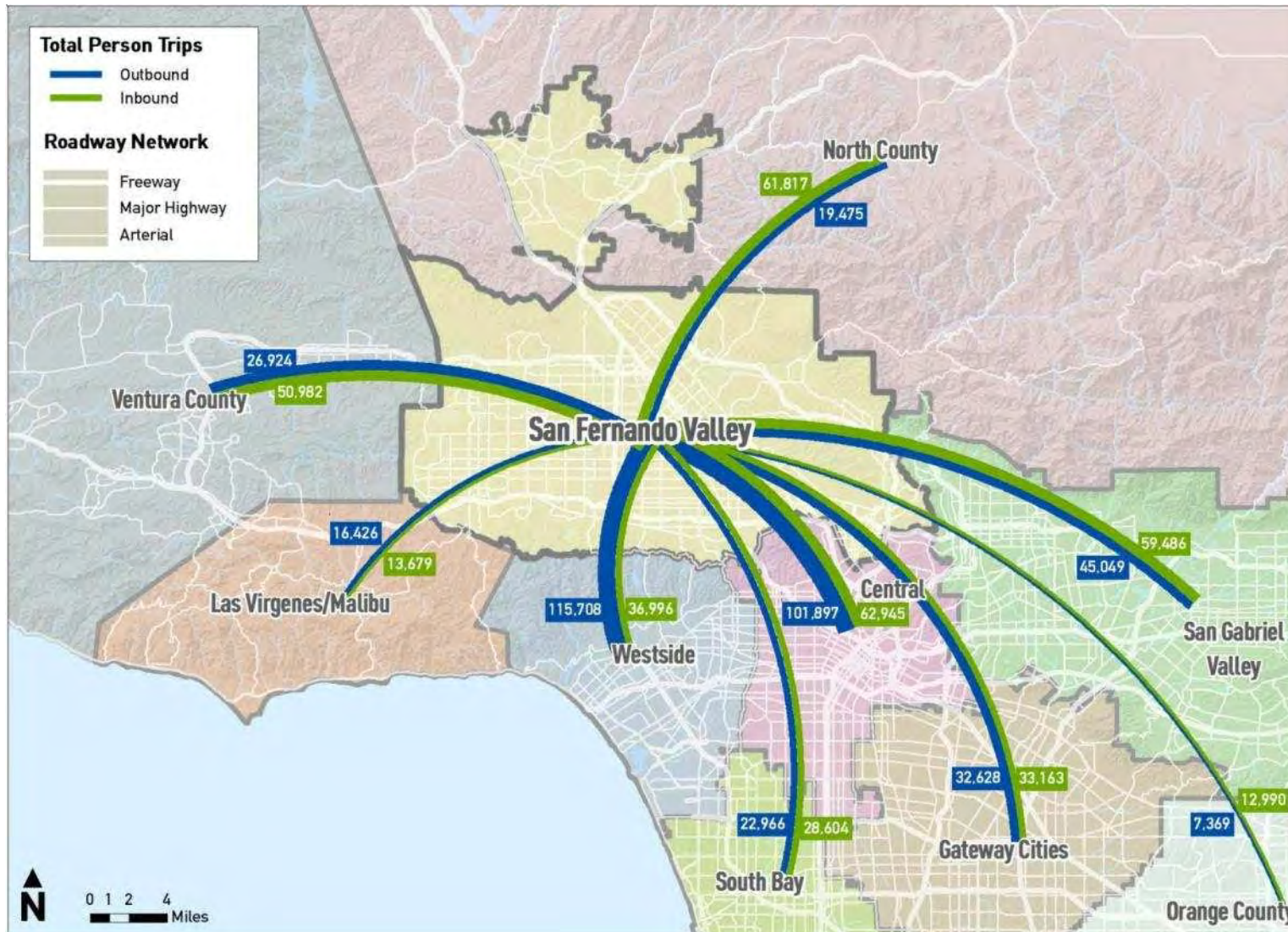
Source: STV, 2015; Iteris, 2014; Metro 2014 SRTP. Note: See Page 4-4 regarding subregional boundaries.

4.4   Travel Within Study Area

The SFVCOG Mobility Matrix Subregion includes not only the SFV subregion, but also Santa Clarita from the North County subregion.

The Santa Clarita Valley has about the same trip interaction with both the San Fernando Valley and the North County subregions. About 12% of trips are to and from North County, and 12% are to and from the San Fernando Valley.

Nearly two-thirds of daily trips stay within the Santa Clarita area, and about 40% of home based work trips stay within the SFVCOG Mobility Matrix Subregion. This is likely due to the relatively longer distance to other areas, thus creating more internal trips to satisfy shopping, school, and other trip purposes.

Figure 4-3 show the trip volumes to and from Santa Clarita from the surrounding Mobility Matrix subregions.

Figure 4-3. Daily Trip Productions and Attractions (2014) – Santa Clarita
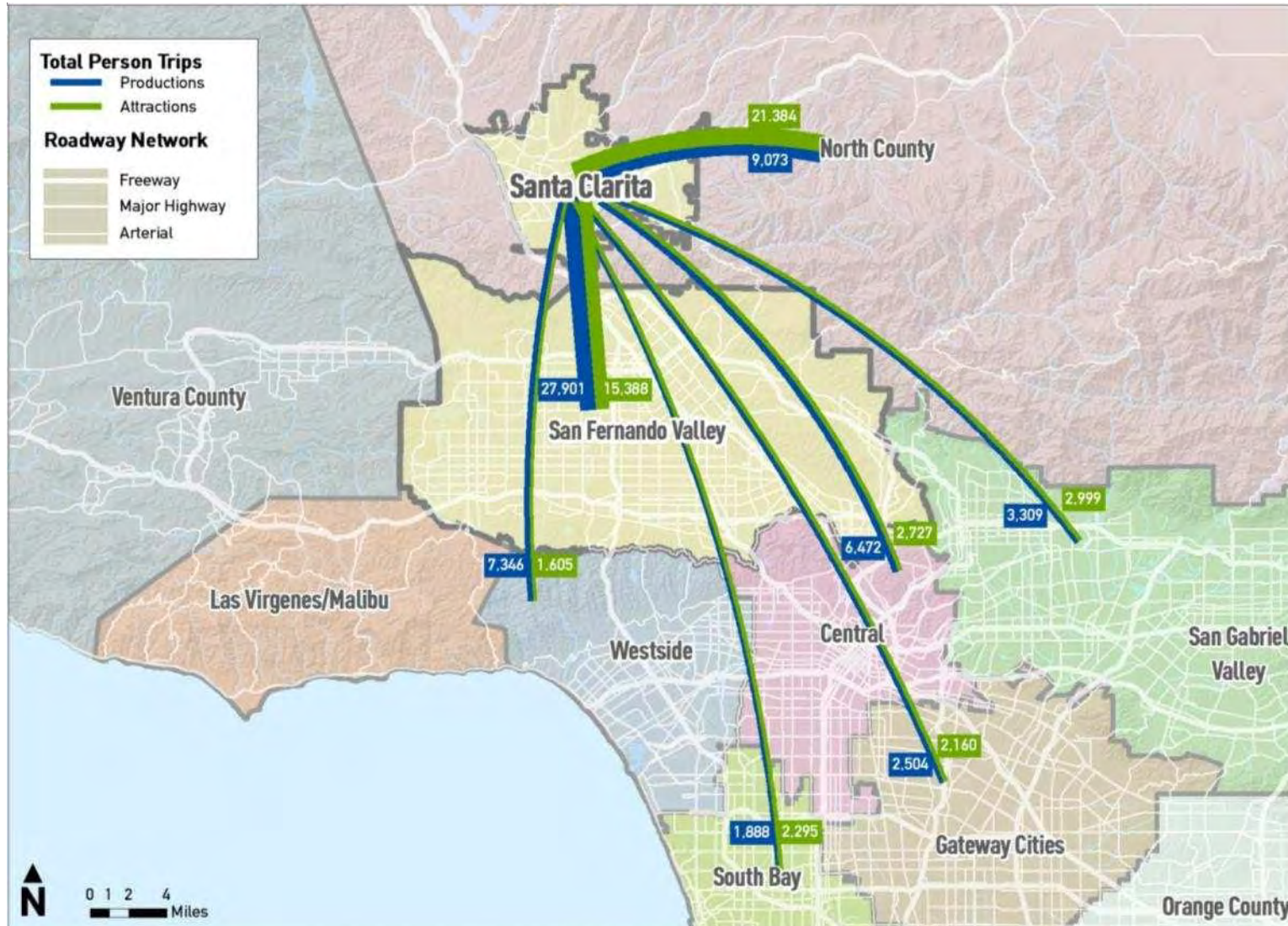
Source: STV, 2015; Iteris, 2014; Metro 2014 SRTP. Note: See Page 4-4 regarding subregional boundaries.

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

5.0 FREEWAYS AND ARTERIALS

Travel demand modeling analysis, as well as review of speeds and slow spots, was used to determine existing baseline conditions and future conditions on the freeways and key arterial roadways.

5.1 Freeway Volumes

The Caltrans Freeway Performance Monitoring System (PeMS) was used to assess freeway volumes and speeds. PeMS is used by Caltrans for performance analysis, including monitoring of traffic flow, congestion monitoring and estimating travel time reliability. Within the study area, Caltrans PeMS monitoring locations were available through the freeway system at various locations.

The highest freeway volumes in the San Fernando Valley area occur on US-101 east of I-405, where the daily traffic flow is just over 350,000 vehicles. Other freeway segments that carry over 300,000 vehicles per day include I-405 between SR-118 and US-101: US-101 west of I-405; and I-5 just south of SR-118.

Most of the remaining freeway segments experience a daily flow of less than 200,000 vehicles per day. The SR-210 and routes in the Santa Clarita Valley carry fewer daily travelers, compared to the rest of the study area.

Figure 5-1 illustrates the average daily traffic (ADT) volumes in the SFVCOG Mobility Matrix Subregion.

Figure 5-1. Average Daily Traffic Volumes on SFVCOG Mobility Matrix Subregion Freeways

Source: STV, 2015; Iteris, 2014; Caltrans, 2014
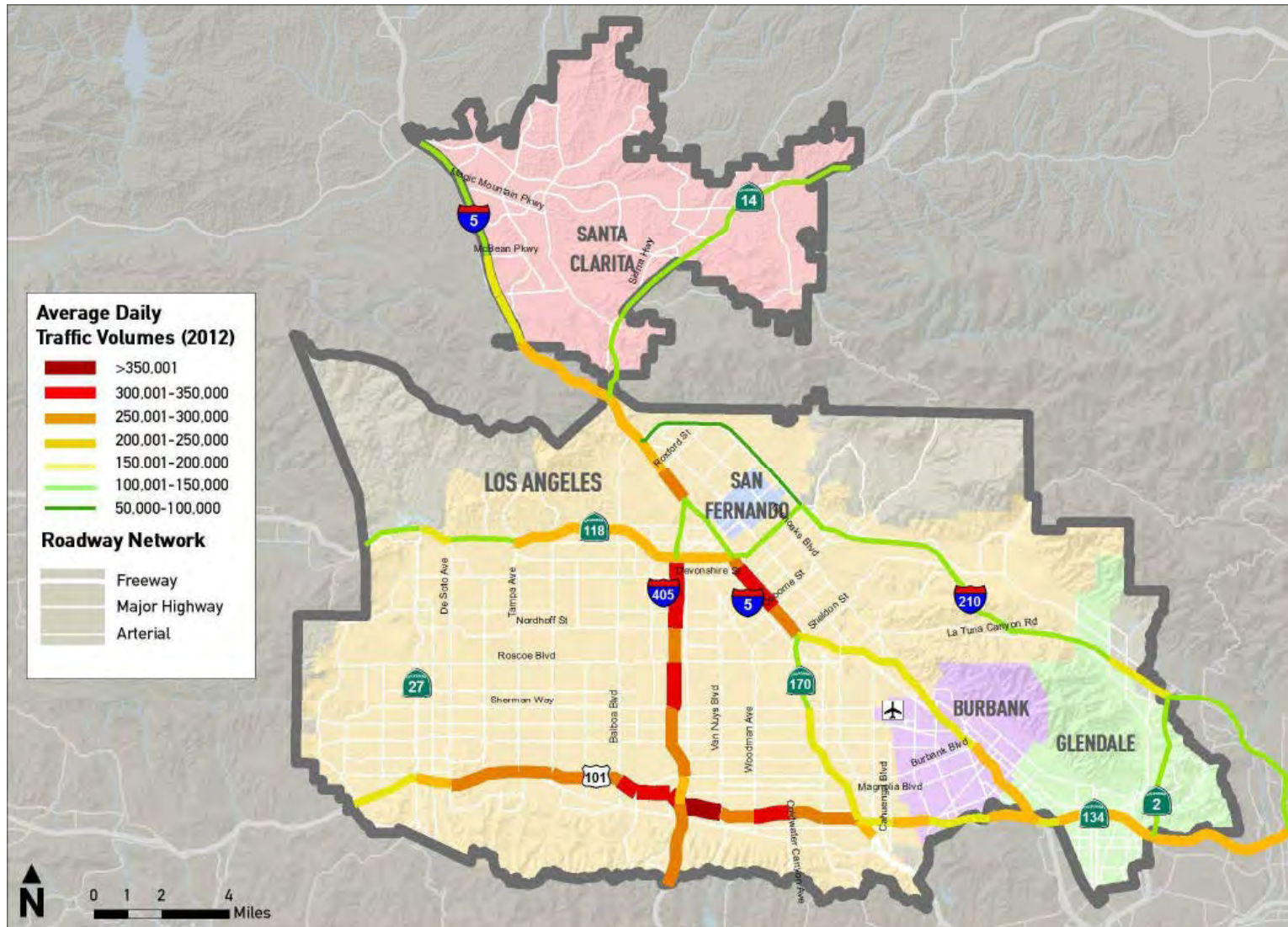
5.2   Freeway Speeds

Using the PeMS database, average speeds were extracted for freeways in the study area. October 2013 speed data were reviewed to understand typical peak hour operating speeds on the freeway system in the SFVCOG Mobility Matrix Subregion. Only typical weekdays (non-holiday Tuesdays, Wednesdays and Thursdays) were used as a basis for the average speed data extraction. Speeds were extracted over the 24 hours of every weekday, with the peak hours chosen based on the slowest observed speeds during the peak commute period.

