

# Santa Ana-Garden Grove Fixed Guideway Corridor

## Appendix E

### Visual Impact Assessment



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# Visual Impact Assessment

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in support of the  
**SANTA ANA AND GARDEN GROVE  
FIXED GUIDEWAY CORRIDOR STUDY**  
Santa Ana Regional Transportation Center (SARTC) to Harbor Boulevard

Prepared for  
City of Santa Ana  
in cooperation with  
City of Garden Grove  
Orange County Transportation Authority



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## List of Acronyms

ACEC	Area of Critical Environmental Concern
BLM	(U.S. Department of Interior) Bureau of Land Management
Caltrans	California Department of Transportation
CEQA	California Environmental Quality Act
EA	Environmental Assessment
EIR	Environmental Impact Report
FAA	Federal Aviation Administration
FHWA	Federal Highway Administration
FTA	Federal Transportation Administration
mph	miles per hour
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
O&M	Operations and Maintenance
OCS	Overhead Contact System
PE	Pacific Electric
Project	Santa Ana and Garden Grove Fixed Guideway Project
SARTC	Santa Ana Regional Transportation Center
ROW	right-of-way
TPSS	Traction Power Substation
TSM	Transportation Systems Management
UPA	Unusual Plan Association
U.S.	United States
USFS	U.S. Forest Service
VRM	Visual Resource Management
WSA	Wilderness Study Area

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## Executive Summary

This Visual Impact Assessment (VIA) has been prepared as a background technical report to support the environmental analysis for the Santa Ana and Garden Grove Fixed Guideway Project (Project). The Santa Ana and Garden Grove Fixed Guideway Study Area (Study Area) is located within the cities of Santa Ana and Garden Grove in central Orange County, California. More specifically, the Study Area encompasses a proposed, four-mile, transit corridor that extends from the intersection of Harbor Boulevard and Westminster Avenue in the City of Garden Grove, at its western terminus, to the Santa Ana Regional Transportation Center (SARTC) in the City of Santa Ana, at its eastern terminus.

The Project is currently undergoing environmental study and evaluation pursuant to the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA). Four alternatives have been identified for environmental review. These alternatives consist of a No Build Alternative, a Transportation System Management (TSM) Alternative and two streetcar Build Alternatives. Due to funding constraints, it may be necessary to construct Initial Operable Segments (IOS) in lieu of the full streetcar alternative. These shortened segments of Streetcar Alternatives 1 and 2 have been identified as IOS-1 and IOS-2, respectively.

Project alternatives are labeled as follows:

- No Build Alternative
- TSM Alternative
- Streetcar Alternative 1 (Santa Ana Boulevard and Fourth Street Couplet)
  - Initial Operable Segment 1 (IOS-1) (termini at Raitt and SARTC)
- Streetcar Alternative 2 (Santa Ana Boulevard/Fifth Street and Civic Center Drive Couplet)
  - Initial Operable Segment 2 (IOS-2) (termini at Raitt and SARTC)

The City of Santa Ana is the CEQA lead agency and the Federal Transit Administration is the NEPA lead agency.

The Study Area of the proposed Project site is located in a highly urbanized area. Visual resources in the Study Area have been affected by past and present actions, including roadway construction and residential and commercial/light industrial development. However, with the exception of the Pacific Electric (PE) Santa Ana River Bridge and the downtown Santa Ana area – near the Civic Center – where mid-rise buildings of up to ten stories are present, the visual landscape generally is fairly level and horizontal in nature, with little vertical variation. Vertical elements that frequently are associated with large urban communities (e.g., on- and off-ramps, overpasses, and retaining walls associated with interstate systems, high-rise buildings, and bridges) are generally not present in the Study Area.

Several scenic and unique views are situated within the Study Area of the proposed Project, including the PE Santa Ana River Bridge, Santa Ana River Trail, Sasser Park, the Downtown Santa Ana Historic District, and SARTC. These features increase the overall visual quality of the Study Area; however, the visual quality of the Study Area as a whole would generally be considered low-to-moderate low in nature due to the presence of light industrial and warehouse areas as well as distressed residential areas, and the lack of expansive vistas, such as mountains, lakes, or ocean views, etc. Based on the locations of the proposed improvements relative to the existing scenic/unique views and the nature of the improvements, the

improvements associated with the two streetcar alternatives, IOS-1, and IOS-2 will have a less than significant impact on scenic vistas or important aesthetic features.

The other aesthetic issue to consider with respect to the proposed Project is the impact associated with lighting features. Based on the features associated with the proposed improvements under the two Build Alternatives, lighting would be associated with: (1) the proposed operations and maintenance (O&M) facilities, and (2) the proposed station locations. While the specific lighting design, including intensity and height, has not been determined to date, it is possible that lighting associated with the proposed O&M facility located on Fifth Street between English Street and Daisy Avenue (located adjacent to a residential area), and the lighting associated with stations/platforms located adjacent to residential neighborhoods (e.g., the stations located on Santa Ana Boulevard east and west of the intersection with Bristol Street) could create a new source of lighting that might impact nighttime views in those areas. However, due to project design features described in Section 4.4.3 impacts are expected to be less than significant for the purposes of CEQA analysis.

## Chapter 1 Introduction

The Santa Ana and Garden Grove Fixed Guideway Project (Project) is located in the cities of Santa Ana and Garden Grove, in Orange County, California. The Santa Ana and Garden Grove Fixed Guideway Study Area (Study Area) is defined as the proposed, four-mile, transit corridor that extends from the intersection of Harbor Boulevard and Westminster Avenue in the City of Garden Grove at its western terminus to the Santa Ana Regional Transportation Center (SARTC) in the City of Santa Ana at its eastern terminus. Figures 1-1 and 1-2 provide the Regional Location and Project Area maps, respectively. The following sections provide an overview of the visual resources and qualities of the proposed Project, and a summary of its various design elements.

### 1.1 Overview

This report examines the aesthetic (visual quality) characteristics of the proposed Project. The following elements of visual quality are used to describe the visual resources and landscape of the Study Area: (1) the built environment, (2) significant views and scenic resources, and (3) sensitive receptors.

- **Built Environment** refers to the type and scale of development and noteworthy constructed visual features in the vicinity of the proposed Project. Scale is defined by the height and mass of built structures.
- **Significant Views and Scenic Resources** concerns open view corridors and visually distinctive built or natural features that are visible from the proposed Project; public spaces such as roadways, sidewalks, parks; and other public venues.
- **Sensitive Receptors** include land uses with sensitivity to changes in the visual setting, such as residences and parks or other public areas utilized by people on a daily basis. Commercial, industrial, and office facilities are not normally considered sensitive receptors due to their generally utilitarian conditions and surroundings. Drivers are not considered sensitive receptors unless the roadway traveled is a designated scenic highway, is a highway with a designated scenic overlook(s) available to the public, or offers views of distinctive built or natural features.

Potential effects examined for this technical report include the loss of scenic resources, obstruction of scenic views, and the introduction of new Project-related features that may influence the visual significance, scale, or character of the existing visual environment. It is recognized that the perception of visual conditions and the assessment of adverse visual effects is subjective and varies depending on the mindset of the viewer and on an individual's sense of aesthetics. Accordingly, this report identifies the criteria used to assess visual quality effects. The potential adverse effects on aesthetics and visual resources are based on an analysis of photographs, site reconnaissance, and project data provided by the cities involved.

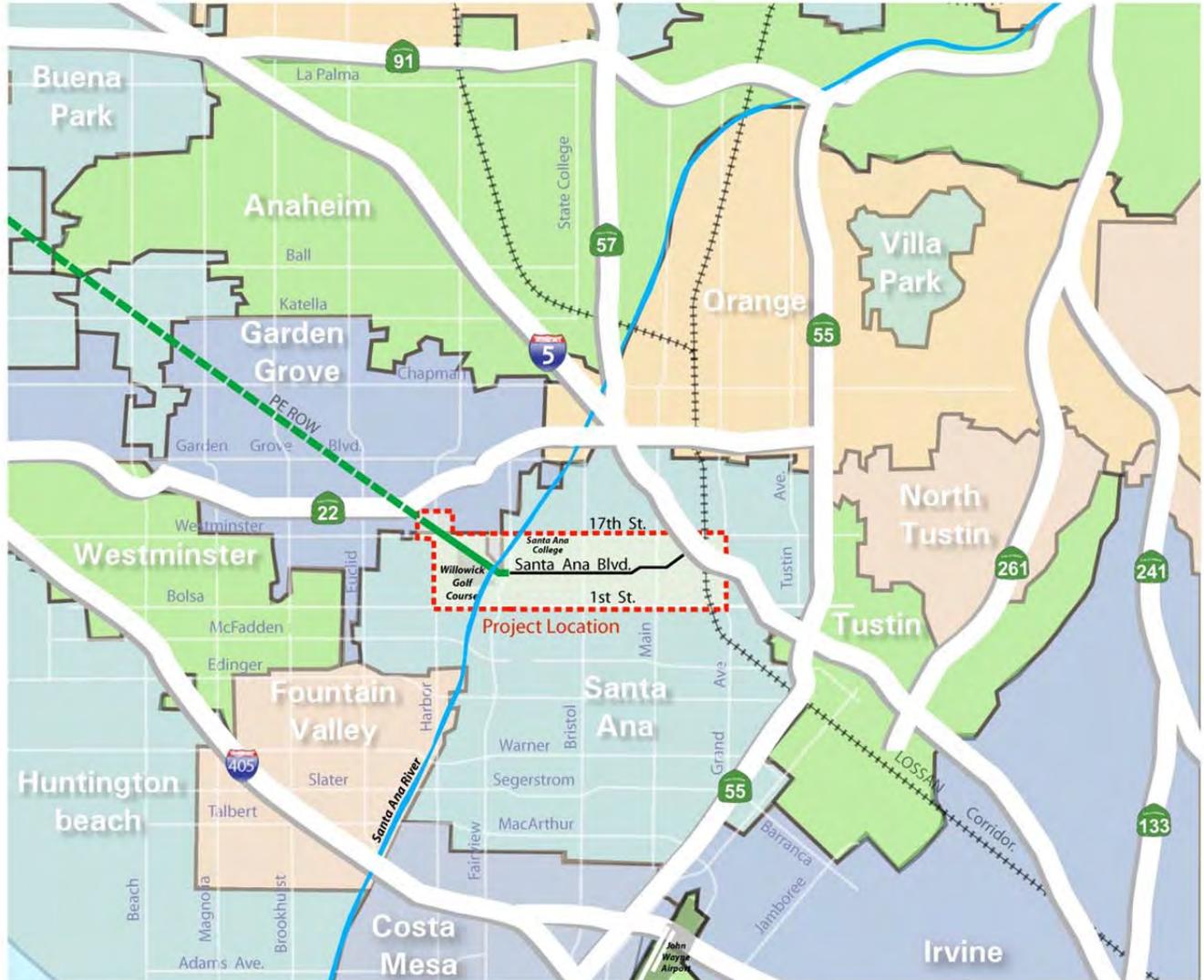
### 1.2 Project Description

Four alternatives have been identified for the Project. These alternatives consist of a No Build Alternative, a Transportation System Management (TSM) Alternative and two streetcar Build Alternatives. The four alternatives are labeled as follows:

- No Build Alternative
- TSM Alternative
- Streetcar Alternative 1 (Santa Ana Boulevard and Fourth Street Couplet)

- Streetcar Alternative 2 (Santa Ana Boulevard/Fifth Street and Civic Center Drive Couplet)

A detailed project description is provided in Appendix A.