During the AM peak hour, speeds under 30 mph are experienced along I-405 southbound, SR-101 in both directions throughout much of the study area, on I-5 southbound, along SR-14 southbound, and along a portion of SR-210 southbound just north of SR-2. These slow patterns reflect inbound work commute trips from the SFVCOG Mobility Matrix Subregion to employment opportunities to the south.

During the PM peak hour, the opposite patterns are seen, with significant slowing along I-405 northbound, SR-14 northbound, and I-210 northbound. Much of US-101 is congested during the evening, in addition to portions of SR-118 eastbound and I-5 southbound.

Figure 5-2 illustrates the AM peak hour freeway speeds in the SFVCOG Mobility Matrix Subregion.

Figure 5-2. AM Peak Hour Speeds on SFVCOG Mobility Matrix Subregion Freeways
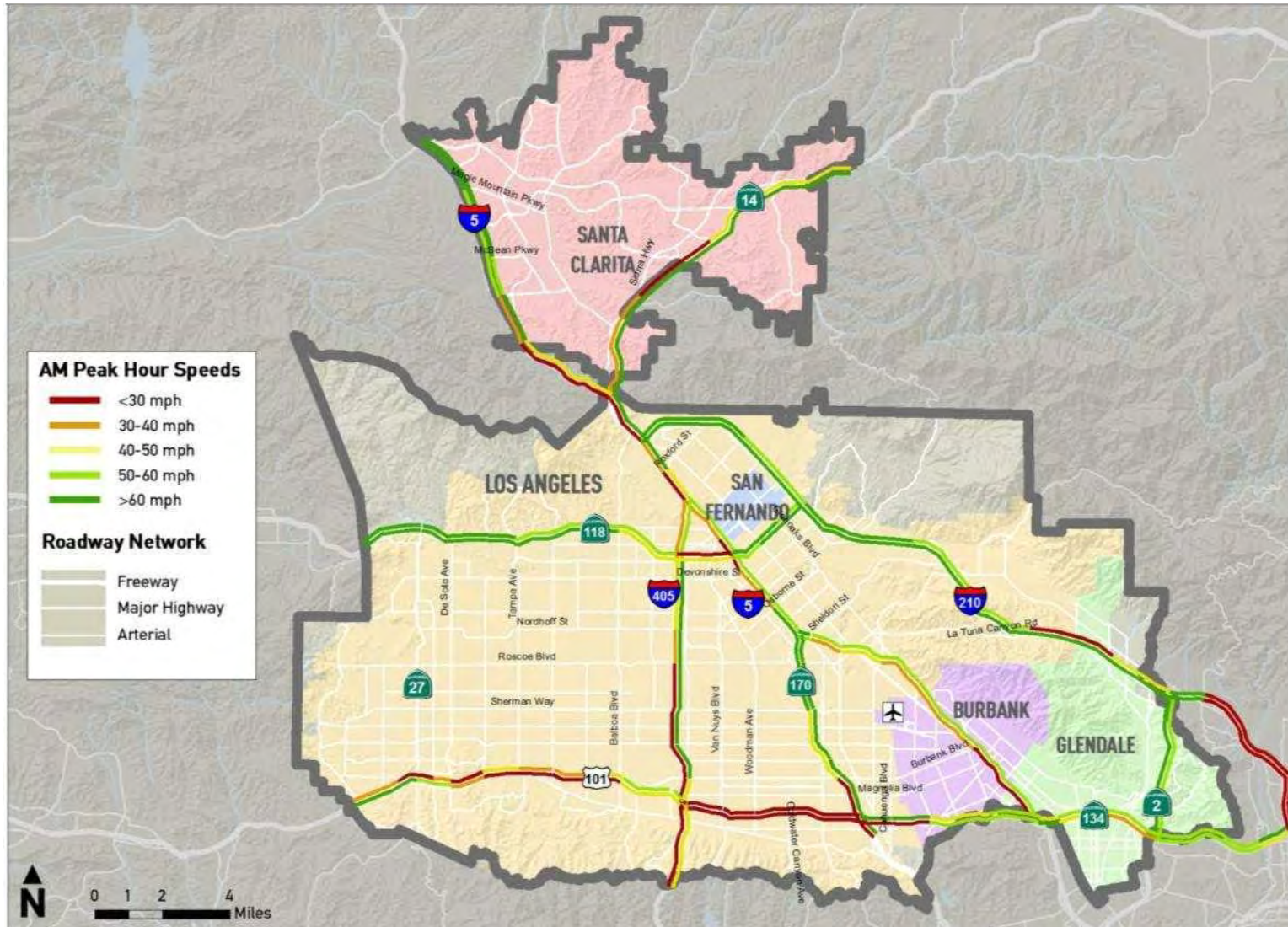
Source: STV, 2015; Iteris, 2014; Caltrans, 2014

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

5.3   Arterial Volume and Speed

Unlike the freeway PeMS system, there is no single comprehensive source of daily traffic flow information on arterial roadways. Many cities do not regularly collect traffic counts or only do so for special studies or as needed in selected locations. Due to the lack of available count-based arterial volume data, the Metro 2014 travel model was used to identify daily volumes on selected key arterial corridors. The model is a good tool to assess the overall magnitude of arterial traffic flow and to understand which roadways and segments carry the highest amount of traffic in the SFVCOG Mobility Matrix Subregion.

Peak hour traffic speeds on the arterial roadways were also analyzed through the use of iPeMS system. The iPeMS gathers vehicle probe data along arterials and then delivers real-time and predictive traffic analytics. For this analysis, vehicle probe data were assessed for the months of January through April 2013, and for the hours of 7:30-8:30 AM and 4:30 to 5:30 PM. Similar to freeway PeMS, the data can be used to assess points of slowing on the arterial system.

The corridors which were analyzed include arterial roadways that are a part of the 2010 Los Angeles County Congestion Management Program (CMP), along with other key regionally significant corridors that were selected for the study.

Some of the highest arterial volumes (over 40,000 ADT) are seen on east/west oriented routes in the SFV area, including Nordhoff Street, Roscoe Boulevard, Sherman Way, Victory Boulevard, and portions of Ventura Boulevard. North/south streets carrying high volumes include Canoga Avenue, De Soto Avenue, Winnetka Avenue, and Tampa Avenue. In the Santa Clarita Valley, higher volumes are seen on portions of Sierra Highway, Soledad Canyon Road, Bouquet Canyon Road, and McBean Parkway.

Peak hour slowing occurs on many of the major arterial roadways during one or both peak hours, and especially at intersections with other major arterials. The roadways with the largest segments with slow speeds include Ventura Boulevard, Van Nuys Boulevard, Lankershim Boulevard, Hollywood Way, Glenoaks Boulevard, Beverly Glen Boulevard, and Reseda Boulevard. While these roadways experience significant slowing in many areas with the SFVCOG Mobility Matrix Subregion, other arterials also experience slowing in more isolated segments.

Figure 5-3 illustrates the average speeds for the AM peak period.

Figure 5-3. AM Peak-Hour Speeds on SFVCOG Mobility Matrix Subregion Arterials
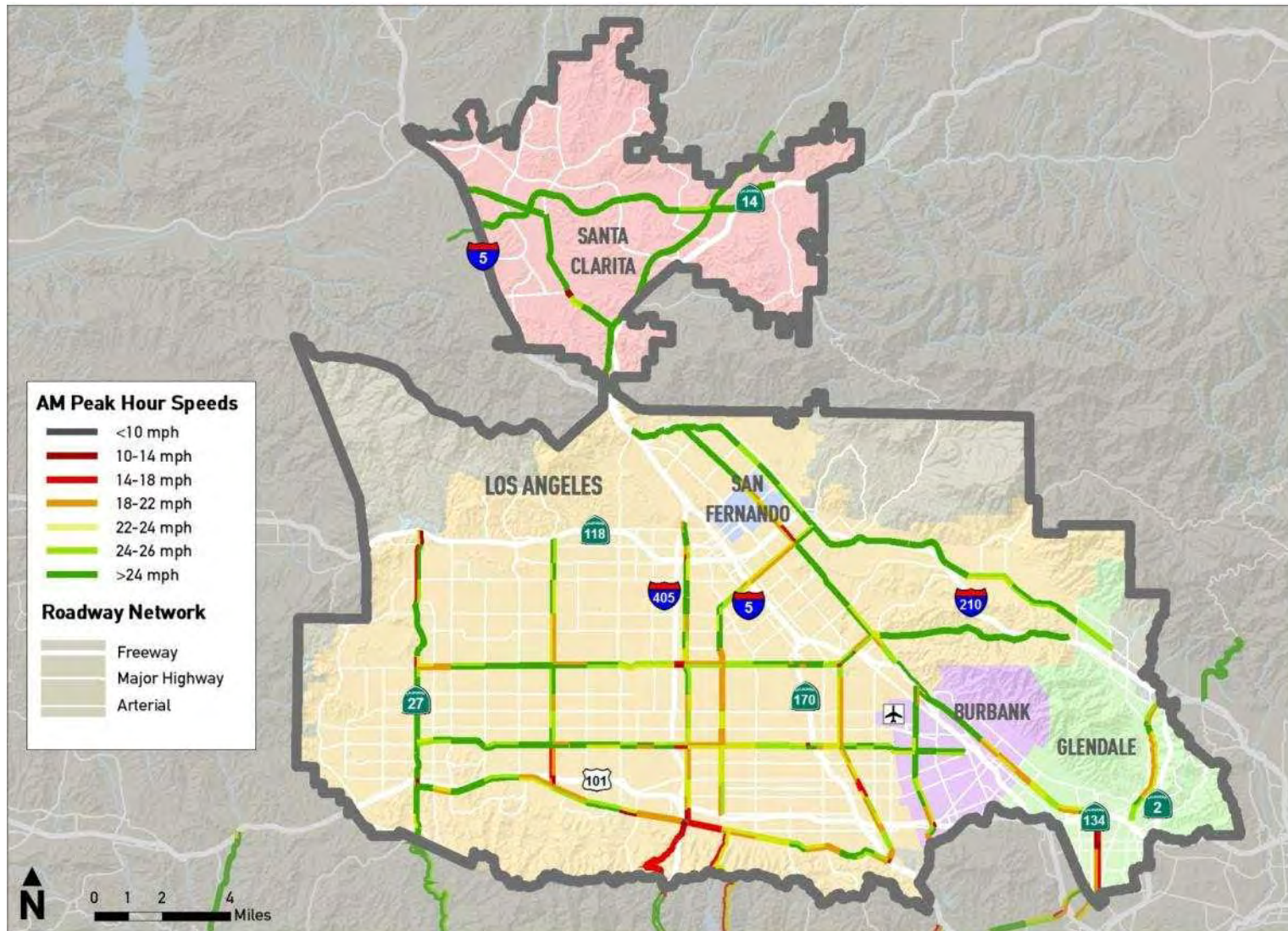
Source: STV, 2015, Iteris, 2014

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5.4   Goods Movement

The study area contains several routes which have been designated for use by trucks, including non-local "through" trucks which do not have a local destination. Other trucks making local deliveries can legally use the entire arterial system, unless specifically prohibited by ordinance. Non-local through trucks must use the designated truck route system, as shown.

Traffic crash data for the three year period of 2008 to 2011 were reviewed to determine where crashes have occurred which involve a truck. The crash locations are spread out over the SFVCOG Mobility Matrix Subregion on several of the major arterials that also serve as designated truck routes, and even a few that are not truck routes, indicating those are likely local delivery truck routes.

Figure 5-4 shows the truck routes in the SFVCOG Mobility Matrix Subregion, including municipal routes, routes designated by the Surface Transportation Assistance Act (STAA), and the DRAFT Los Angeles Countywide Strategic Truck Arterial Network (CSTAN). This is a strategic goods movement arterial plan network of facilities designated by Metro. Figure 5-5 shows the relative density of truck-involved crashes in the SFVCOG Mobility Matrix Subregion.

Figure 5-4. Designated Truck Routes – SFVCOG Mobility Matrix Subregion
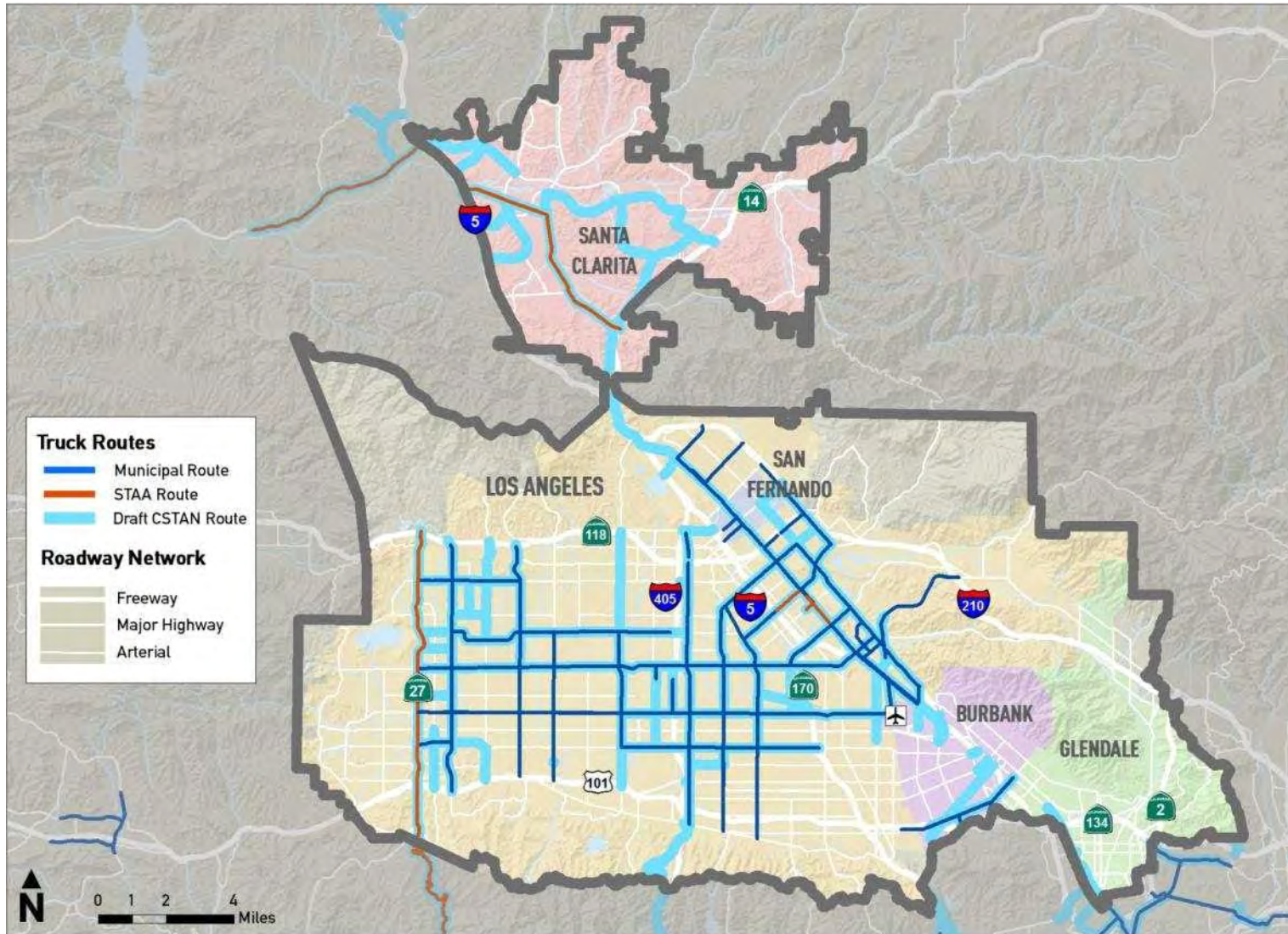
Source: STV, 2015; Iteris, 2014

Figure 5-5. Truck-Related Collisions – SFVCOG Mobility Matrix Subregion
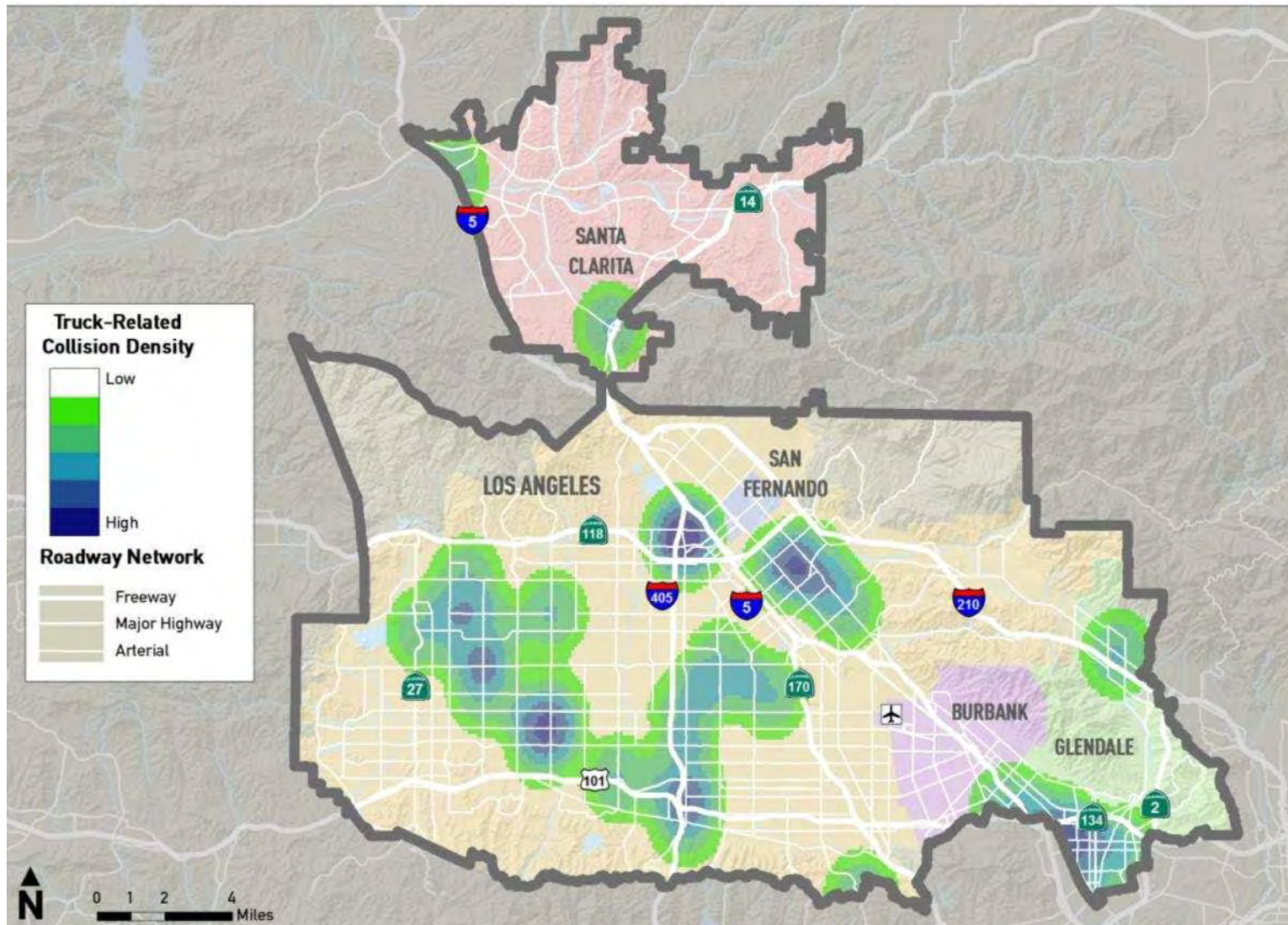
Source: STV, 2015; Iteris, 2014

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

6.0 ACTIVE TRANSPORTATION

The majority of the SFVCOG study area has been built with a suburban form that lends itself to bicycling or walking. With the exception of the fringes of the SFVCOG Mobility Matrix Subregion, most of the streets are laid out on a grid that provides a moderate to high level of connectivity. Arterial streets are generally spaced at one-half mile apart with collector and local streets forming a finer network. The fine grid is more complete in the eastern parts of the study area than in the western portions.

In the fringe areas, such as Santa Clarita, Granada Hills, Porter Ranch, and West Hills, the street network consists of primarily disconnected streets. Arterial streets lead to residential culs-de-sac with no grids and relatively few options for people to walk or bicycle from one street to the other without going along a circuitous route. This pattern makes schools, parks, stores, and other destinations inconvenient to reach by walking or bicycling.

Land use in the SFVCOG Mobility Matrix Subregion reflects the street networks. In the communities with more complete street grids, land uses are mixed enough to bring many destinations close enough to walk to, and more within bicycling distance. These areas generally fall somewhere in between dense urban development and sparse suburban development, which reflects the time period in which much of the area was built out. The fringe areas built in the 1980s and 1990s typically have disconnected street networks with separated land uses.

While some parts of the study area are fairly walkable and bikeable, Table 6-1 shows that bicycling and walking represent a very small percentage of commute modes in the SFVCOG Mobility Matrix Subregion, at less than 3% combined. About three quarters of commuters drive alone to work.

Table 6-1. Bicycling and Walking Commute Mode Share

Mode	Mode Share
Bicycling	0.7%
Walking	2.2%
Drive Alone	73.5%

Source: Census, 2010

6.1 Existing Facilities

Some communities within the SFVCOG Mobility Matrix Subregion have installed bikeways in limited locations. The following bikeway definitions are used.

- **Bike paths (Class I):** Exclusive paved paths separated from the roadway for bicyclists and other non-motorized users

- **Bike lanes (Class II):** Striped, stenciled and signed lanes in the street dedicated for bicycles

- **Bike routes (Class III):** Signed bicycle routes in lanes that are shared with other traffic

- **Bike boulevards:** Bicycle routes that are enhanced with traffic calming measures such as, but not limited to, traffic circles in lieu of stop controls, roundabouts, diverters or bicycle-only traffic signals

- **Protected bike lanes:** Bike lanes that are in the street and are physically separated from the other travel lanes by parked cars, a painted area, planters or other barriers.

- **Bicycle-friendly street**: A type of Class III route that introduces street-calming engineering treatments on local and collector streets

Figure 6-1shows the existing and proposed bikeways and multi-purpose trails for the study area, which were collected from city bicycle plans and the County's Bicycle Master Plan. Several communities in the region also have horse trails and other facilities, which are depicted on the map.

6.2 Proposed Facilities

Table 6-2 shows that Santa Clarita has a significant network of bike paths, and that the network of bike lanes and bike routes throughout the study area is growing. The network is far from complete, but it has grown to a point where many origins and destinations are within a mile or so from some type of bikeway. While some streets in the study areas have existing bikeways, conditions are still not ideal even on those streets.

Table 6-3 shows currently planned facilities in the SFVCOG Mobility Matrix Subregion. Overall, total mileage of bikeways will approximately double. A large percentage of the new bikeways are attributable to Los Angeles' bicycle-friendly streets, although half of the planned routes are lanes or paths. Eventually, the planned routes will create a robust bikeway network accessible from throughout the study area. Depending on the quality of the bike lanes, (regular, colored, buffered, or protected) the completed network could offer high-quality bicycling that has potential to attract many people to ride.

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Figure 6-1. Existing and Proposed Active Transportation Facilities - SFVCOG Mobility Matrix Subregion
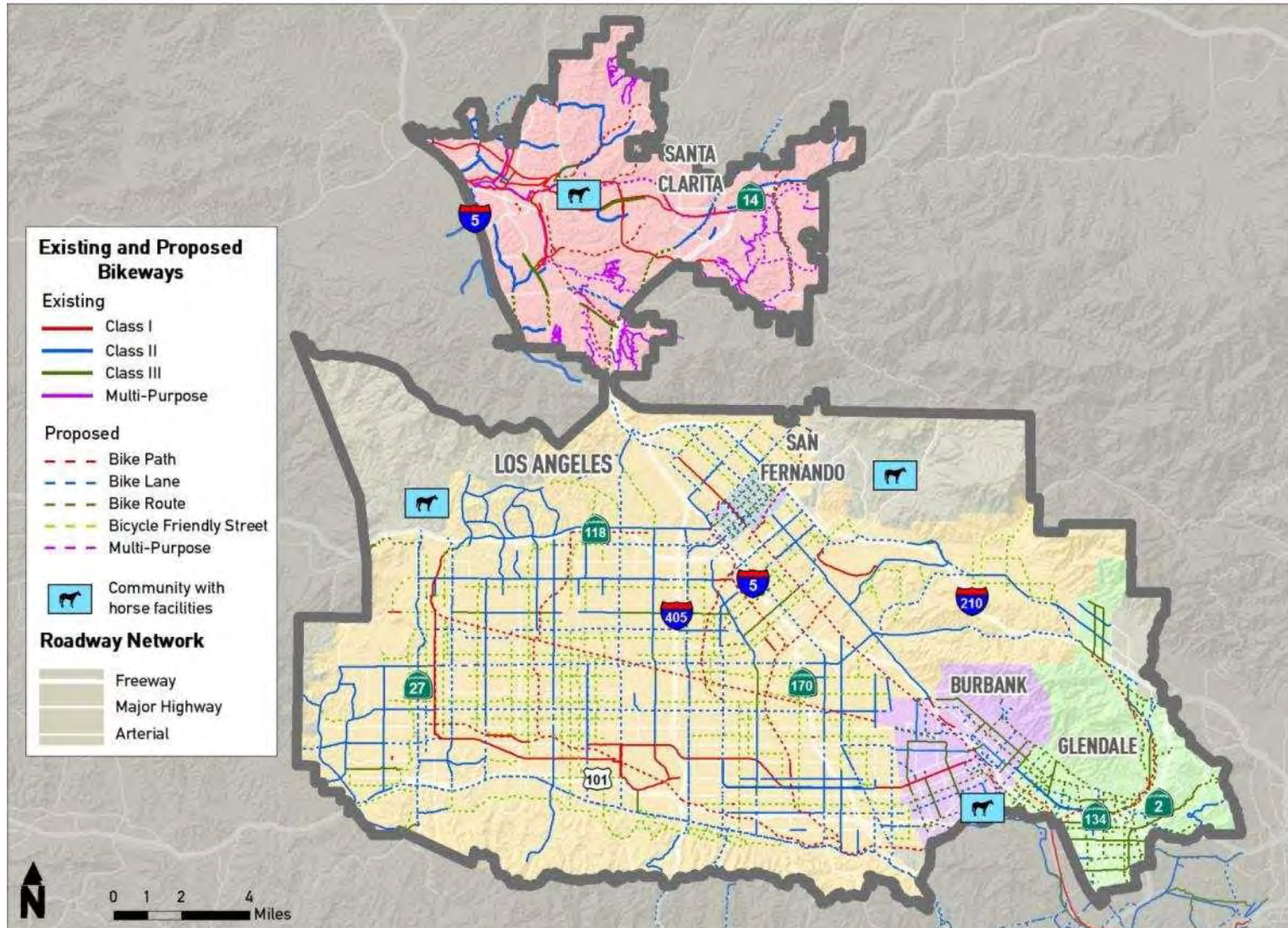
Source: STV, 2015; RSA, 2014

SUBREGIONAL MOBILITY MATRIX – SAN FERNANDO VALLEY

Table 6-2. Existing Bikeways in Study Area

Type	Burbank Length (mi.)	Glendale Length (mi.)	Los Angeles Length (mi.)	San Fernando Length (mi.)	Santa Clarita Length (mi.)	Total Length (mi.)
Bike path	2.9	0.0	56.1	1.3	36.4	96.7
Bike lane	7.5	12.6	352.1	0.0	24.4	379.7
Bike route	11.9	20.8	125.9	0.0	5.4	164
Total	22.3	33.4	534.1	1.3	66.2	640.3

Source: RSA, 2014

Table 6-3. Proposed Bikeways in Study Area

Type	Burbank Length (mi.)	Glendale Length (mi.)	Los Angeles Length (mi.)	San Fernando Length (mi.)	Santa Clarita Length (mi.)	Total Length (mi.)
Bridge	0.4	0.0	0.0	0.0	0.0	0.4
Bike boulevard	16.8	0.0	0.0	0.0	0.0	16.8
Bike path	5.3	13.7	52.3	3.0	17.3	100.8
Bike lane	20.6	18.2	203.7	2.7	6.7	260.1
Bike route	17.8	56.0	19.9	15.1	15.7	124.5
Bicycle-friendly street	0.0	0.0	253.8	0.0	0.0	253.8
Total	60.9	87.9	529.7	20.8	57.1	756.4

Source: RSA, 2014

6.3 Safety

From 2008 to 2012, there has been an average of about 1,450 bicycle or pedestrian collisions per year, with a slight upward trend across the five years. Pedestrian collisions outnumber bicyclist collisions, although the latter rate has been increasing steadily each year. Most collisions result in moderate or minor injuries, while 2% of collisions are fatal.