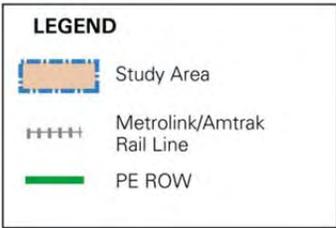


**LEGEND**

-  Study Area
-  Metrolink/Amtrak Rail Line
-  PE ROW



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## Chapter 2 Affected Environment

Chapter 2 provides a summary of the regional and local landscape setting, and an overview of the sensitive viewers and scenic vistas in the Study Area of the proposed Project.

### 2.1 Regional Setting

The Study Area is approximately four miles long and is located primarily in the city of Santa Ana, with the western end of the area, northwest of the Santa Ana River, located in the city of Garden Grove. The Study Area is generally bounded by Harbor Boulevard on the west, the SARTC facility on the east, Santa Ana Boulevard/Fourth Street on the south, and Westminster Avenue/Seventeenth Street and Civic Center Boulevard on the north.

#### 2.1.1 Area Topography and Landform

The topography in the Study Area of the proposed Project is relatively flat. The Study Area is highly urbanized and contains a broad mix of land uses, including light industrial/commercial properties, single- and multi-family residences, manufactured housing, government and public facilities, and recreational facilities. Structures generally are one to three stories in height, with the exception of the downtown Santa Ana area, where some buildings are in excess of five stories in height. The eastern half of the Study Area is primarily industrial/commercial in nature while the western half is predominantly residential in nature. Several parks and recreational areas are located in the vicinity of, or adjacent to, the Study Area of the proposed Project, including the historic French Park and Sasser Park. The largest of the recreational areas, the Willowick Golf Course, is located in the western portion of the Study Area, adjacent to the northwest fork of the Santa Ana River. The Santa Ana Stadium<sup>1</sup> is located in the central portion of the Study Area in downtown Santa Ana.

In the western portion of the Study Area, the Santa Ana River traverses the site in a northeast to southwest direction. This river is the largest river in southern California. It rises in the San Bernardino Mountains and flows past the cities of San Bernardino and Riverside, before cutting through the northern tip of the Santa Ana Mountains and flowing southwest past the City of Santa Ana, to spill into the Pacific Ocean. The Santa Ana River is concrete-lined within the boundaries of and in the vicinity of the Study Area. The Santa Ana River Bridge was constructed over the Santa Ana River in 1905. This bridge is the only Santa Ana River crossing for the P E Railway. After the PE Railway went out of business, the bridge was temporarily used as a bicycle path, but the entrances to the bridge are now barricaded with iron bars and barbed wire (CDOT 2011a).

The eastern portion of the Study Area is located within two historic districts that are listed in the National Register of Historic Places (NRHP). The Downtown Santa Ana Historic District is roughly bounded by Civic Center Drive, First, Ross, and Spurgeon Streets. The French Park Historic District is roughly bounded by North Bush, East Washington, North Garfield, and Civic Center Drive.

SARTC is located at the eastern terminus of the proposed Project Site. It is considered the focal point of transportation in Orange County and is an iconic building in Santa Ana. It combines Amtrak, Metrolink, OCTA, intercity and interstate bus transportation, and airport and taxi services.

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<sup>1</sup> Home of the Santa Ana College Dons, the local college football team, the stadium holds 9,000 spectators. The Santa Ana Stadium is managed by the Santa Ana Recreation and Community Services Department.

## 2.1.2 Regional Development Pattern

The Study Area of the proposed Project is located in a highly urbanized area within Orange County, with scenic views consisting of parks and other recreational areas located within or adjacent to the Study Area. With the exception of the Santa Ana River, no natural bodies of water are located in or near the Study Area. Because of the built-out environment and the minimal variation in topography (and resultant lack of elevated vantage points), views are limited to the foreground and middleground, with no long-range or background views.

## 2.2 Local Setting

To provide a framework for analyzing the visual environment, the potential alignments are described in terms of the overall visual landscape, and also have been divided into visual character areas.

### 2.2.1 Visual Landscape

The Study Area for this analysis encompasses approximately a half-mile on each side of the proposed alignments, and a half-mile around each proposed station. The visual landscape in the Study Area consists primarily of low-rise light industrial and commercial buildings (one to three stories) with associated parking lots; one-story, single-family residences, and manufactured homes; two- and three-story multi-family residential structures; recreational areas on generally level terrain containing few structures; and roadways, some of which include landscaped and/or raised medians. The exception to this description is the Santa Ana River Bridge and the downtown Santa Ana neighborhood which contains a combination of larger low- to mid-rise structures interspersed with multi-level parking structures, paved parking lots, and on-street parking. Aside from these areas, the visual landscape generally is fairly level and horizontal in nature, with little vertical variation. Vertical elements that frequently are associated with large urban communities (e. g., on- and off-ramps, overpasses, and retaining walls associated with interstate systems, high-rise buildings, bridges) are not present in the Study Area of the proposed Project.

### 2.2.2 Visual Character

During the site reconnaissance activities, the Study Area was divided into three segments as shown in Figures 1 through 6:

- Segment 1 PE ROW,
- Segment 2 Raitt Street to Flower Street,
- Segment 3 Downtown Santa Ana, Streetcar Alternatives 1 and 2.
- (Segment 3 was further divided into Segment 3A Downtown Santa Ana Streetcar Alternative 1 and Segment 3B Downtown Santa Ana Streetcar Alternative 2 in order to discuss the visual differences between the two streetcar alternatives.)

Visual character areas (described as Visual Character Areas A through J) were identified within each of the segments (previously described in Section 1.6.1) and were selected based on the land uses and viewers, scale, and visual resources (views and visual elements) depicted in a particular view. Representative and/or key viewpoints were selected within each designated visual character area. Photographs taken from selected viewpoint locations within each visual character area, from west to east, within the boundaries of the proposed Project Site, are provided in Figures 2-1a through 2-7a. Locations from which visual character photos were taken within each visual character area are depicted in Figures 2-1b through 2-7b.

A brief textual summary of the visual character areas, by proposed Project segment, is provided below. Detailed information, including character, views, visual elements, and visual quality, is provided in Table 2-1 (Visual Characteristics) for each of the segments. The assessment of visual quality was based on the cohesion or variation in form, the level of upkeep or deterioration of the built environment, and the level of landscaping and visual attractiveness. The following discussion provides a detailed description of each visual character area.

**Table 2-1: Character of Views in Study Area by Segment**

Character of Views					
Visual Character Area	Boundaries	Land Use/ Viewer Group Along Area	Scale of Adjacent Development	Visual Resources (Views and Visual Elements)	Visual Quality <sup>(a)</sup>
<b>Segment 1: PE ROW</b>					
A	Western Terminus (intersection of Harbor Boulevard and Westminster Avenue) to Fairview Street	Commercial, residential, recreational, educational	Low-rise	<b>Views:</b> Adjacent commercial and residential development. <b>Visual Elements:</b> Roadways, trees along sides of roads, tree-lined streets, Willowick Municipal Golf Course, Santa Ana River, Santa Ana River Bridge, PE ROW, residential neighborhoods, Spurgeon Park.	Moderate low to moderate
B	Fairview Street to intersection of Raitt Street and Fourth Street/Santa Ana Boulevard	Commercial, light industrial, residential	Low-rise	<b>Views:</b> Adjacent commercial and residential development. <b>Visual Elements:</b> Fences surrounding light industrial properties, equipment associated with light industrial properties, single-family residential neighborhood, manufactured housing.	Low to moderate low
<b>Segment 2: Raitt Street to Flower Street</b>					
C	Santa Ana Boulevard from Raitt Street to Flower Street	Residential, commercial, educational	Low-rise to mid-rise	<b>Views:</b> Nearby low- to mid-rise commercial development and adjacent residential development. <b>Visual Elements:</b> Roadways, trees, elementary schools, Santa Ana Stadium.	Moderate low to moderate
<b>Segment 3A: Downtown Santa Ana, Alternative 1</b>					
D	Between Flower Street and Broadway (west to east) and Santa Ana Boulevard and Fourth Street (north to south)	Commercial, recreational	Low-rise to mid-rise	<b>Views:</b> Nearby low- to mid-rise commercial development and adjacent residential development. <b>Visual Elements:</b> Boulevards, trees, mid-rise buildings in Downtown Santa Ana, Sasscer Park.	Moderate