Figure 6-2 shows the general trend of collisions across the five years, and Figure 6-3 summarizes the severity of all the collisions. Figure 6-4 depicts the relative density of the incidents, showing several hot spots at major intersections as well as some high-incident corridors.

Figure 6-2. Number of Collisions from 2008-2012
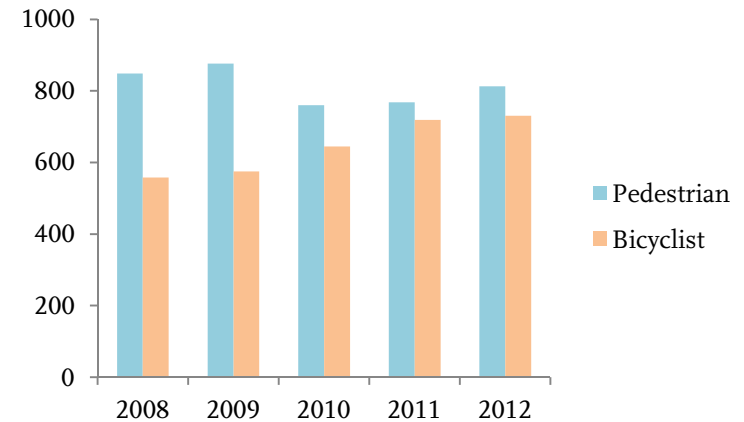
Source: SWITRS, 2008-2012

Figure 6-3. Severity of Collisions in Study Area, 2008-2012
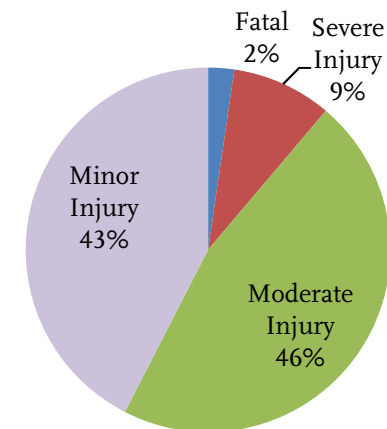
Source: SWITRS, 2008-2012

Figure 6-4. Bicycle and Pedestrian Collisions 2008-2012 – SFVCOG Mobility Matrix Subregion
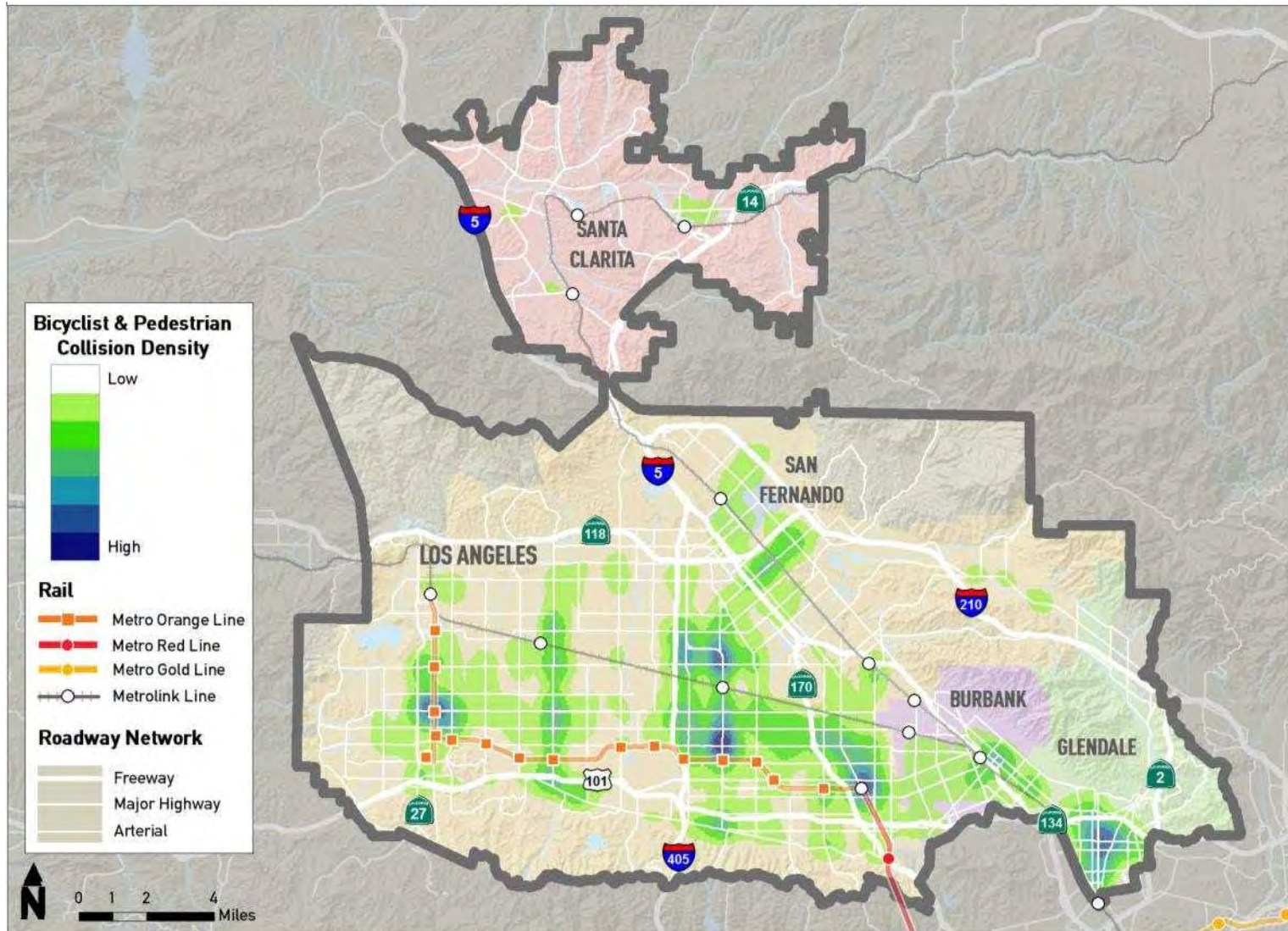
Source: STV, 2015; SWITRS, 2008-2012

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7.0 TRANSIT

7.1 Bus Service

Metro operates a grid of local and rapid buses, which carry between 1,000 and 15,000 passengers per day. The Metro Orange Line runs from San Fernando Valley to the Red Line, connecting to Downtown Los Angeles, and it serves over 26,000 passengers per day.

There are many express and commuter buses operating throughout the SFVCOG Mobility Matrix Subregion. Santa Clarita Transit operates several commuter bus lines, from the Santa Clarita Valley to major employment destinations such as Warner Center, and North Hollywood. Ridership ranges from about 300 to 700 daily passengers. LADOT also has several commuter lines through the SFVCOG Mobility Matrix Subregion, with destinations including Downtown Los Angeles, Thousand Oaks, Warner Center, Simi Valley, and Pasadena; daily ridership ranges from 350 to 1,000 passengers.

As for local bus service, Glendale, Burbank, and Santa Clarita each run their own municipal transit services, with most lines carrying fewer than 1,000 passengers per day. Three LADOT DASH shuttles circulate around Northridge, Panorama City, and Studio City, with fairly high ridership. The city of San Fernando operates a trolley service. Additionally, Santa Clarita, Glendale, and Los Angeles offer dial-a-ride services.

While there are many transit options in the Subregion, several areas have infrequent service and coverage. The

SFVCOG Mobility Matrix Subregion's transit lines and ridership numbers are shown in Table 7-1 and Figure 7-1.

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Table 7-1. Bus Lines and Ridership in Study Area

Operator	Service Type	Transit Lines and Average Daily Ridership	
Metro	Rapid	734: 3,497	761: 11,989
		741: 2,941	780: 10,656
		750: 5,040	794: 5,401
	Local	150: 11,755	183: 2,673
		152: 14,426	201: 976
		154: 1,263	218: 1,299
		155: 1,872	222: 1,267
		156: 1,829	224: 9,768
		158: 2,655	230: 5,301
		161: 1,481	233: 15,593
		163: 10,234	234: 6,978
		164: 8,072	236: 2,785
		165: 9,785	239: 1,063
		166: 7,059	243: 2,224
		167: 2,564	245: 4,315
		169: 2,740	292: 2,636
		180: 12,314	
	Local CBD	28: 8,236	94: 6,882
		90: 6,921	96: 1,732
		92: 5,884	
	BRT	Orange Line: 26,671	

Operator	Service Type	Transit Lines and Average Daily Ridership	
LADOT	Express	409: 495	
		419: 491	
		422: 957	
		423: 537	
	DASH	Van Nuys/Studio City: 1,199	
		Panorama City: 4,995	
Santa Clarita	Express	796/791: 296	799/794: 746
		797/792: 468	
	Local	1: 899	7: 310
		2: 480	12: 2,684
		3: 240	14: 795
		4: 822	501: 38
		5: 1662	502: 86
		6: 2587	757: 876
Glendale Beeline	Local	1: 558	5: 784
		2: 608	6: 599
		3: 2,122	7: 1,066
		4: 1,376	
	Express	11E: 214	12E: 341
Burbank Bus	Local	Empire/ Downtown: 131	Noho/ Media District: 250
		Noho/Empire: 232	Media District: 381
San Fernando	Local	Trolley: N/A	

Source: STV, 2015; Municipal agencies, 2014; Metro, 2012

Figure 7-1. Transit Service – SFVCOG Mobility Matrix Subregion
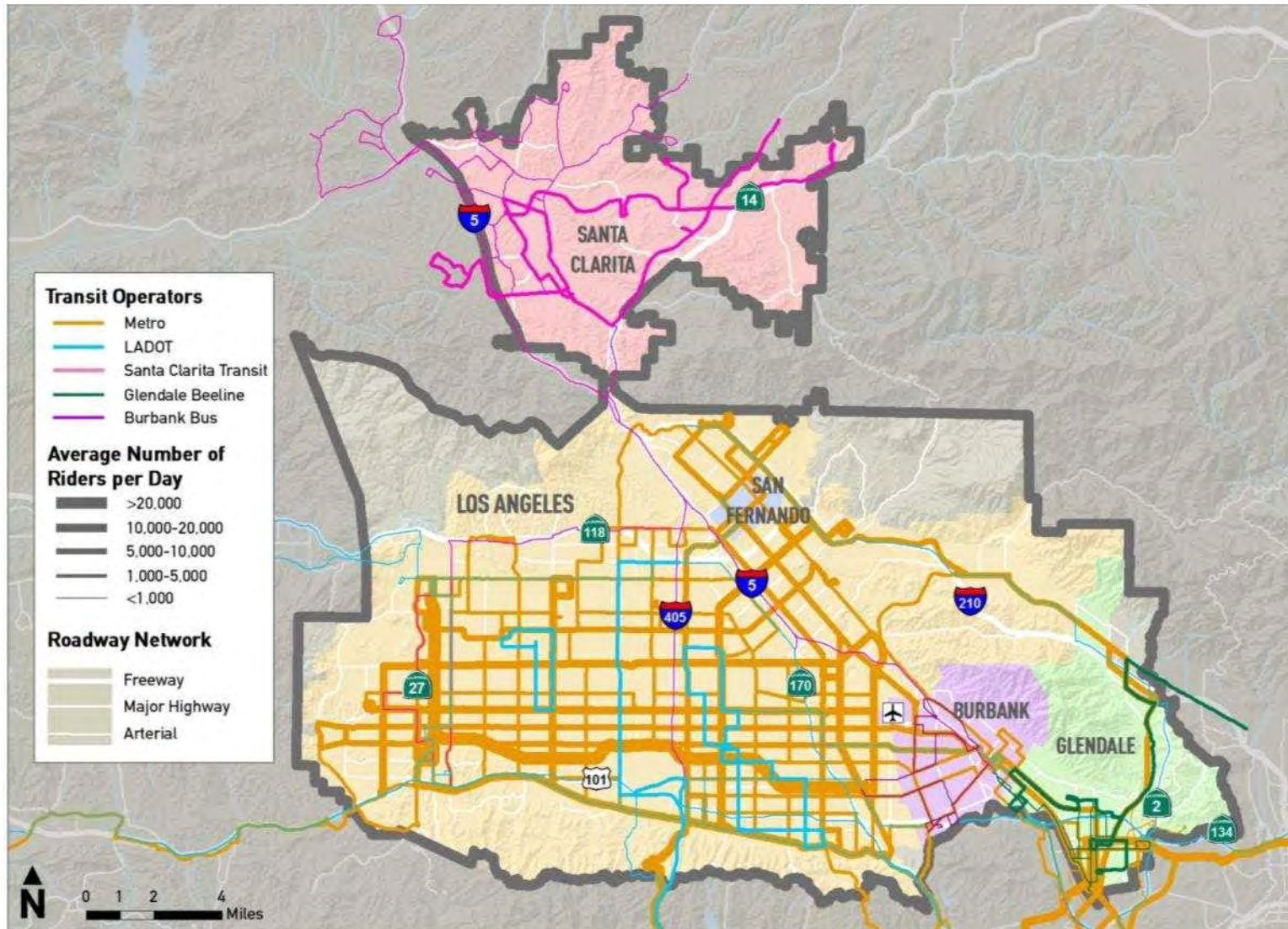
Source: STV, 2015

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7.2 Fixed Guideway

Two Metrolink lines run through the SFVCOG Mobility Matrix Subregion. The Antelope Valley Line carries about 5,800 passengers a day on weekdays, and the Ventura County Line carries about 3,835 passengers.

The Metro Red line extends into the study area, connecting with the Orange Line at the North Hollywood station. The Purple Line runs along part of the Red Line route, and average weekday boardings for the two lines combined are over 150,000. However, ridership numbers for the Red Line-only segment are also very high, at over 71,000 passengers.

Table 7-2 shows the fixed guideway ridership. Figure 7-2 illustrates the fixed guideway lines in the SFVCOG Mobility Matrix Subregion.

Table 7-2. Fixed Guideway Lines and Ridership in SFVCOG Mobility Matrix Subregion

Operator	Rail Lines and Daily Ridership
Metrolink	Antelope Valley Line: 5,854*
	Ventura County Line: 3,825*
Metro	Red/Purple Line: 151,727
	Red Line (from Wilshire/Vermont): 71,792
	Orange Line: 26,671

Source: Metrolink, 2014; Metro, 2012

Figure 7-2. Existing Fixed Guideway Lines – SFVCOG Mobility Matrix Subregion
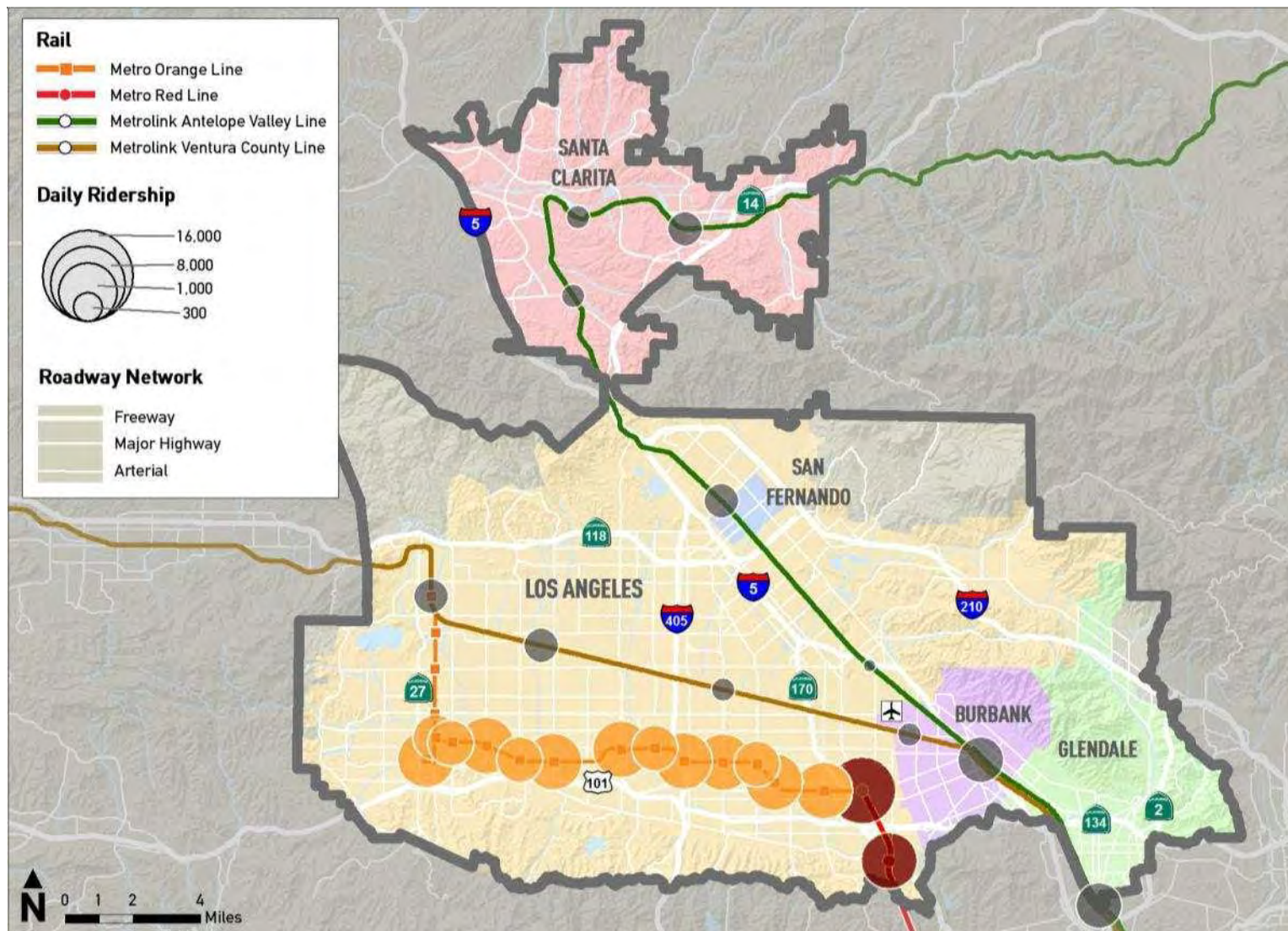
Source: STV, 2015

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8.0 CONCLUSIONS AND NEXT STEPS

Recently completed and funded projects in the SFVCOG Mobility Matrix Subregion focus on a wide range of modes, including bicycle/pedestrian infrastructure, grade crossing modifications, and ITS improvements. Santa Clarita is unique in that it has a greater focus on expanding or building new facilities, but overall, the cities in the study area are mainly interested in pursuing a multimodal transportation system.

A large percentage of morning work trips do not leave the study area, suggesting that many people both live and work in the SFV area. However, many people commute to and from the Westside and Central Mobility Matrix Subregions, which can be seen when looking at traffic speeds on both freeways and arterials connecting the SFV to the south.

Expanding active transportation mode share can help decrease the number of vehicles on the road, but existing facilities are sparse throughout most of the SFVCOG Mobility Matrix Subregion. However, all the cities have extensive bicycle master plans, and the planned bikeways will create a comprehensive network and close inter-jurisdictional gaps. The new bikeways may help to decrease bicyclist and pedestrian-related collisions, especially in areas with high volumes of activity but few facilities.

The study area is well-served by transit, with a grid of local and rapid buses, several commuter lines, and municipal transit services in Glendale, Burbank, and San Fernando.

Metrolink and the Metro Red and Orange Lines also operate in the area. While transit service is fairly robust, better first/last-mile connections could further strengthen the public transportation system and encourage mode shift. In turn, this could address potential environmental justice concerns; there are many communities which are surrounded by freeways, but yet are dependent upon public transit. Improvements to active transportation and transit may help decrease congestion, which would lessen the pollution burdens on these sensitive communities.

The baseline data described in this report will be used in the evaluation of the preliminary project list, which is the next step in this study.

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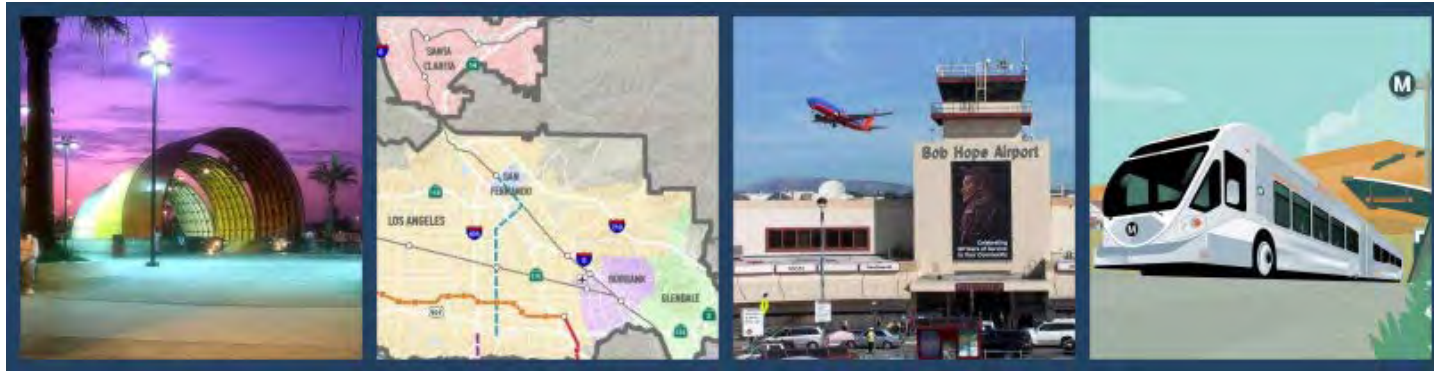
SUBREGIONAL MOBILITY MATRIX
Project No. PS-4010-3041-YY-01-01

Appendix C – Methodologies – Final

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March 2015

Appendix C – Methodologies – Final

Subregional Mobility Matrix
PS-4010-3041-YY-01-01

Prepared for:

Metro

**Los Angeles County
Metropolitan Transportation Authority**

Prepared by:
STV Incorporated

In Association With:
**Iteris, Inc
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Ryan Snyder Associates, LLC**

Quality Review Tracking

Version	Date	Reviewer	Reviewer Signature
Draft	1/30/15	STV Reviewer: Tyler Bonstead	TRB
Final	3/11/15	STV Reviewer: Tyler Bonstead	TRB

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1.0   INTRODUCTION

The following document describes the methodologies used for the performance evaluation, project categorization, and cost estimating exercises for Metro's Subregional Mobility Matrix studies.

2.0   PROGRAM EVALUATION METHODOLOGY OVERVIEW

This document outlines the context and approach for evaluating projects and programs submitted for consideration in the subregional Mobility Matrices.

2.1   Background and Context

The Mobility Matrices are intended as a preliminary input into Metro's forthcoming Long Range Transportation Plan (LRTP) update process. The Mobility Matrix effort has involved collecting improvement projects and defining subregional improvement programs, defining subregional goals and objectives, analysis of baseline conditions, and a high-level evaluation of programs submitted for consideration. This document outlines the approach for evaluation of subregional projects and programs.

The Mobility Matrix process does not involve any prioritization. Rather, the Mobility Matrix is intended as a screening tool and a starting point in the Metro 2017 LRTP update process. It is also a tool to assist subregions in reaching consensus on goals and objectives and unmet transportation needs.

The intent of the Mobility Matrix process is to identify subregional projects and programs with the potential to address subregional and countywide transportation needs and goals for later quantitative analysis.

Metro and the Mobility Matrix consultant teams investigated the potential for a quantitative screening evaluation process, but this proved infeasible for the following reasons:

- **Inconsistent project details**. Most cities in Los Angeles County did not have the resources or staff available to provide detailed data on their project concepts within the Mobility Matrix development timeframe. Performing quantitative analysis on inconsistent project lists would result in skewed evaluations.

- **Insufficient time and scope to fill in all data gaps**. The condensed time frame and limited scope of Mobility Matrix process was deemed insufficient to warrant a detailed outreach to all 89 jurisdictions to collect all the data and project details necessary for a rigorous quantitative evaluation.

Due to the limited time frame for completion and largely incomplete and inconsistent project/program details and data, the Mobility Matrix evaluation is qualitative in nature, focusing on each program's potential to address countywide and subregional goals and objectives. This was done to ensure a consistent, holistic county-wide approach.

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2.2 Countywide Mobility Matrix Themes

Six broad themes guide the development of the Mobility Matrices, as shown below. These themes were developed based on the Metro LRTP and are shared among all subregions in the county. Each program considered in the Mobility Matrices receives one score for each of these six themes. The themes are defined as:

- **Mobility:** Develop projects and programs that improve traffic flow, reduce travel times, relieve congestion, and enable residents, workers, and visitors to travel freely and quickly throughout Los Angeles County.

- **Safety:** Make investments that improve access to transit facilities; enhance personal safety; or correct unsafe conditions in areas of heavy traffic, high transit use, and dense pedestrian activity where it is not a result of lack of normal maintenance.

- **Sustainability:** Ensure compliance with sustainability legislation (Senate Bill [SB] 375) by reducing greenhouse gas emissions to meet the needs of the present without compromising the ability of future generations to meet their own needs.

- **Economy:** Develop projects and programs that contribute to job creation and business expansion resulting from improved mobility.

- **Accessibility:** Invest in projects and programs that improve access to destinations such as jobs,

recreation, medical facilities, schools, and others. Provide access to transit service within reasonable walking or cycling range.

- **State of Good Repair:** Ensure funds are set aside to cover the cost of rehabilitating, maintaining, and replacing transportation assets.

Although many of the projects/programs do not necessarily require repair or maintenance, State of Good Repair is included as a Mobility Matrix theme because it is a priority for Metro and local jurisdictions. The federal bill Moving Ahead for Progress in the 21st Century Act (MAP-21) calls for a renewed focus on ensuring transportation infrastructure is maintained in good conditions. The State of Good Repair theme is included in the Mobility Matrix to ensure its compliance with this renewed federal attention to system preservation, and it also highlights projects and programs that help Los Angeles County achieve its countywide goal of maintaining a state of good repair on transportation infrastructure.

2.3 Subregional Goals and Objectives

Through the Mobility Matrix process, each Metro subregion developed a set of subregion-specific goals and objectives associated with the six countywide themes above. A program's score is determined by its potential to contribute to one or more of these subregional goals and objectives.