Character of Views					
Visual Character Area	Boundaries	Land Use/ Viewer Group Along Area	Scale of Adjacent Development	Visual Resources (Views and Visual Elements)	Visual Quality <sup>(a)</sup>
E	Santa Ana Boulevard between Broadway and French Street, and Fourth Street between Broadway and French Street	Commercial (retail and office), residential, educational	Low-rise	<b>Views:</b> Nearby low-rise commercial development and adjacent residential development. <b>Visual Elements:</b> Shopping district on Fourth Street, commercial district approaching Downtown Santa Ana Historic District on Santa Ana Boulevard at French Street.	Low to moderate low
F	Santa Ana Boulevard between French Street and Poinsettia Street, Fourth Street between French Street and Mortimer Street, and Mortimer Street between Santa Ana Boulevard and Fourth Street.	Residential, vacant lots	Low-rise	<b>Views:</b> Nearby low-rise commercial development and adjacent residential development. <b>Visual Elements:</b> Tree-lined streets, Garfield Elementary School, boarded-up buildings, vacant lots.	Low to moderate low
G	Poinsettia Street to Eastern Terminus (SARTC)	Multi-family residential, commercial/warehouse	Low-rise	<b>Views:</b> Nearby low-rise commercial development and adjacent residential development. <b>Visual Elements:</b> Roadways, SARTC, rail lines, trees, material recycling and transfer facility (site of prospective O&M facility).	Low to moderate
<b>Segment 3B: Downtown Santa Ana, Alternative 2</b>					
H	Between Flower Street and Broadway (west to east) and between Civic Center Drive and Fifth Street (north to south)	Commercial (government buildings, public buildings, private office buildings)	Low-rise to mid-rise commercial development	<b>Views:</b> Nearby mid-rise commercial development. <b>Visual Elements:</b> Wide roadways, government buildings, public library, Santa Ana Stadium.	Moderate

Character of Views					
Visual Character Area	Boundaries	Land Use/ Viewer Group Along Area	Scale of Adjacent Development	Visual Resources (Views and Visual Elements)	Visual Quality <sup>(a)</sup>
I	Civic Center Drive between Broadway and Spurgeon Street (west to east), Spurgeon Street between Civic Center Drive and Santa Ana Boulevard (north to south), Santa Ana Boulevard/Sixth Street between Spurgeon Street and Minter Street (west to east), Fifth Street between Broadway and Minter Street (west to east), and Minter Street between Sixth Street and Fifth Street (north to south)	Commercial	Low-rise to mid-rise	<b>Views:</b> Nearby mid-rise commercial development. <b>Visual Elements:</b> Roadways, French Park and Downtown Santa Ana Historic Districts	Low moderate
J	Sixth/Brown Street between Minter Street and Poinsettia Street, and Eastern Terminus (block encompassed by Poinsettia Street, Santa Ana Boulevard, Santiago Street, and Sixth Street)	Multi-family residential, commercial/ware house	Low-rise.	<b>Views:</b> Nearby low-rise commercial development, adjacent residential development. <b>Visual Elements:</b> Northgate Grocery, narrow tree-lined streets, boarded-up buildings, vacant lots, SARTC, material recycling and transfer facility (site of prospective O&M facility).	Low to moderate

**Note:** (a) Visual quality is rated: Low, Moderate Low, Moderate, Moderate High, or High. These ratings reflect condition of the area, landscaping and overall visual attractiveness.

### **Segment 1: PE ROW**

The boundaries of Segment 1 consist of either side of the PE ROW from the intersection of Harbor Boulevard and Westminster Avenue, at the northwest end, to Raitt Street on the eastern end. This segment is divided into two visual character areas, Area A and Area B, which are described below. The Pacific Electric Red Car operated in the PE ROW until the 1950s and OCTA purchased the PE ROW in the early 1990s to preserve it for future use as a transit corridor.

**Area A:** This visual character area begins at the intersection of Harbor Boulevard and Westminster Avenue and terminates at Fairview Street, and consists primarily of newer low-rise, mixed-use commercial development at the western end of the site, followed by single-family residential development and manufactured housing (on either side of the PE ROW). Adjacent to the southeast and southwest of the manufactured housing communities, on the southwest side of the PE ROW, is the Willowick Municipal Golf Course. Immediately east of the golf course is the Santa Ana River, which includes the historic Santa Ana River Bridge and the Santa Ana River Trail. Spurgeon Park is located east of the Santa Ana River on the southeast side of the PE ROW, followed to the east by the Spurgeon Intermediate School whose students use the athletic fields associated with Spurgeon Park. Visual Character Area A is shown in Figure 2-1a and the locations from which the photos were taken are depicted in Figure 2-1b.

**Area B:** This visual character area begins at Fairview Street and terminates at the intersection of Raitt Street and Fourth Street/Santa Ana Boulevard. Area B is an older area consisting of low-rise, mixed-use commercial development, followed by light industrial development (e.g., metal recycling) and commercial development (e.g., restaurants, auto repair facilities, automobile towing) adjacent to the PE ROW, with older single-family residences adjoining the light industrial businesses. The light industrial businesses in this area are secured by perimeter fencing covered with nylon fabric blocking views to the interiors of the properties. Visual Character Area B is shown in Figure 2-2a and the locations from which the photos were taken are depicted in Figure 2-2b.

### **Segment 2: Raitt Street to Flower Street**

The boundaries of Segment 2 consist of either side of Santa Ana Boulevard from the eastern side of Raitt Street, on the western end, to Flower Street on the eastern end. This segment consists of one visual character area, Area C. Historically, the Pacific Electric Red Car system operated along Santa Ana Boulevard in this area until service was discontinued in the 1950s.

**Area C:** The area along Santa Ana Boulevard east of Raitt Street to Flower Street consists of single-family residences interspersed with public schools (e.g., Carver Elementary School and the Lydia Romero Cruz Elementary School) and small one- and two-story commercial businesses (e.g., a florist shop, a small strip shopping center). A moderate number of trees are present along either side of Santa Ana Boulevard. Vehicular traffic in this area is moderate and pedestrian traffic is limited. Visual Character Area C is shown in Figure 2-3a and the locations from which the photos were taken are depicted in Figure 2-3b.

### **Segment 3A: Downtown Santa Ana, Streetcar Alternative 1 (Flower Street to SARTC)**

The boundaries of Segment 3A consist of Fourth Street on the southern end, Santa Ana Boulevard on the northern end, the east side of Flower Street on the western end, and Santiago Street on the eastern end. This segment is divided into four visual character areas, discussed below. It should be noted that the Pacific Electric Red Car system operated in this area, along Fourth Street and Santa Ana Boulevard, until the 1950s.

**Area D:** The area between Flower Street and Broadway (west to east) and between Santa Ana Boulevard and Fourth Street (north to south) are within the core of the downtown Santa Ana commercial district (See Figure 2-4a and 2-4b). Notable properties in this area include the Santa Ana Civic Center, located on the southwest corner of Fourth Street and Ross Street, and Sasser Park, located adjacent to the area north of the Civic Center. Though small, Sasser Park is a popular area, especially on hot days, because of its large fountain. In addition to the Civic Center, other public/government buildings in this area include the Superior Court, the Santa Ana City Jail, the Department of Health Services, and the Orange County Health Care Agency. Several parking structures and paved parking lots are present in this area. The eastern portion of Fourth Street in Area D is within the Downtown Santa Ana Historic District and includes numerous buildings that are listed on the Santa Ana Register of Historic Properties (SARHP) and are contributors to the NRHP-listed Downtown Santa Ana Historic District. The historic structures contribute to the visual character of this area. Detailed information regarding these historic properties can be found in the *Cultural Resources Evaluation Report* (URS 2012x) provided as Appendix C of the environmental document for the proposed Project. Visual Character Area D is shown in Figure 2-4a and the locations from which the photos were taken are depicted in Figure 2-4b.

**Area E:** This visual character area includes the segment of Santa Ana Boulevard between Broadway and French Street, and the segment of Fourth Street between Broadway and French Street (See Figure 2-4a and 2-4b). Portions of Fourth Street and Santa Ana Boulevard between Broadway and Spurgeon Street are within the Downtown Santa Ana Historic District and include numerous buildings listed on the SARHP that are contributors to the NRHP-listed historic district (See Figure 4-15 and Figure 4-16). Similar to Area D, the historic structures contribute to the visual character of this area. Detailed information regarding these historic properties can be found in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project. Santa Ana Boulevard between Broadway and French Street is also within the Santa Ana Business District. Notable properties on the north side of Santa Ana Boulevard include the Old Orange County Courthouse, the First Presbyterian Church, the Pacific Symphony Center (listed as the United Presbyterian Church on the SARHP) and the Spurgeon Post Office. On either side of Fourth Street, between Broadway and French Street, is a popular retail shopping area in downtown Santa Ana, which is composed of many historic properties. At the time of the site reconnaissance activities, this area was characterized by heavy pedestrian traffic and vehicular traffic. The on-street parking spaces present in this area were fully utilized at the time of the site reconnaissance activities. The businesses in this area consist primarily of independent retail clothing and shoe stores (as opposed to the chain stores more typically found at newer shopping malls). Visual Character Area E is shown in Figure 2-4a and the locations from which the photos were taken are depicted in Figure 2-4b.

**Area F:** This visual character area consists of a segment of Santa Ana Boulevard between French Street and Poinsettia Street, a short segment of Fourth Street between French Street and Mortimer Street, and a segment of Mortimer Street between Santa Ana Boulevard and Fourth Street (See Figure 2-5a and 2-5b). Along Santa Ana Boulevard between French Street and Poinsettia Street is a section of older primarily single-family (one-story) and multi-family (two- to three-story) residences. Several vacant lots, that appeared to have been previously developed, were observed in this area, as were several abandoned buildings that are intended to be rehabilitated or redeveloped as part of the Station District project, a plan to redevelop 48 non-contiguous parcels with a variety of housing products within a 7.8-acre district.<sup>2</sup> These

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<sup>2</sup> Community Redevelopment Agency, City of Santa Ana. The Station District RFQ. <http://www.ci.santa-ana.ca.us/cda/StationDistrictRFQ.asp>

vacant lots and abandoned buildings had been boarded-up and were observed along both Santa Ana Boulevard and Sixth Street and along the streets perpendicular to Santa Ana Boulevard and Sixth Street. Several mature trees lined the roadways in this area, providing a natural canopy. The block of Fourth Street between French Street and Mortimer Street contains a grocery store and residential buildings. At the intersection of Fourth Street and Mortimer, Area F turns northward and follows Mortimer Street to where it rejoins Santa Ana Boulevard. This segment of Mortimer is characterized by parking lots, three-story multi-family apartment buildings, and abandoned single-family residences. Visual Character Area F is shown in Figure 2-5a and the locations from which the photos were taken are depicted in Figure 2-5b.