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2.4 Subregional Performance Metrics

The Mobility Matrix processes also included the development of subregional performance metrics associated with the six countywide themes identified in Section 1.2. These performance metrics are intended to inform future evaluation through the 2017 LRTP update process.

2.5 Evaluation Scores

The qualitative screening evaluation of projects and programs was intended to be easy to understand, qualitative in nature, and logical and consistent across all subregions. The evaluation methodology shown in Table 1-1 represents a collaborative effort spanning many months, and incorporates input from subregional representatives across the County.

Projects and programs were evaluated based on submitted project descriptions and attributes, and the potential of these to address subregional goals related to the Countywide Mobility Matrix Themes reported in Section 2.2.

Table 1-1. Evaluation Methodology

To Achieve the following score in a single theme:	Project must meet the corresponding criterion:
● HIGH BENEFIT	■ Significantly benefits one or more theme goals or metrics on a <u>subregional</u> scale
◐ MEDIUM BENEFIT	■ Significantly benefits one or more theme goals or metrics on a <u>corridor or activity center</u> scale
◔ LOW BENEFIT	■ Addresses one or more theme goals or metrics on a <u>limited/localized</u> scale (e.g., at a single intersection)
○ NEUTRAL BENEFIT	■ Has no cumulative positive or negative impact on theme goals or metrics
▬ NEGATIVE IMPACT	■ Results in cumulative negative impact on one or more theme goals or metrics

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3.0 PROJECT CATEGORIZATION METHODOLOGY OVERVIEW

This document outlines the approach for categorizing the potential implementation timeframes for projects and programs submitted for consideration in the subregional Mobility Matrices.

3.1 Background & Context

The Mobility Matrices are intended as a preliminary input into Metro's forthcoming Long Range Transportation Plan (LRTP) process. The Mobility Matrix effort has involved collecting improvement projects and defining subregional improvement programs, defining subregional goals and objectives, analysis of baseline conditions, and a high-level evaluation of programs submitted for consideration. This document outlines the approach for categorizing the projects and programs into short-, mid- and long-term implementation timeframes.

The Mobility Matrix process does not involve any prioritization. Rather, the Mobility Matrix project/program categorization process is intended as an informational tool for use by subregions.

3.2 Categorization Timeframes

A 20-plus timeframe was used as the basis for categorizing projects. As shown below, three timeframes were developed into which projects and programs could be categorized, with breakpoints at the ten and twenty year timeframes. The timeframes correspond to when the projects are completed and in operation.

Short-Term
0-10 years
(2015-2024)
Projects can be in completed and in operation in less than 10 years.
Mid-Term
11-20 years
(2025-2034)
Projects can be completed and in operation in 11 to 20 years.
Long-Term
20+ years
(After 2035)
Projects can be completed and in operation in more than 20 years.

3.3 Categorization Factors

Projects and programs were categorized into the three different timeframes based on a number of factors, including their readiness, need, funding availability or potential, and phasing, as described below:

■ **Project Readiness** – What initial steps have been completed to-date or are in progress for the project or program – environmental documentation,

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project study report, alternatives analysis, feasibility study, engineering, inclusion in an approved plan or document, etc? What steps are needed before the project can be implemented? If a project has a number of these steps in progress or completed, it can more appropriately be placed in the short- or mid-term categories. A project with little or no progress to-date is more likely to be placed in the mid- or long-term categories.

- **Project Need** – Does the project or program serve a known deficiency, immediate need, or transportation problem that exists today (e.g., bottleneck, safety, etc.)? If the need is immediate, a project can more appropriately be placed in the short-term category. Projects fulfilling future needs (for example, in support of a major development planned 15 years from now) will likely fall into the mid- or long-term categories

- **Project Funding** – Has any funding been identified to date for the project or program? What is the overall project cost and in what timeframe will funding potentially be available? Projects with some funding available will be easier to categorize as short-term, as well as projects with lower cost values. Projects with large funding gaps or large cost estimates may need to be categorized as mid- or long-term to reserve the funding needed for implementation.

- **Project Phasing** – Is the project or program single or multi-phased? Are there other phases or projects/programs that need to be completed first

before this project or program or next phase can move forward? Many programs or large projects will likely cover more than one timeframe.

3.4   Categorization Process

Metro, Mobility Matrix consultants, PDT members, cities and other stakeholders worked collaboratively to determine project implementation timeframes. For projects or programs located in only one jurisdiction, that jurisdiction was given the first opportunity to define a feasible timeframe for its projects and programs. Subregional projects were categorized in conjunction with affected jurisdictions, and any conflicts between category suggestions by the affected jurisdictions were discussed and determined as a group. Project categorizations will be approved as part of the Final Subregional Mobility Matrix Report.

4.0 COST ESTIMATION METHODOLOGY OVERVIEW

This section outlines the context and approach for estimating rough order-of-magnitude capital cost estimate ranges for transportation projects and programs included in the subregional Mobility Matrices.

4.1 Purpose

The Mobility Matrices are intended as preliminary input into Metro's forthcoming Long Range Transportation Plan (LRTP) update process. The Mobility Matrix effort has involved collecting transportation improvement projects and defining subregional improvement programs, defining subregional goals and objectives, analysis of baseline conditions, and a high-level screening evaluation of transportation programs submitted for consideration. The purpose of this document is to outline the approach for preparing rough order-of-magnitude capital cost estimates, not including vehicles, operating, maintenance and financing cost, for the unfunded transportation projects and programs in each subregion.

Some projects and programs on the Mobility Matrix lists contained capital cost estimates, while others did not. Furthermore, some projects submitted by stakeholder jurisdictions had defined scope and limits, while other projects were less defined or programmatic in nature.

Due to variations in project scope and available cost data, costs estimated for use in the Mobility Matrix are not intended to be used for future project-level planning. Rather, the cost ranges developed via this process constitute a high-level, rough order-of-magnitude planning range for short-, mid-, and long-term subregional funding needs for the Mobility Matrix effort only. More detailed analysis will be conducted in the LRTP process, which may necessitate refinement of project/program and associated cost estimates.

4.2 Capital Cost Estimation Methodology

This section explains the process by which consistent transportation improvement project cost minimum/maximum range estimates were developed at the program level.

This section explains the process by which consistent transportation improvement project cost minimum/maximum range estimates were developed at the program level.

4.2.1 Major Transit Project Cost Estimates Developed by Metro

Metro's Cost Estimating Department provided parametric unit cost estimates for major transit projects such as bus rapid transit, light rail transit, heavy rail transit, and maintenance and operations facilities, based on Metro historical project costs.

4.2.2 Major Freeway Project Cost Estimates Developed by Caltrans

The California Department of Transportation (Caltrans) provided unit cost estimates for major freeway and highway projects. If Caltrans did not provide highway/freeway project cost estimates, they were left blank for the purposes of the Mobility Matrix.

4.2.3 Projects With Cost Estimates Provided by Jurisdictions

If available, jurisdictions submitted cost estimates for their transportation improvement projects and programs. For some, jurisdictions submitted specific cost estimates, while for others, jurisdictions submitted minimum and maximum cost estimate ranges. Given the high-level planning nature of the Mobility Matrix process, and in the interest of subregional consistency, a minimum/maximum cost range was developed for each project or program:

- **Capital projects** submitted with minimum/maximum cost ranges were left unchanged. Projects submitted with specific cost estimates were expanded to a minimum (20 percent below specific estimate) and maximum (20 percent above specific estimate) cost range.

- **Program ongoing** costs were assumed to continue throughout the Mobility Matrix categorization periods, or throughout the short, medium and long term period, if duration was unknown. Again, cost estimates were adjusted to include a minimum range (20 percent below) and

maximum range (20 percent above) around each annual cost estimate.

4.2.4 Projects or Programs Without Cost Estimates

Projects or programs submitted without costs were assigned cost estimates based on per-unit or per-mile industry standard factors by project or program type, or on the average per-unit or per-mile costs of comparable projects/programs with cost information submitted for consideration in the Mobility Matrix. The following methods were used to develop these placeholder cost estimates:

- **Using Comparable Mobility Matrix Project Costs**

First, Mobility Matrix projects or programs with similar characteristics were sorted by type, and average costs were calculated based on per mile or per unit costs. For any projects or programs with similar characteristics, these average per mile and per unit costs were applied. This estimate was expanded to a minimum (20 percent below) and maximum (20 percent above) cost range.

- **Using Research Literature**

In some cases, industry standard cost estimates were available in research literature on a per-mile or per-unit basis. If no comparable costs were submitted through the Mobility Matrix project or program lists, these studies were utilized to develop cost estimates. Specific cost estimates were expanded to a minimum (20 percent below) and maximum (20 percent above) cost range.

■ **Estimating Remaining Project Costs by Project Type**

For remaining projects, the average total cost of other projects in the same program was used to approximate project cost.

For example, if 15 out of 20 pedestrian program projects have cost estimates that total $15 million, the remaining five pedestrian improvement projects were assumed to have similar average costs ($1 million per project). In this example, if the original value of the 15 known projects was $15 million, the assumed cost of the full program of 20 projects would be $20 million.

4.2.5   Program Level Estimates

Cost ranges developed through this process are for high-level planning purposes only, and should not be used in project-specific planning. In the interest of consistency, project-level cost estimates were rolled-up to the program level and not reported at the project-specific level.

4.2.6   All Project Costs Are in Year 2015 Dollars

For consistency, all estimated project and program costs are in year 2015 dollars, as this is the base year of the 2009 Long Range Transportation Plan update process. Project cost estimates from prior years were escalated to year 2015 dollars at a three-percent annual rate.

4.2.7   Metro Cost Estimating Department Reviewed Major Cost Estimates

As a final step to ensure consistency with Metro's cost estimating processes, the Metro Cost Estimating Department provided a high-level review of transit cost estimates to ensure consultant estimates were consistent with Metro practices.

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ID	Project Description	Jurisdiction	Mobility •Reduce Travel Times •Increase Reliability •Improve System Connectivity	Safety •Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	Sustainability •Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	Economy •Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	Accessibility •Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	State of Good Repair •Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation	Categorization Timeframe Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs
Arterials											
Tunnel Projects											
A2	Saticoy St: Build tunnel underneath Van Nuys Airport between Woodley St and Hayvenhurst Ave	LA	◐	○	○	○	○	○		X	X
A3	Sepulveda Blvd: Widen tunnel at Mulholland Dr for added bike and traffic lanes	LA	●	◐	○	○	○	○		X	X
Grade Separation Projects											
A4	Buena Vista St: Grade Separation at railroad tracks (Ventura County Line)	Burbank, Metrolink	●	●	◐	◐	○	◔			X
A6	Doran St: Grade separation at railroad tracks / San Fernando Rd	Glendale, Metrolink	●	●	◐	◐	○	◔	X		
A7	Magic Mountain Parkway: Grade separation at railroad tracks / Railroad Ave	Santa Clarita, Metrolink	●	●	◐	◐	○	◔		X	
A8	Saticoy St: Grade separation at railroad tracks (between Van Nuys Ave and Woodman Ave)	LA, Metrolink	●	●	◐	◐	○	◔		X	X
A9	Sunland Blvd: Grade separation at railroad tracks / San Fernando Rd	LA, Metrolink	●	●	◐	◐	○	◔		X	X
Extension or New Road Projects											
A10	Monterey Rd: Extend to Glenoaks Blvd over Verdugo Wash	Glendale	●	○	◔	○	○	○		X	
A11	Orange St: Extend over SR-134 between Doran St and Goode Ave	Glendale	●	○	◔	◔	○	○			X
A12	SR-134 Frontage Road: Construct S of freeway between Brand Blvd and Geneva St	Glendale	●	○	○	◔	○	○			X
A13	Magic Mountain Pkwy: Extend from Railroad Ave to Via Princessa	Santa Clarita, Metrolink	●	○	○	◔	○	○		X	
A14	Via Princessa : Extend from Isabella Pkwy to Circle J Ranch Rd	Santa Clarita	●	○	○	○	○	○	X		
A15	Dockweiler Drive: Extend from Valle del Oro to Railroad Ave	Santa Clarita, Metrolink	●	○	○	○	○	○	X		
A16	Santa Clarita Pkwy: Construct new road from Bouquet Canyon Rd to SR-14	Santa Clarita, Metrolink	●	○	○	○	○	○		X	
A17	Saticoy St: Extend from Van Nuys Blvd to Woodman St	LA, Metrolink	●	○	—	◔	○	○		X	X
A18	Riverside Dr: Extend from Van Nuys Bl to Sepulveda Bl	LA, Metrolink	●	○	—	○	○	○		X	X
A19	Magnolia Bl: Extend from Hayvenhurst Av to Libbit Av and Haskell Av to Sepulveda Bl	LA, Metrolink	●	○	○	○	○	○		X	X
A20	Oxnard St: Extend from Sepulveda Bl to Woodley Av (including I-405 Interchange)	LA, Caltrans	●	○	—	◔	○	○		X	X
A21	Sepulveda Bl: Extend from Rinaldi St to Roxford St	LA, Metrolink	●	○	—	◔	○	○		X	X

High Benefit ●   Medium Benefit ◐   Low Benefit ◔   No Benefit/Neutral ○   Negative Impact —

ID	Project Description	Jurisdiction	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair	Categorization Timeframe		
			•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation	Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs

Arterials cont.