**Area G:** The area east of Poinsettia Street to the existing SARTC facility and Metrolink tracks consists of a mix of newer low-rise multi-family apartment buildings (on either side of Santa Ana Boulevard west of Santiago Street), and low-rise commercial and warehouse-type buildings with associated paved parking lots. Several of the warehouse-type buildings and commercial buildings in this area are surrounded by fencing covered with nylon fabric, blocking views to the interior portions of the properties. The roadways in this area are lined with mature trees and offer on-street parking. Visual Character Area G is shown in Figure 2-5a and the locations from which the photos were taken are depicted in Figure 2-5b.

### **Segment 3B: Downtown Santa Ana, Streetcar Alternative 2 (Flower Street to SARTC)**

The boundaries of Segment 3B consist of Fifth Street on the southern end, Civic Center Drive on the northern end, the east side of Flower Street on the western end, and Santiago Street on the eastern end. This segment is further divided into three visual character areas, discussed below. As previously stated, the Pacific Electric Red Car system operated in this area, along Fourth Street and Santa Ana Boulevard, until the 1950s.

**Area H:** The area between Flower Street and Broadway (west to east) and between Civic Center Drive and Fifth Street (north to south) is within the core of the downtown Santa Ana commercial district (See Figure 2-6a and 2-6B). This area consists of low- to mid-rise government/public buildings, such as the Orange County Courthouse and the City of Santa Ana Public Library, low- to mid-rise office buildings, as well as several parking structures and paved parking lots. The Santa Ana Stadium is located at the southwest corner of Flower Street and Civic Center Drive. Few trees are located along the roadways in this area. A moderate amount of pedestrian and vehicular traffic was noted in this area during the site reconnaissance activities. Similar to Area D, notable properties in this area include the Santa Ana Civic Center, Sassafras Park, and other public/government buildings such as the Superior Court, the Santa Ana City Jail, the Department of Health Services, and the Orange County Health Care Agency. The southwest corner of Fifth Street and Broadway is within the Downtown Santa Ana Historic District and includes one building that is listed on the SARHP and is a contributor to the NRHP-listed historic district. Additional information regarding this historic property can be found in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project. Visual Character Area H is shown in Figure 2-6a and the locations from which the photos were taken are depicted in Figure 2-6b.

**Area I:** This visual character area consists of Civic Center Drive between Broadway and Spurgeon Street (west to east), the block of Spurgeon Street between Civic Center Drive and Santa Ana Boulevard (north to south), Santa Ana Boulevard/Sixth Street between Spurgeon Street and Minter Street (west to east), Fifth Street between Broadway and Minter Street (west to east), and the block of Minter Street between Sixth Street and Fifth Street (north to south), as depicted in Figure 2-6a and 2-6b. The segment of Civic Center Drive between Broadway and Spurgeon Street is within the Downtown Santa Ana Historic District and includes several

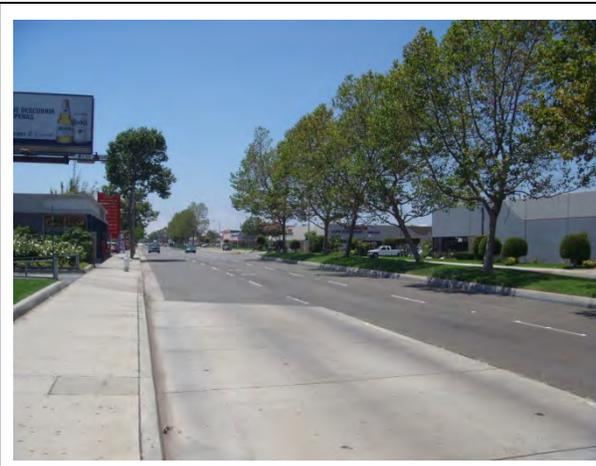
buildings listed on the SARHP and are considered contributors to the NRHP-listed historic district. Notable buildings include the Old Orange County Courthouse, the Dr. Howe-Waffle House, the Episcopal Church of the Messiah, and the Spurgeon Station Post Office. A portion of the northwest corner of Civic Center Drive and Spurgeon is adjacent to the French Park Historic District, which is listed on the NRHP. However, none of the buildings adjacent to the Streetcar Alternative 2 are considered contributing resources to the historic district. Additional information regarding these historic districts and properties can be found in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project. The block of Spurgeon Street between Civic Center Drive and Santa Ana Boulevard is characterized by a large parking lot associated with the Spurgeon Station Post Office to the west and the First United Methodist Church to the east, which occupies the entire northeast corner of Spurgeon Street and Santa Ana Boulevard/Sixth Street. Santa Ana Boulevard/Sixth Street, between Spurgeon Street and Minter Street, consists of single-family (one-story) and multi-family (two- to three-story) residential uses and religious uses.

As opposed to Fourth Street, Fifth Street between Broadway and French Street is not a shopping area and is characterized primarily by low-rise commercial/office buildings. This area does not support heavy pedestrian or vehicular traffic and is substantially “quieter” than Fourth Street. A small portion of Fifth Street between Broadway and Main Street is within the Downtown Santa Ana Historic District and includes two buildings, the Masonic Temple and the Ramona Building, which are listed on the SARHP and are considered contributors to the NRHP-listed historic district. Additional information regarding these historic properties can be found in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project. Along Fifth Street between French Street and Minter Street are a mixture of small commercial buildings and single- and multi-family residential buildings, as well as a few scattered vacant lots that appear to have been previously occupied. At the intersection of Fifth Street and Minter Street, Area I turns northward and follows Minter Street to Sixth Street. This block of Minter Street is characterized by older single (one-story) and multi-family (two- to three-story) residences, some of which have been abandoned as well as vacant lots. Within this area are also a number of vacant lots that were previously developed, as well as vacant lots and older residential structures that have been abandoned and boarded-up. These properties form a component of the Station District project. These properties will be redeveloped with new multi-family housing and/or rehabilitation of the houses in place. Visual Character Area I is shown in Figure 2-6a and the locations from which the photos were taken are depicted in Figure 2-6b.

**Area J:** This visual character area consists of Sixth Street/Brown Street between Minter Street and Poinsettia Street, and the block encompassed by Poinsettia Street, Santa Ana Boulevard, Santiago Street, and Sixth Street, which is located adjacent to and west of the SARTC facility (See Figure 2-7a and 2-7b). The segment of Sixth Street between Minter Street and Lacy Street is characterized by older one-story single-family residences, several which are abandoned and boarded-up, a three-story apartment building on the south side, and a large vacant lot on the north side. Vacant lots and abandoned buildings were also observed along the cross streets in this area. Garfield Elementary School is located on the southeast side of Brown Street, between Lacy Street and Garfield Street. On the north side, is a large vacant lot and a three-story apartment building. Several mature trees line the roadways in this area, providing a natural canopy. The area along Brown Street, east of Garfield Street to Poinsettia Street, and around the block encompassed by Poinsettia Street, Santa Ana Boulevard, Santiago Street, and Sixth Street, consists of a mix of newer low-rise multi-family apartment buildings (on either side of Santa Ana Boulevard west of Santiago Street), and low-rise commercial and warehouse-type buildings (e.g., Austin Hardwoods) with associated paved parking lots. Several of the warehouse-type buildings and commercial buildings in this area are surrounded by fencing

covered with nylon fabric, blocking views to the interior portions of the properties. The roadways in this area are lined with mature trees and offer on-street parking. The SARTC facility is located on the east side of Santiago Street. Visual Character Area J is shown in Figure 2- 7a and the locations from which the photos were taken are depicted in Figure 2-7b.

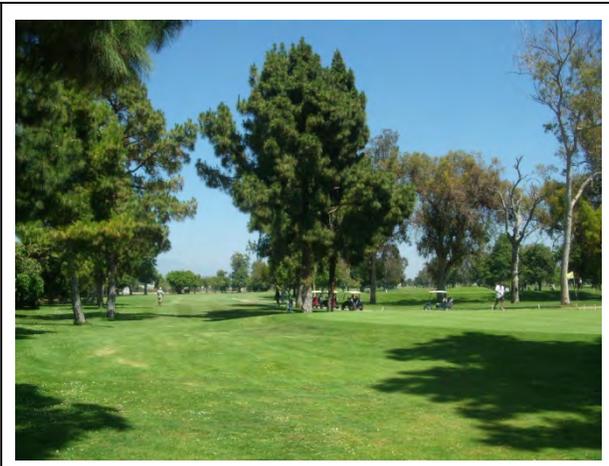
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1. Tree-lined medians along Westminster Avenue looking west toward Nautilus Drive.



2. Manufactured housing community adjacent to Willowick Municipal Golf Course, looking southeast on Willow Drive



3. Willowick Municipal Golf Course looking south from manufactured housing community.



4. Santa Ana River Bridge looking northwest from adjacent Santa Ana River Trail.



5. Athletic fields at Spurgeon Park looking northwest toward Santa Ana River Bridge.

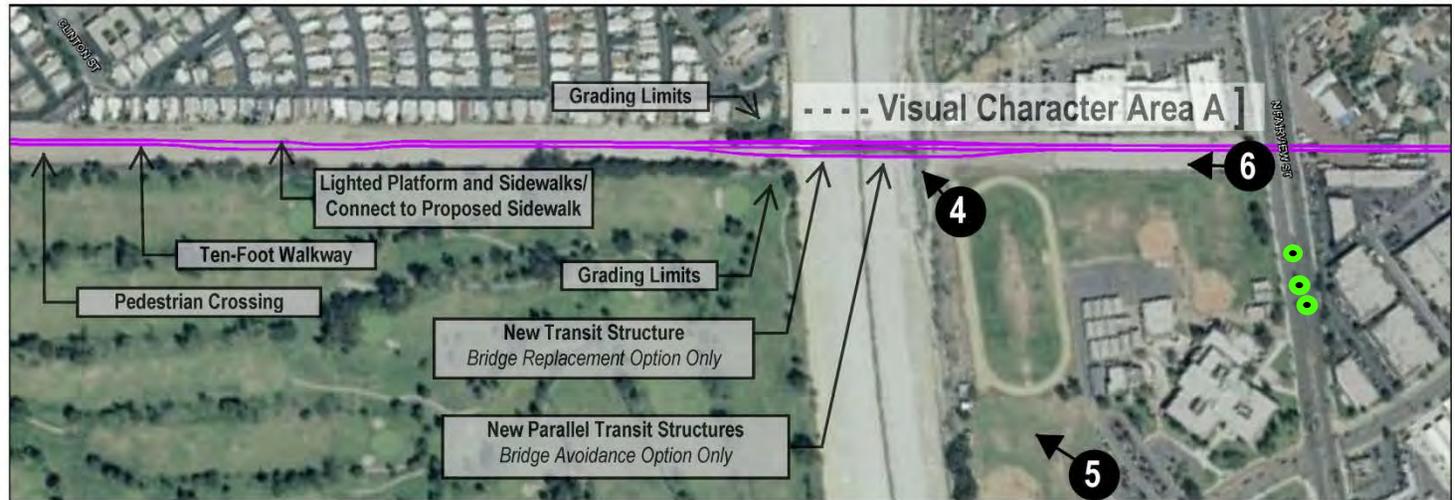
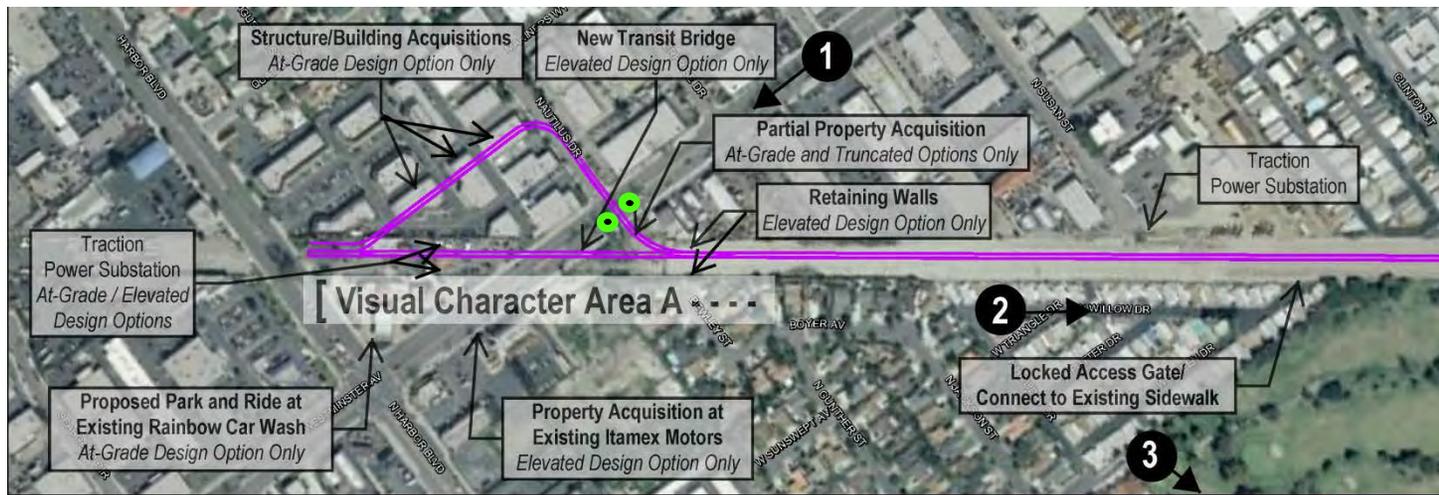


6. PE ROW adjacent to Santa Ana Unified School District building looking northwest from Fairview Street

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## Visual Character Area A Viewpoint Locations



### LEGEND

— STREETCAR ALTERNATIVES 1 AND 2

● TREE REMOVAL



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7. Residential neighborhood adjacent to industrial facilities, looking north on English Street from 5<sup>th</sup> Street.



8. Industrial facilities and associated fencing looking west on 5<sup>th</sup> Street west of Raitt Street.

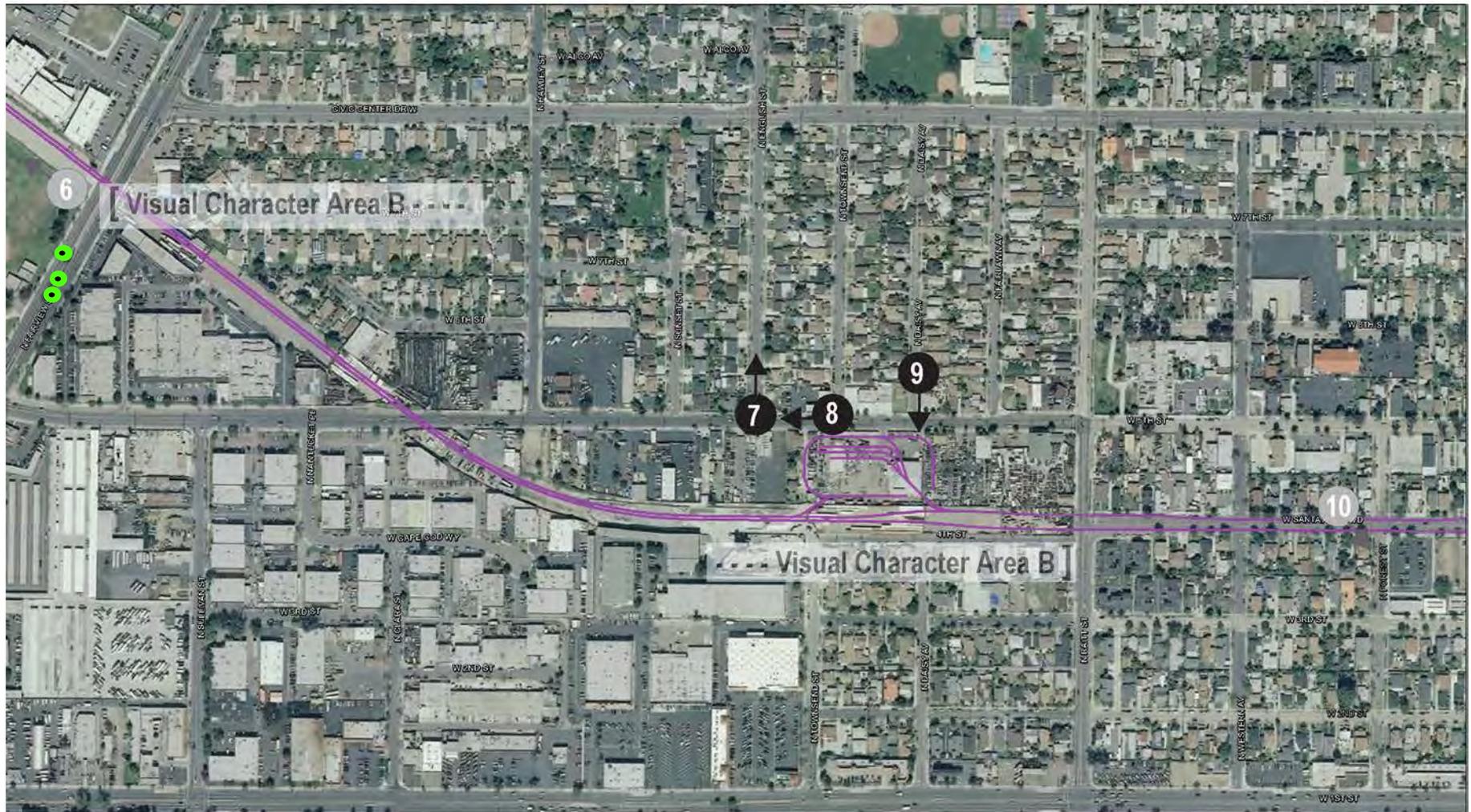


9. View of industrial equipment from adjacent residential neighborhood, looking south on Daisy Avenue toward 5<sup>th</sup> Street

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Visual Character Area B Viewpoint Locations



**LEGEND**

- STREETCAR ALTERNATIVES 1 AND 2
- TREE REMOVAL



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10. View of Lydia Romero Cruz Elementary School looking southeast from Santa Ana Boulevard.



11. View of Carver Elementary School looking north from across Santa Ana Boulevard.



12. View of strip shopping center on northwest corner of Bristol Street and Santa Ana Boulevard (commercial intersection).



13. View of primarily residential area looking west down Santa Ana Boulevard from Bristol Street.



14. View of wide-tree-lined Santa Ana Boulevard, looking east from Bristol Street.

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## Visual Character Area C Viewpoint Locations



### LEGEND

- STREETCAR ALTERNATIVES 1 AND 2
- STREETCAR ALTERNATIVE 1
- STREETCAR ALTERNATIVE 2



Source: Cordoba Corporation, Conceptual Design Plans, July 2011

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15. View of mid-rise commercial buildings looking southwest along Santa Ana Boulevard from Sasscer Park (Area D).