Widening Programs/Projects

ID	Project Description	Jurisdiction	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair	Short	Mid	Long
A22	Burbank: General Plan intersection improvements	Burbank	Medium	Neutral	Low	Neutral	Neutral	Low	X	X	X
A23	Santa Clarita: General Plan arterial improvements	Santa Clarita	Medium	Neutral	Neutral	Neutral	Neutral	Low	X	X	X
A24	Warner Center Specific Plan: Intersection and arterial improvements	LA	Medium	Neutral	Negative	Low	Neutral	Low	X	X	X
A26	Glendale Ave: Add 1 NB lane from Doran St to SR-134	Glendale	Medium	Neutral	Negative	Low	Neutral	Low		X	
A27	Golden Valley Rd: Widen from Sierra Hwy to Centre Pointe Pkwy	Santa Clarita	Medium	Neutral	Neutral	Neutral	Neutral	Low	X		
A28	Burbank Blvd: Widen from Cleon Av to Clybourn Av to provide 2 lanes in each direction.	LA	Medium	Neutral	Negative	Neutral	Neutral	Low		X	X
A29	Victory Blvd: Widen WB from Canoga to De Soto Av	LA	Medium	Neutral	Negative	Neutral	Neutral	Low	X	X	
A30	Topanga Canyon Blvd: Widen to provide six through lanes all day between US-101 and SR-118	LA, Caltrans	Medium	Neutral	Negative	Low	Neutral	Low	X	X	
A31	Chatsworth St: Widen from De Soto Av to Topanga Canyon Bl	LA, Metrolink	Medium	Neutral	Negative	Neutral	Neutral	Low	X	X	
A32	Van Nuys Blvd: Improve capacity SB from Burbank Bl to US-101	LA	Medium	Neutral	Negative	Neutral	Neutral	Low		X	X
A33	Hayvenhurst Av: Widen from Magnolia Bl to Ventura Bl	LA	Medium	Neutral	Negative	Neutral	Neutral	Low		X	X
A34	Victory Blvd: Widen from White Oak Av to Sepulveda Bl	LA	Medium	Neutral	Negative	Neutral	Neutral	Low		X	X
A35	Osborne St: Widen for pedestrian safety and improved traffic capacity from Foothill Bl to San Fernando Rd	LA, Metrolink	Medium	Medium	Negative	Low	Neutral	Low		X	
A36	Foothill Blvd: Widen from Sierra Hwy to Balboa Bl	LA, Caltrans	Medium	Neutral	Negative	Neutral	Neutral	Low		X	
A37	Sepulveda Blvd: Widen from San Fernando Rd to Roxford St, including access to I-5 SB on-ramp	LA, Caltrans, Metrolink	Medium	Neutral	Negative	Low	Neutral	Low		X	
A38	Sierra Hwy: Add two lanes at intersection with San Fernando Rd (bridge over Metrolink tracks)	LA, Caltrans, Metrolink	Medium	Neutral	Negative	Neutral	Neutral	Low	X	X	
A47	The Old Road: Widen The Old Road to provide continuous 4 lanes between Sierra Highway to north of Weldon Canyon Road in Santa Clarita.	LA, LA County, Caltrans, Metrolink	Medium	Neutral	Negative	Neutral	Neutral	Low			X

Legend: High Benefit ● Medium Benefit ◑ Low Benefit ◔ No Benefit/Neutral ○ Negative Impact —

ID	Project Description	Jurisdiction	Mobility •Reduce Travel Times •Increase Reliability •Improve System Connectivity	Safety •Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	Sustainability •Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	Economy •Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	Accessibility •Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	State of Good Repair •Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation	Categorization Timeframe Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs
Arterials cont.											
State of Good Repair/Safety Programs											
A39	State of Good Repair/Safety Projects for arterials throughout region	Subregional	◐	◐	◔	◔	○	●	X	X	X
TSM											
A40	I-5/SR-134: Implement arterial improvements in interchange area to address movements with ramps missing at interchange	Burbank, Glendale, Caltrans	◐	○	○	○	○	○		X	
A41	La Crescenta Signal Synchronization: -La Crescenta Av: Orange Av to I-210 -Montrose Av: Florencita Av to Del Mar Rd -Oceanview Bl: I-210 to Florencita Av -Foothill Bl: Lowell Av to Briggs Av -Pennsylvania Av: Orange Av to 210 Fwy -Ramsdell Av: Orange Av to Montrose Av -Rosemont Av: Foothill Blvd to Montrose Av	Glendale, LA County	◐	○	◔	◔	○	○	X		
A42	Glendale: Sub-Regional Traffic Management Center Implementation	Glendale	◐	○	◔	◔	○	○	X		
A46	San Fernando: Upgrade traffic signals, video detection systems, and controllers on major corridors	San Fernando	◐	○	○	○	○	○	X		
A43	Santa Clarita: Traffic Signal and Signal Synchronization	Santa Clarita	◐	○	◔	○	○	○	X		
A44	Santa Clarita: ITS Phases V and VI	Santa Clarita	◐	○	◔	○	○	○	X		
A45	Los Angeles: Vehicle Infrastructure Integration – to integrate navigation systems with Intelligent Transportation System (ITS)	LA	◐	○	○	○	○	○	X	X	X
A48	Los Angeles: Traffic Signal Improvement Program. Implement signal controller upgrades, left-turn phasing, sensor, loops, CCTV monitors	LA	◐	○	◔	○	○	○	X		
Goods Movement											
Grade Crossing Safety Improvement Programs											
G1	Improvements to at-grade rail crossings across subregion to better accommodate truck turning radii and grades	Subregional	○	●	○	●	◔	◐	X	X	X
Arterial Programs											
G2	Improvements to intersections across subregion to better accommodate truck turning radii and grades	Subregional	○	◐	○	●	○	◐	X	X	X
Rail Programs											
G3	Improvements to railroads across subregion to better accommodate freight trains without affecting passenger rail service	Subregional	●	◔	◔	●	○	◔	X	X	X

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High Benefit ●   Medium Benefit ◐   Low Benefit ◔   No Benefit/Neutral ○   Negative Impact ▬

ID	Project Description	Jurisdiction	Mobility · Reduce Travel Times · Increase Reliability · Improve System Connectivity	Safety · Improve Safety · Reduce Mode Conflicts · Improve Transit Safety/Security	Sustainability · Reduce GHG Emissions · Improve Quality of Life · Encourage Efficient Mode Share	Economy · Accommodate Goods Movement · Reduce Number and Length of Trips · Enhance Economic Output	Accessibility · Integrate Transit Hubs · Serve Transit Dependent Populations · Improve First/Last Mile Connections	State of Good Repair · Preserve Life of Facility or Equipment · Reduce Goods Movement Impact · Balance Maintenance & Rehabilitation	Timeframe Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs
Highways											
Arterial Interchange Progams/Projects											
H1	SR-134 Ramp Widening program in Glendale: - EB&WB off-ramps at Pacific Ave: add a lane - EB off-ramp at Central Ave - WB off-ramp at Brand Blvd: add a lane - WB on- and off-ramp at Harvey Dr: add BRT stop	Glendale, Caltrans	High	—	Low	Low	Low	Low		X	
H42	Regional: Upgrade traffic signal system at on- & off-ramp intersections with arterials, connect with ramp metering system, establish communication with fiber system and upgrade communication of Field Device to IP.	Subregional	High	—	Low	Low	—	Low		X	X
H44	I-210 Interchange Improvement Program in La Crescenta-Montrose: - Modify traffic signals & channelization, add WB on-ramp at La Crescenta Ave - Modify intersection & signals to improve SB to EB move at Pennsylvania Ave	Glendale, LA County, Caltrans	High	—	—	—	—	—		X	
H4	SR-134/Central Ave: Grade separate EB and WB on- and off-ramps between Pacific Ave and Central Ave	Glendale, Caltrans	High	—	—	Low	—	Low		X	
H5	SR-2/Mountain St: Widen NB off-ramp and SB on- and off-ramps	Glendale, Caltrans	High	—	Low	Low	—	Low	X		
H6	SR-2/Fern Ln: Add NB Off/On Ramp	Glendale, Caltrans	High	—	Medium	Low	—	Low	X		
H7	SR-2/Holly Dr: Add signals at ramps	Glendale	High	—	—	—	—	—	X		
H8	US-101/Hayvenhurst Ave: Add new WB on-ramp and EB off-ramp	LA, Caltrans	High	—	—	—	—	Low		X	X
H9	I-5/Roxford St: Widen Roxford at I-5 to facilitate truck movements	LA, Caltrans	High	—	—	Medium	—	Low	X	X	X
H10	US-101/Coldwater Canyon Ave: Widen Coldwater Cyn bridge to provide dual left-turns to two on-ramps	LA, Caltrans	High	—	—	—	—	Low			X
H11	SR-170/Riverside Dr: Widen Riverside Dr to provide double right turns onto SB Tujunga Av	LA, Caltrans	High	—	—	—	—	Low		X	X
H12	US-101/Canoga: Add new WB on-ramp and new EB off-ramp	LA, Caltrans	High	—	—	—	—	Low			X
H13	US-101/Fallbrook Ave: Add on- and off-ramps	LA, Caltrans	High	—	—	—	—	Low		X	X

Legend: ● High Benefit ◑ Medium Benefit ◔ Low Benefit ○ No Benefit/Neutral ▬ Negative Impact

ID	Project Description	Jurisdiction	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair	Categorization Timeframe		
			•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation	Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs
Highways cont.											
Arterial Interchange Progams/Projects cont.											
H14	US-101/Canoga Ave: Widen Canoga under the freeway overpass to full standard width	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Low		X	X
H15	US-101/Canoga Ave: Construct HOV lane connector from 101 Fwy to Metro Orange Line	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Low		X	X
H16	I-405/Oxnard St: Build a interchange for I-405 (include Metro Orange Line to HOV connection)	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Low		X	X
H17	SR-134: EB & WB Off-ramp improvements at Glendale Avenue	Glendale	High	Neutral	Neutral	Neutral	Neutral	Low	X		
H40	I-405/Burbank Blvd: Increase left turn capacity on SB on-ramp	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Low		X	X
H41	I-405/Sepulveda Blvd: Study closing SB on-ramp to reduce congestion at Sepulveda Blvd and Ventura Blvd	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Neutral		X	X
H45	I-5/Hollywood Way: Widen NB and SB off-ramps to Hollywood Way.	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Low	X		
H46	NB 5/14 On from Sierra Highway/Foothill Blvd.: Construct roundabout interchange to replace signalized intersection.	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Low			X
Freeway Interchange Projects											
H18	I-5/SR-134: Interchange improvements - Carpool to carpool transition, "missing" ramp	Burbank, Glendale, Caltrans	High	Low	Low	Low	Neutral	Low			X
H19	US-101/SR-170/SR-134: Interchange improvements - complete two connectors	LA, Caltrans	High	Medium	Neutral	Neutral	Neutral	Low			X
H20	I-405/US-101: Interchange Improvements	LA, Caltrans	High	Low	Neutral	Neutral	Neutral	Low		X	X
H21	I-5/I-405: Interchange Improvements	LA, Caltrans	High	Low	Neutral	Low	Neutral	Low		X	X
H22	I-5/I-210: Interchange Improvements - Additional lane on the connector from NB I-210 to NB I-5	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Neutral		X	X
H23	I-5/SR-14/I-210: Modify/rebuild I-210 (EB) transition by braiding over the SR-14 southbound connector ramps	LA, Caltrans	High	Neutral	Neutral	Neutral	Neutral	Neutral		X	X
Freeway Corridor Projects											
H24	SR-2: Add HOV lane between SR-134 and Glendale Blvd	Glendale, LA, Caltrans	High	Neutral	Medium	Neutral	Neutral	Neutral		X	
H25	I-5: Add mixed flow, HOV and truck lanes between SR-14 and I-405	Santa Clarita, LA, LA County, Caltrans	High	Neutral	Neutral	Low	Neutral	Low		X	X
H26	I-5: North Capacity Enhancements - Add truck lane and HOV lanes from Pico Canyon Rd to Kern County Line	Santa Clarita, LA County, Caltrans	High	Medium	Neutral	High	Neutral	Medium		X	X

High Benefit ● Medium Benefit ◐ Low Benefit ◔ No Benefit/Neutral ○ Negative Impact ▬

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ID	Project Description	Jurisdiction	Mobility	Safety	Sustainability	Economy	Accessibility	State of Good Repair	Categorization Timeframe		
			•Reduce Travel Times •Increase Reliability •Improve System Connectivity	•Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	•Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	•Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	•Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	•Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation	Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs
Highways cont.											
Freeway Corridor Projects cont.											
H27	SR-14: Widen to provide at least three mixed flow lanes and one HOV lane in each direction from I-5 to Ave L	Santa Clarita, LA County, Caltrans	●	○	—	○	○	○		X	X
H28	US-101: Add HOV lane between SR-27 and SR-2	LA, Caltrans	●	○	—	○	○	○			X
H29	US-101: Add one lane to existing roadway in each direction between SR-27 and the Ventura County line; project widens roadway from 4 to 5 lanes, which could generally be accommodated by restriping within the existing roadway cross-section	LA, LA County, Caltrans	●	—	○	○	○	○			X
H30	US-101: Add 2 lanes to existing roadway in each direction between SR-27 and the Ventura County Line; project widens roadway from 4 to 6 lanes, while aiming to minimize ROW acquisition and local circulation impacts	LA, LA County, Caltrans	●	—	○	○	○	○			X
H31	US-101: Add NB and SB auxiliary lane between Laurel Canyon Bl and Sepulveda Bl	LA, Caltrans	●	○	—	○	○	○			X
H32	US-101: Add NB and SB auxiliary lanes between Hayvenhurst Av and Valley Circle Bl	LA, Caltrans	●	○	—	○	○	○			X
H33	I-210: Add additional WB lane between SR-118 and Hubbard St	LA, Caltrans	●	○	○	○	○	○		X	X
H47	I-210 HOV lane from I-5 to SR-134/I-710	Glendale, LA, LA County, Caltrans	●	○	—	○	○	○			X
H48	I-5- Add HOV lane in both directions between SR-134 and I-110	LA, Caltrans	●	○	—	○	○	○		X	
H49	SR-2 - Additional SB lane between 134 and I-5	Glendale, Caltrans	●	○	—	○	○	○			X
Soundwall Projects											
H34	I-210: Add soundwalls - Pennsylvania Av to Waltonia Av	Glendale, LA County, Caltrans	○	○	◑	○	○	○	X		
H35	US-101: Add Retaining Wall on the Barham/Cahuenga Corridor Transportation Project - Phase IV	LA, Caltrans	○	○	◑	○	○	○	X	X	
State of Good Repair/Safety Programs											
H36	Highway State of Good Repair/Safety Programs	Subregional	◑	◑	◔	◑	○	●	X	X	X
H37	Renovation of Key Sections of the US-101	LA, Caltrans	◑	◑	◔	◑	○	●	X	X	X