16. View of Sasscer Park looking southwest from Ross and 5<sup>th</sup> Streets (Area D).



17. View of mid-rise commercial buildings surrounding Sasscer Park looking west from Ross Street (Area D).

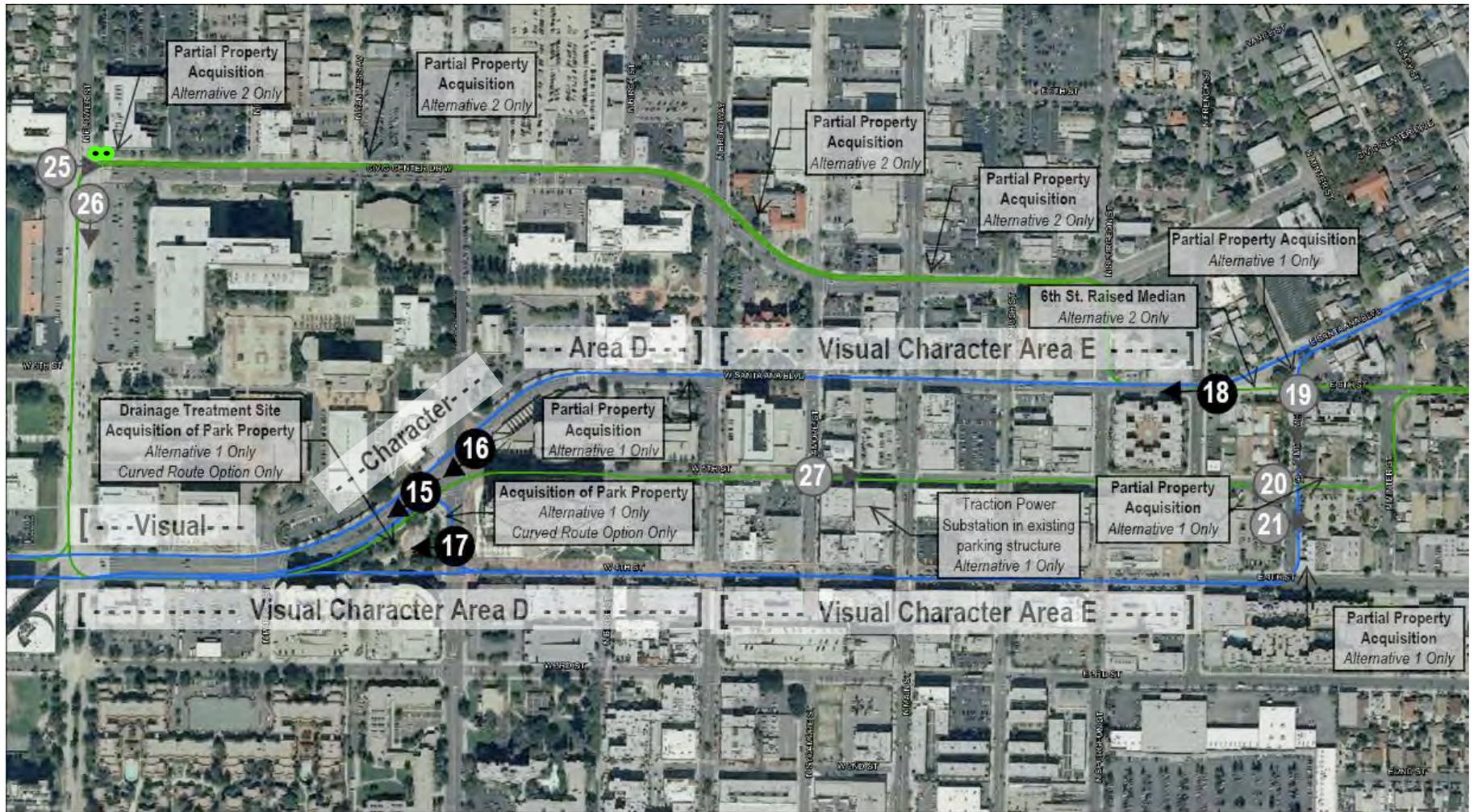


18. View toward Santa Ana Business District looking west along Santa Ana Boulevard from area adjacent to French Street (Area E).

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Visual Character Area D and E Viewpoint Locations



LEGEND

- STREETCAR ALTERNATIVE 1
- STREETCAR ALTERNATIVE 2
- TREE REMOVAL



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19. View of apartment building and boarded up houses looking south on Mortimer Street from 6<sup>th</sup> Street (Area F).



20. View of boarded up single-family residence on corner of Mortimer Street and 5<sup>th</sup> Street (Area F).



21. Parking lot located across from Northgate grocery store on corner of Mortimer Street and 5<sup>th</sup> Street (Area F).



22. View of SARTC facility from entrance off of Santiago Street (Area G).



23. View of Metrolink depot at SARTC facility looking south along railroad tracks (Area G).

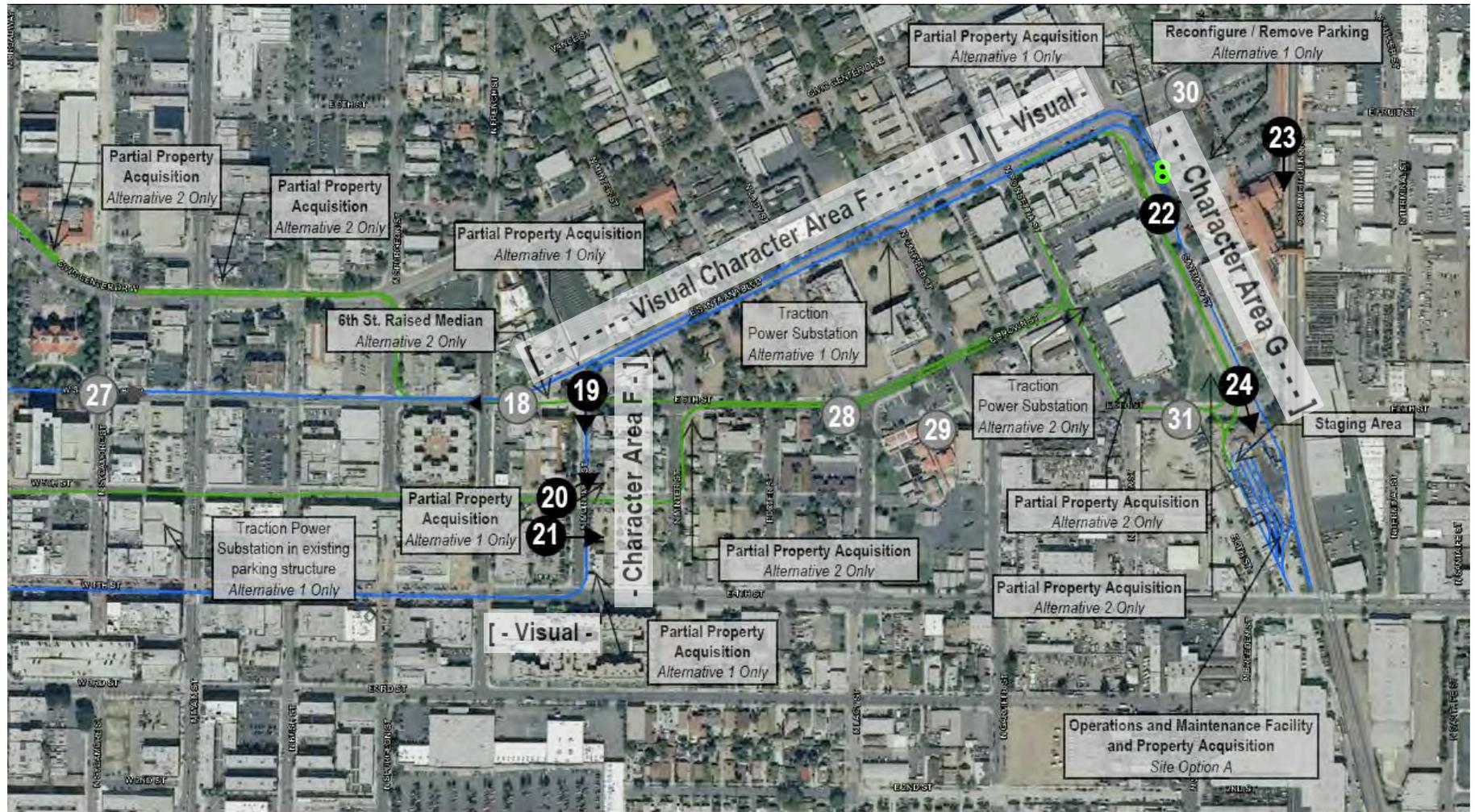


24. View of Madison Materials transfer station located adjacent to the south of Santiago and 6<sup>th</sup> Street (Area G).

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## Visual Character Area F and G Viewpoint Locations



### LEGEND

- STREETCAR ALTERNATIVE 1
- STREETCAR ALTERNATIVE 2
- TREE REMOVAL



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25. View looking east along Santa Ana Business District on Civic Center Drive from Flower Street (Area H).



26. View looking south on Flower Street from Civic Center Drive; Santa Ana stadium is at right (Area H).

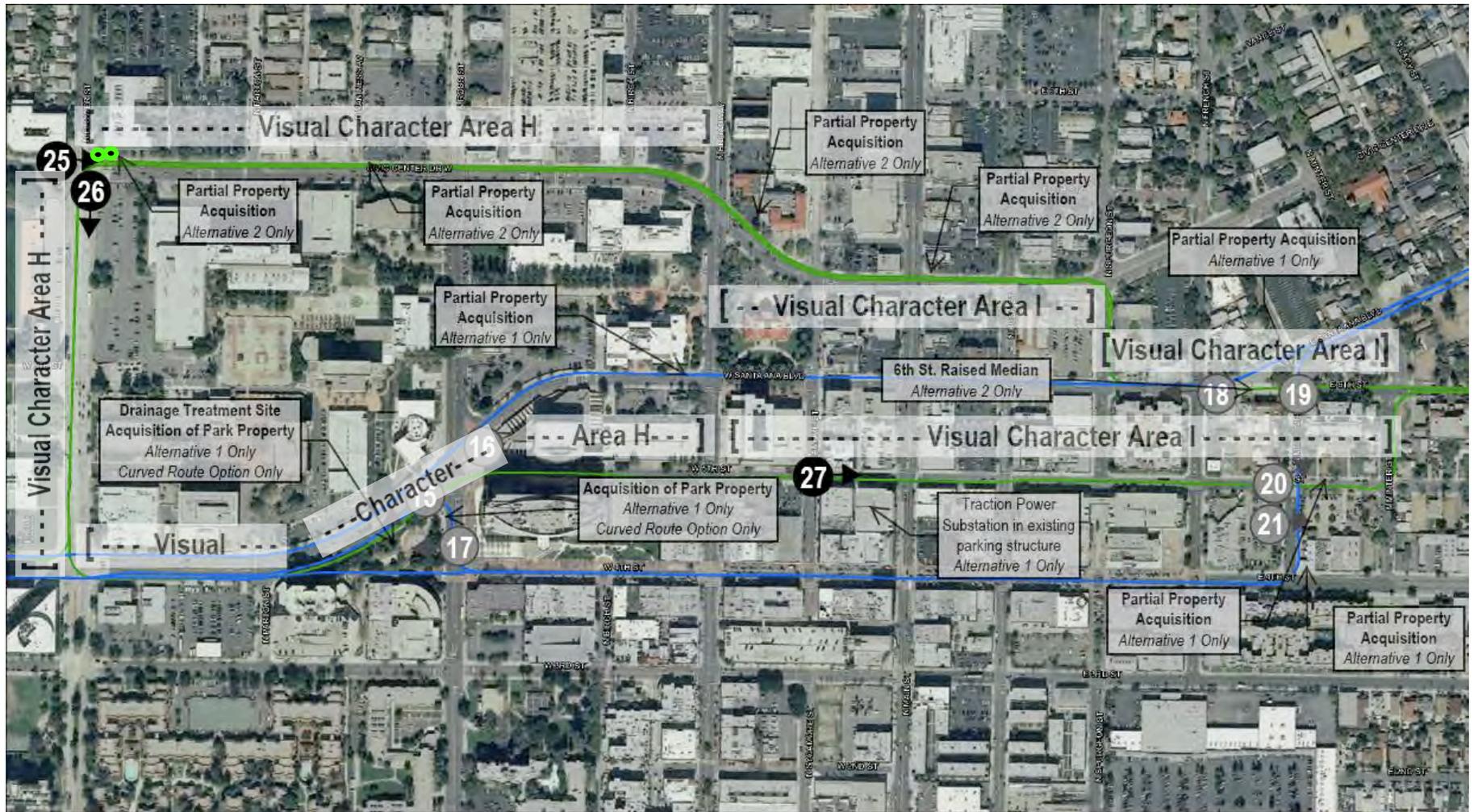


27. View looking east along Santa Ana Business District on 5<sup>th</sup> Street from Sycamore Street (Area I).

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Visual Character Area H and I Viewpoint Locations



LEGEND

- STREETCAR ALTERNATIVE 1
- STREETCAR ALTERNATIVE 2
- TREE REMOVAL



Source: Cordoba Corporation, Conceptual Design Plans, July 2011

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28. View from Garfield Elementary School looking northwest across 6<sup>th</sup> Street at vacant lot and apartment building.



29. View of Garfield Elementary School looking southeast from Lacy and 6<sup>th</sup> Streets.



30. View of entrance to SARTC facility from Santa Ana Boulevard.

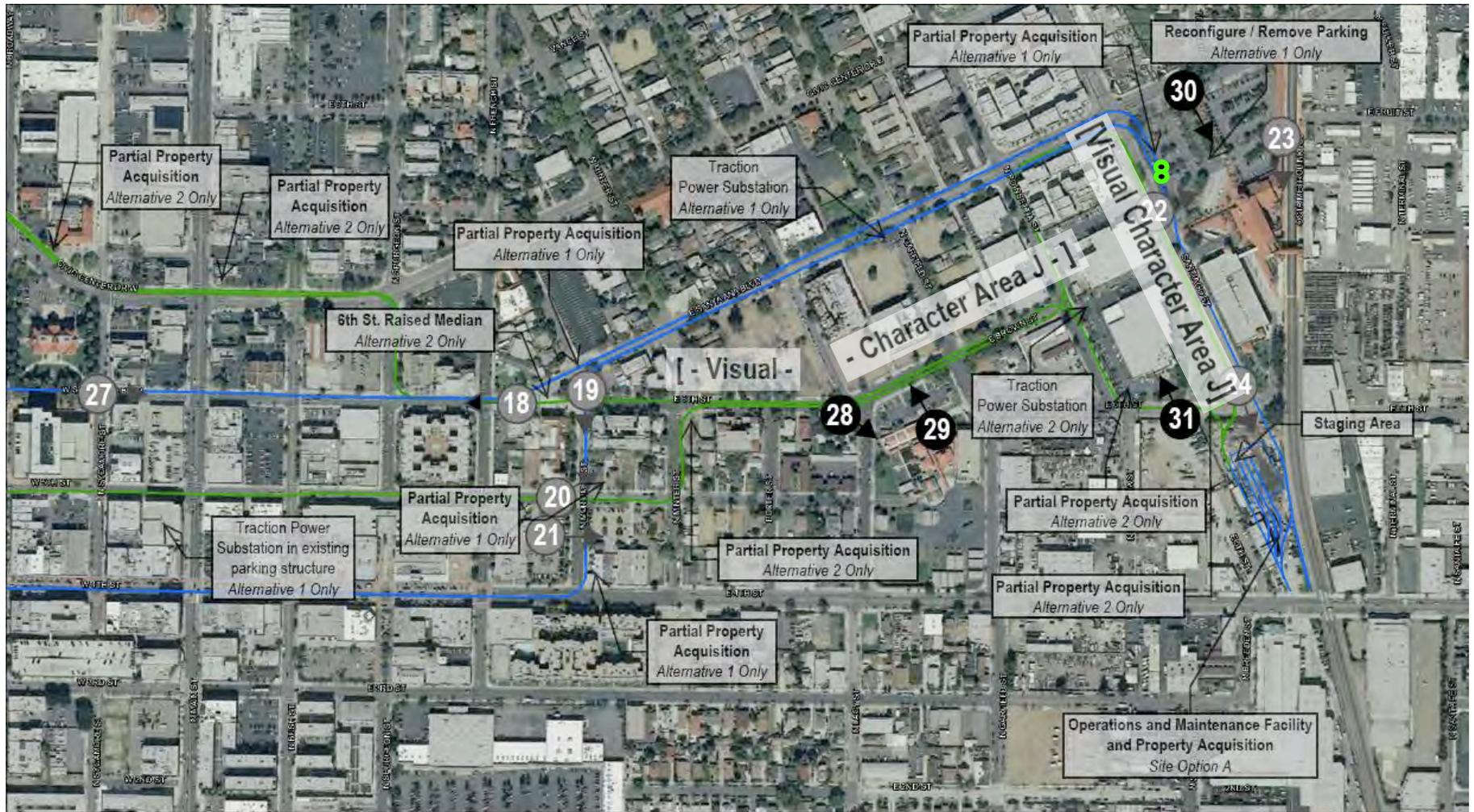


31. Austin Hardwoods warehouse looking northwest from 6<sup>th</sup> Street east of Poinsettia Street.

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Visual Character Area J Viewpoint Locations



LEGEND

- STREETCAR ALTERNATIVE 1
- STREETCAR ALTERNATIVE 2
- TREE REMOVAL



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## 2.3 Sensitive Viewers and Scenic Vistas

Sensitive viewers would include residents and workers, as well as users of parks and other public places that would have views of the Study Area and the proposed Project on a daily basis, and who would be subject to an adverse effect if degradation of the visual environment were to occur proposed Project implementation. Scenic vistas are those identified by State, regional, and/or local regulations, plans and policies as being scenic, or are considered aesthetically unique in the area. These regulations are discussed in Chapter 3, Regulatory Environment.

A review of the regulations pertaining to potential visual/aesthetic issues associated with the Study Area of the proposed Project revealed that no scenic vistas are listed as being located within the boundaries of, or in the vicinity of, the Study Area of the proposed Project. However, research conducted for this assessment and site reconnaissance activities identified several scenic or unique vistas. Table 2-2 summarizes the sensitive viewers and scenic/unique vistas that were identified within the Study Area of the proposed Project.

**Table 2-2: Summary of Viewers and Scenic/Unique Vistas within the Study Area**

Segment	Sensitive Viewers	Scenic or Unique Vistas
Segment 1: PE ROW	Motorists, pedestrians/joggers, bicyclists and recreational users along the Santa Ana River Trail, the residents in neighborhoods surrounding the bridge and trail, the adjacent Spurgeon Park, and the Spurgeon Intermediate School	Santa Ana River Bridge, Santa Ana River Trail
Segment 2: Raitt Street to Flower Street	None identified	None identified
Segment 3A: Downtown Santa Ana, Streetcar Alternative 1	Motorists, pedestrians, office workers along Ross Street, Santa Ana Avenue and 3 <sup>rd</sup> and 4 <sup>th</sup> Streets, and users of Sasser Park.	Sasser Park, Downtown Santa Ana Historic District, SARTC
Segment 3B: Downtown Santa Ana, Streetcar Alternative 2	Motorists, pedestrians, residents and workers in neighborhoods near the SARTC facility, and users of the facility	Sasser Park, Downtown Santa Ana Historic District, French Park Historic District, SARTC

### 2.3.1 Sensitive Viewers

The sensitive viewers identified within the three segments associated with the Study Area of the proposed Project are described below.

#### **Segment 1: PE ROW**

The clearest view of the currently undeveloped portions of the PE ROW is from the south side of Westminster Avenue just west of Nautilus Drive, from the Santa Ana River Trail system adjacent to the existing Santa Ana Rail Bridge, and from the southwest side of Fairview Street adjacent to Civic Center Drive, adjacent to the existing Santa Ana Unified School District Administration Building. These areas are most visible to pedestrians using adjacent sidewalks and recreational users (i.e., bicyclists, joggers, and walkers using the Santa Ana Trail along the Santa Ana River, and students and other individuals using the athletic fields at Spurgeon Park).

The currently developed portions of the PE ROW (most notably, the Harbor Commerce Center on the northeast corner of the intersection of Westminster Avenue and Harbor Boulevard, and the adjacent warehouse-type building located on the west side of Nautilus Drive north of Westminster Avenue) are most visible to passing motorists and workers in nearby buildings along Westminster Avenue, Harbor Boulevard, and Nautilus Drive. Both motorists and workers have short-term views of the PE ROW as they are moving through the area (driving, walking to their modes of transportation, or walking to lunch).