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High Benefit ●   Medium Benefit ◑   Low Benefit ◔   No Benefit/ Neutral ○   Negative Impact —

ID	Project Description	Jurisdiction	Mobility •Reduce Travel Times •Increase Reliability •Improve System Connectivity	Safety •Improve Safety •Reduce Mode Conflicts •Improve Transit Safety/Security	Sustainability •Reduce GHG Emissions •Improve Quality of Life •Encourage Efficient Mode Share	Economy •Accommodate Goods Movement •Reduce Number and Length of Trips •Enhance Economic Output	Accessibility •Integrate Transit Hubs •Serve Transit Dependent Populations •Improve First/Last Mile Connections	State of Good Repair •Preserve Life of Facility or Equipment •Reduce Goods Movement Impact •Balance Maintenance & Rehabilitation	Categorization Timeframe Short 1-10 yrs	Mid 11-20 yrs	Long 21+ yrs
Highways cont.											
TSM											
H38	I-5/SR-14: Expand Freeway Service Patrol throughout North County subregion	LA County	◐	◐	○	○	○	○	X		
H39	Regional: Improve Ramp metering, CCTV cameras, CMS for freeways in subregion as needed	Subregional	◐	○	○	○	○	○	X	X	
H43	Regional: Upgrade TMS: a) I-5: SR-118 to SR-14 (PM 39.3-45.6) b) US-101: I-5 to I-405 (PM 0.0-17.4) c) US-101: SR-27 to Ventura County Line (PM 25.3-38.19) d) SR-118: west of SR-27 to east of SR-210 (PM 0.0-14.8) e) SR-134: SR-170 to SR-210/SR-710 (PM 0.0-13.4) f) SR-170: SR-134 to I-5 (PM 14.5-20.5) g) I-405: south of US-101 to I-5 (PM 39.0-48.65) h) SR-2: SR-134 to SR-210 (PM 14.5-24.6) i) I-210: I-5 to SR-2 (PM 0.0-19.0) - Add CCTV & Comms j) I-5: TSM from SR-2 to SR-134	Subregional	◐	◔	○	○	○	○	X	X	
Active Transportation											
Bicycle/Pedestrian Programs/Projects											
B1	Burbank: Bicycle Master Plan projects	Burbank	◐	◐	●	○	●	○	X	X	X
B2	Glendale: Bicycle Transportation Plan projects (including Verdugo Wash bikeway and bridges over LA River)	Glendale	◐	◐	●	○	●	○		X	
B4	San Fernando: Bicycle Master Plan projects	San Fernando	◐	◐	●	○	●	○	X	X	
B5	Santa Clarita: Non-Motorized Transportation Plan Projects (including Railroad Ave/Metrolink Bicycle Trail, from Lyons Ave to Oak Ridge Dr)	Santa Clarita	◐	◐	●	◔	●	○	X	X	
B6	Los Angeles: Bicycle Plan projects	LA	◐	◐	●	○	●	○	X	X	
B7	Improvements to bike/pedestrian bridges and tunnels over SR-134 -Bridges: Louise, Geneva, Concord, Columbus, Adams -Tunnel: Kenilworth	Glendale	◐	◐	●	○	●	○		X	
B11	Construction of Pedestrian & Bike on the Los Angeles River throughout SFV	LA	◐	◐	●	○	●	○	X	X	
B12	Bicycle access improvements to Larry Zarian Transportation Center, on Los Feliz Rd and Brand Blvd	Glendale	◐	◐	●	◔	●	○	X		
B24	Various projects identified in Metro's and LA County's bike plans for Arroyo Verdugo Cities Subregion: construct Class II and Class II lanes on various streets.	LA County	◐	◐	●	○	●	○	X	X	X
B25	Establish a county-wide bike share program (including Santa Clarita)	Subregional	◐	◐	●	○	●	○	X	X	
B26	Los Angeles: Bicycle/Pedestrian Safety Program. Implement "Vision Zero" roadway improvements, ped/bike countermeasures, Safe Routes to School initiative	LA	○	●	●	◔	●	○	X	X	
ADA Access											
B3	Improvements to bus stop zones to meet ADA compliance	Subregional	○	●	○	○	◐	○	X		

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Active Transportation cont.											
Pedestrian Bridges											
B8	Hollywood Way/San Fernando Rd Metrolink station pedestrian bridge	Burbank, Bob Hope Airport	○	●	○	○	◑	○		X	
B9	Downtown Burbank Metrolink Station: Bike/Ped bridge over I-5	Burbank, Caltrans, Metrolink	◔	●	◔	○	◑	○		X	
B10	Downtown Burbank Metrolink Station: Pedestrian grade crossing improvements	Burbank, Caltrans, Metrolink	○	●	○	○	◑	○	X		
Complete Streets Programs											
B13	Los Angeles: Great Streets program	LA	○	◑	◑	●	●	○	X	X	X
B14	Cerritos Ave Complete and Green Streets Project. Connect LZTC to Glendale Memorial, Cerritos Park/School, Forest Lawn. Improve bike infrastructure, lighting, wayfinding, etc.	Glendale	◑	●	◑	◑	●	○	X		
B27	Los Angeles Complete Streets: implement Complete Streets Enhancements along key arterials as defined in the Moblity Plan 2035	LA	○	◑	◑	●	●	○	X	X	X
B28	Los Angeles: Mobility Element (transit/vehicle/bicycle enhanced networks, pedestrian enhanced districts)	LA	◑	◑	◔	◔	◔	◔	X	X	X
Sustainability Programs											
B15	Electric Vehicle charging stations in Public Parking Structures (potentially including photovoltaic panels)	Subregional	○	○	●	○	○	○	X	X	
B17	Glendale: Expand CNG Station and Maintenance Facility for Glendale Beeline Transit Services (potentially shared with Burbank Bus)	Burbank, Glendale, LA County	○	○	●	○	○	◔	X		
B29	Los Angeles: ZEV Bus Fleet Program. Convert existing transit fleet in LA County to meet the goal of 25% ZEV by 2025	LA	○	○	●	○	○	◔	X		
Park and Ride Projects/Programs											
B18	Regional: Add/expand park-and-ride facilities	Subregional	◔	○	◑	◑	◑	◔	X	X	
B20	Newhall Avenue / SR-14 Park-and-Ride: Expand	Santa Clarita, Caltrans	◔	○	◑	◑	◑	◔	X		
B21	Harvey Dr / SR-134 Park-and-Ride: Expand	Glendale, Caltrans	◔	○	◑	◑	◑	◔		X	
B30	Los Angeles: Parking Program. Expand ExpressPark and implement valet parking throughout major retail centers	LA	◔	○	◑	●	○	○	X		
TDM Programs											
B19	Regional: TDM programs to reduce trips	Subregional	◑	○	●	●	◑	○	X	X	
Mobility Hubs/First-Last Mile Programs											
B22	Regional: Mobility hubs at major San Fernando Valley transit hubs (bike share, car share, bike stations, etc)	Subregional	●	○	●	○	●	○	X	X	X
B23	Regional: First-mile-last-mile improvements near major San Fernando Valley transit hubs	Subregional	●	◑	●	○	●	○	X	X	X

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Transit											
Bus Programs/Projects											
T1	Metro: Existing bus route improvements	Subregional	●	○	◐	○	●	○	X	X	X
T2	Metrolink Station Shuttle Buses: Expand service	Subregional	●	○	◐	○	◔	○	X		
T3	I-5 / SR-14: Expanded express bus service in HOV lanes	Burbank, Glendale, Santa Clarita, LA, LA County	●	○	◐	◐	◔	○	X		
T4	Municipal & Local Operators: Add late night and weekend municipal bus service	Burbank, Glendale, San Fernando, Santa Clarita, LADOT	●	○	◐	○	●	○	X		
T5	Municipal & Local Operators: Operating dollars for expanded service	Burbank, Glendale, San Fernando, Santa Clarita, LADOT	●	○	◐	○	●	○	X	X	X
T6	Burbank: All day Burbank Bus service on all four existing routes	Burbank	●	○	◐	○	◐	○	X		
T7	Glendale: Increase bus service and improve frequencies for Glendale Beeline Transit Services	Glendale	●	○	◐	◔	◐	○	X		
T8	Santa Clarita Transit: Increase frequency on existing express routes	Santa Clarita, LA, LA County	●	○	◐	◐	◔	○	X		
T9	Santa Clarita: Improve SCT service between Santa Clarita and San Fernando Valleys (headways, additional stops, etc)	Santa Clarita	●	○	◐	○	◔	○	X		
T10	Sepulveda Pass: Increase express bus service over Sepulveda Pass, with collector/feeder service throughout West LA and the San Fernando Valley	LA	●	○	◐	◐	◔	○	X		
T11	Los Angeles: 10 new DASH routes citywide	LA	●	○	◐	○	●	○	X	X	
T31	San Fernando: Public transit improvements, including upgrading bus stop infrastructure and enhancing routes and connections	San Fernando	●	○	◐	○	●	○	X	X	
T15	Glendale: Provide east-west transit service on Foothill Blvd to provide one-seat ride from Sunland to La Canada Flintridge	Glendale, Los Angeles, LA County	●	○	◐	○	◔	○		X	
T32	Improved regional transit connection between Las Virgenes area, Thousand Oaks and San Fernando Valley along US-101 corridor	LA	●	○	◐	○	●	○	X	X	
T33	Tier 2 Operators: Dedicated operations and capital funding to match formula equivalency of Included and Eligible Operators	Burbank, Glendale, LA	●	○	◐	○	●	○	X	X	X

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Transit cont.											
BRT Projects											
T13	Burbank to Hollywood BRT: Downtown Burbank to Hollywood via Burbank Media District & Universal City*	Burbank, LA County	◐	○	◐	●	●	○		X	X
T14	Pasadena to North Hollywood BRT: Via SR-134 through Glendale & Burbank*	Burbank, Glendale, LA, Caltrans	●	○	●	●	●	○		X	X
T16	Metro Orange Line: Bus operational improvements (shorter headways, grade separations, crossing gates, etc along entire Line)	LA	●	◐	●	●	◐	○		X	X
Commuter Rail Programs											
T17	Metrolink Antelope Valley Line Improvements (various)	Subregional	●	◐	●	●	◔	◐	X	X	X
T18	Metrolink Ventura County Line Improvements (various)	Subregional	●	◐	●	●	◔	◐	X	X	X
Real-Time Travel Information											
T19	Real-time transit info for municipal & local bus operators, Metrolink, airport and other info	Subregional	◐	◔	◔	○	◐	○	X		
Rail Projects											
T23	Metro Red Line Extension: North Hollywood to Sylmar*	San Fernando, LA	●	○	●	●	●	○		X	X
T24	Glendale Downtown Streetcar: Brand Blvd from Colorado Blvd to Glenoaks Blvd	Glendale	●	○	●	●	●	○		X	
T25	Metro Orange Line conversion to LRT	LA	●	○	●	●	◐	○		X	X
Rail or Bus Projects											
T26	Sepulveda Pass Transit Corridor - Consider multimodal tunnel(s) carrying premium transit and tolled highway lanes. P3 being considered.	LA	●	◐	●	◐	●	○		X	X
T27	East San Fernando Valley Transit Corridor - Currently in environmental phase, examining BRT, Tram, LRT Alternatives	San Fernando, LA	◐	◐	◐	◐	●	○		X	X
State of Good Repair/Safety Programs											
T28	Transit State of Good Repair/Safety Programs	Subregional	◐	●	◔	○	○	●		X	X
Transit Center											
T29	Glendale: Expand Larry Zarian Transportation Center	Glendale, Metrolink	○	○	◐	○	◔	○		X	
T30	Vista Canyon Transit Center: New Metrolink Station, Bus Transfer Facility	Santa Clarita, Metrolink	◔	◔	◐	◐	◐	○	X		

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Regional Facilities											
A5	Clybourn Ave: Grade separation at railroad tracks / Vanowen St / Empire Ave	Burbank, Bob Hope Airport, LA, Metrolink	●	●	◑	◑	○	◔		X	
A25	Hollywood Way: Widen to 6 lanes from Thornton Ave to Glenoaks Blvd	Burbank, Bob Hope Airport	◑	○	○	○	○	◔	X		
H2	I-5/Buena Vista Ave: Reconfigure ramps and connect with Winona Ave	Burbank, Caltrans, Metrolink	●	○	○	○	○	◔	X		
B8	Hollywood Way/San Fernando Rd Metrolink station pedestrian bridge	Burbank, Bob Hope Airport	○	●	○	○	◑	○	X		
B16	Burbank Airport: CNG Refueling Station	Burbank, Bob Hope Airport	○	○	●	○	○	○	X		
T12	Metro Orange Line Extension: North Hollywood to Bob Hope Airport	Burbank, Bob Hope Airport, LA	●	○	●	●	●	○		X	X
T20	Burbank/Glendale LRT: From LA Union Station to Burbank Airport via Antelope Valley Line corridor*	Burbank, Bob Hope Airport, Glendale, LA, Metrolink	●	◑	●	◑	●	○		X	X
T21	Pasadena to Burbank Airport LRT: Via SR-134 / I-5 through Glendale & Burbank*	Burbank, Bob Hope Airport, Glendale	◑	◔	◔	◔	◔	○		X	X
T22	Metro Red Line Extension: North Hollywood to Burbank Airport*	Burbank, Bob Hope Airport, LA	◔	◔	◔	◔	◔	○		X	X

*   Costs exclude right-of-way, vehicles, finance changes, and operation and maintenance.

**   "Jurisdiction" may refer to the lead project sponsor, the jurisdiction where the project exists, or the agency that proposed the addition of the project. Projects without specific jurisictions were sourced from other planning documents (e.g. Metro Long Range Transportation Plan and others) where no lead or proposing agency was listed.

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