Due to the presence of covered fencing, the balance of the currently developed and undeveloped portions of the PE ROW are largely not visible to any viewer, with the exception of workers whose places of employment are adjacent to the PE ROW (e.g., SA Scrap Metal Recycling, located on the south side of Fifth Street between Daisy Avenue and Townsend Street). These workers are employed at businesses that are primarily industrial and would not be negatively impacted by the presence of the proposed rail system in the vicinity. In fact, based on a review of aerial photographs, the proposed rail system would be more aesthetically appealing than the existing industrial uses, which appear to involve the presence of heavy equipment, freight cars, and used/abandoned vehicles.

### **Segment 2: Raitt Street to Flower Street**

The proposed improvements between Raitt Street and Flower Street in the Study Area of the proposed Project would include rail tracks in Santa Ana Boulevard, and station/s/stops and Traction Power Substation (TPSS) sites on either side of Santa Ana Boulevard. This area contains a mixture of single- and multi-family residences, low-rise commercial facilities (privately-owned shops, a small single-story strip shopping center, office buildings, restaurants), and educational facilities. The Lydia Romero Cruz and Carver Elementary Schools are located within one block of each other, on Forest Street and Pacific Avenue, respectively. As one travels along Santa Ana Boulevard from west to east toward downtown Santa Ana, the area becomes increasingly commercial and more office-oriented. Flower Street signals the beginning of the heart of the downtown area. The primary viewers in this segment would be workers and patrons of commercial establishments, motorists, and pedestrians and residents.

As Santa Ana Boulevard is a major thoroughfare in and out of downtown Santa Ana, existing traffic flow in this area is fairly heavy. Workers and patrons of commercial establishments, motorists, and pedestrians would have limited views of the proposed improvements, as they are moving through the area or visiting commercial facilities. More long-term viewers are students and faculty of the schools in the area, during periods of recess, and residents who may be walking through the neighborhood or spending time in their yards and on their porches/balconies. Several mature trees are located along Santa Ana Boulevard in Segment 2, which partially obscure the view to the roadway. Since there are no recreational areas in this segment (aside from the playgrounds associated with the elementary schools), recreational activity in the area is quite limited. During the site reconnaissance activities, bicyclists and joggers were not observed in this area.

### **Segment 3A: Downtown Santa Ana, Streetcar Alternative 1**

The primary viewers in this segment consist of motorists, pedestrians, and office workers along Ross Street, Santa Ana Boulevard and Third and Fourth Streets, all of whom have short-term views. In addition, the area along either side of Fourth Street between Sycamore Street and French Street is a popular shopping area and has a high volume of pedestrian and vehicular traffic. The East End shopping district, which is located in this neighborhood, is host to more than 40 unique businesses ranging from privately-owned stores to theaters and restaurants. The primary visitors in this area are pedestrians visiting the various businesses.

The other primary viewers consist of patrons of Sasser Park. Sasser Park is a small triangularly shaped parcel located in an exclusively commercial neighborhood surrounded primarily by mid-rise buildings. It contains a fountain and other water features, which make it a popular place to visit for workers on break, particularly in warmer weather. Santa Ana Boulevard and Fourth Street are the main arterials that pass through Segment 3A, and, as such, are heavily traveled. In addition, pedestrian traffic is quite heavy in this area due to the presence of many government buildings (e.g., Santa Ana Civic Center, U.S. District Court, County of Orange Administration Building) and associated parking lots/garages. However, pedestrians are likely to have short-term views as they travel to and from their transportation modes, and on breaks for lunch and/or to run errands during the day. As Santa Ana Boulevard intersects with French Street, the area becomes more residential and consists largely of a combination of single-family and multi-family residences, with churches scattered through the area. Mature trees, which limit the views to the roadways, are predominant in this area. This neighborhood is an older, more established area than the other residential neighborhoods in the Study Area. The segment of Mortimer Street between Santa Ana Boulevard and Fourth Street is also primarily residential. During the site reconnaissance activities, a number of vacant lots that were previously developed, as well as older residential structures that have been boarded-up were observed. These properties form a component of a redevelopment project called "The Station District". These properties will be rehabilitated and/or developed with new multi-family residential homes.

Newer buildings are located at the eastern end of Segment 3A. For example, a new three-story contemporary residential complex, identified as the Santiago Street Lofts, is located on the northwest and southeast sides of the intersection of Santa Ana Boulevard and Santiago Street. The area also consists of newer warehouse-type structures located between Garfield and Poinsettia Streets, on the northwest side of Santa Ana Boulevard. SARTC is located a short distance from these residential and commercial neighborhoods, between Santa Ana Boulevard and Sixth Street on the northeast side of Santiago Street. Because it combines Amtrak, Metrolink, Orange County Transit Authority (OCTA), intercity and interstate bus transportation, and airport and taxi services, SARTC is considered a focal point and an iconic building in Santa Ana. For this reason, the pedestrian and vehicular traffic in this area is high-volume and comprises the main sensitive viewers. Several mature trees along Santa Ana Boulevard, and within the parking lot and driveways that are part of the SARTC complex, limit views to roadways in the area. The property adjacent to the south of SARTC at the intersection of Sixth and Santiago Streets is currently occupied by the Madison Materials<sup>3</sup> waste disposal facility. During the site reconnaissance, a substantial influx of traffic was noted at this large facility. Several large waste trucks were observed on Sixth and Santiago Streets waiting to enter the complex, as well as private vehicles with waste loads. Due to the nature of the activities at this waste facility, workers at and visitors to this facility are not considered sensitive viewers.

### **Segment 3B: Downtown Santa Ana, Streetcar Alternative 2**

Sensitive viewers in the Downtown Santa Ana portion of Streetcar Alternative 2 along Fifth Street, between Flower Street and Spurgeon Street, would be similar to those described under Segment 3A and would consist of motorists, office workers, and pedestrians travelling to and from the office and transportation modes, as well as patrons of Sasser Park. Along Civic Center Drive, between Flower Street and Spurgeon Street, viewers would also consist primarily of motorists, office workers and pedestrians. The Santa Ana Stadium, which draws a substantial number of pedestrian and vehicular traffic, is located adjacent to the western portion of Segment 3B, on the southwest corner of Flower Street and Civic Center Drive. While athletic events

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<sup>3</sup> In addition to serving local waste haulers and businesses such as landscapers or construction firms, Madison Materials also services local residents. The facility accepts self-hauled solid waste materials, green waste materials, electronic wastes, tires and bulky items (<http://www.waredisposal.com/transfer.html>).

attract many visitors to the stadium, the viewers associated with this venue are not considered to have long-term views of the neighborhood as their attention is focused on getting to and from the stadium quickly, as well as the activities occurring within the stadium as opposed to the surrounding area.

East of Spurgeon Street, along Sixth Street, the area transitions into a residential neighborhood, similar in character to the residential neighborhood along Santa Ana Boulevard between French Street and Poinsettia Street described under Segment 3A. Garfield Elementary School is located at the east end of this residential area, on the southeast side of Brown Street between Lacy and Garfield Streets. As with the two elementary schools associated with Segment 2, during periods of recess, students and faculty viewers would have more long-term views than motorists passing through the area. However, since the playground associated with the school is located adjacent to Lacy Street rather than Brown Street where the rail line would run, occupants of the playground would have limited views of the improvements. Residents in the area also would have limited views due to the presence of mature trees along the edges of streets in the area.

The area east of Garfield Elementary School, in Segment 3B, is largely commercial. In addition to the SARTC facility, a materials recycling and transfer station, and the Santiago Streets Lofts, whose viewers are described in association with Segment 3A, above, the east end of Streetcar Alternative 2 includes several warehouse buildings along Garfield, Poinsettia and Brown Streets. These businesses all are surrounded by fencing covered with fabric limiting views into and from these facilities.

### **2.3.2 Scenic Vistas**

Scenic vistas typically are those identified by the State, the county, or municipalities as being scenic or are considered unique in the area (See Chapter 3, Regulatory Environment). Scenic vistas, which often include views from recreational trails and areas, scenic highways, and scenic overlooks, are generally assessed as having high visual quality. It should be noted that private views (contrasted with public views), such as those from commercial or residential land uses, are not considered to be protected views.

A scenic vista is typically considered a viewpoint, a place from which to appreciate a view. A scenic vista is typically identified because the views and the viewshed from this vista are unique and aesthetically-pleasing. Scenic vistas may be generally described in two ways: (1) panoramic views (visual access to a large geographic area, for which the field of view can be wide and extend into the distance) and (2) focal views (visual access to a particular object, scene, setting, or feature of interest). Panoramic views are typically associated with vantage points that provide a sweeping geographic orientation not commonly available. Examples of panoramic views include urban skylines, valleys, mountain ranges, or large bodies of water. Focal views are typically associated with views of natural landforms, public art/signs, and visually important structures that serve as discrete elements of visual interest.

The criteria for identifying importance of views are related in part to the position of the viewer relative to the resource. An area of the landscape that is visible from a particular location, such as an overlook, or series of points, such as a road or trail, is defined as a viewshed. To identify the importance of views of a resource, a viewshed may be broken into distance zones of foreground, middleground, and background. Generally, the closer a resource is to the viewer, the more dominant it is and the greater its importance to the viewer. Although distance zones in viewsheds may vary between different geographic regions or types of terrain, the commonly used set of criteria is identified as:

- The foreground extends 0.4 km to 5 km (0.25 miles to 3 miles) from the viewer.

- The middleground extends from the foreground zone to 5 km to 8 km (3 miles to 5 miles) from the viewer.
- The background extends past the middleground zone to infinity.

The potential for scenic vistas within the Study Area segments of the proposed Project was evaluated. Based on the definitions of the two types of scenic view that can be encountered (panoramic or focal), no panoramic views (e.g., mountains, lakes or ocean views) are present in the Study Area. In addition, based on the flat terrain in the vicinity of the Study Area, the low-rise nature of most of the buildings, and the presence of mature trees, middle ground and background views are not present. A review of the pertinent regulations for the area revealed no scenic or unique vistas in the Study Area, from a visual standpoint, that appear on any official lists typically consulted for visual assessments.

### **Segment 1: PE ROW**

The notable views in the PE ROW consist primarily of recreational areas (e.g., Willowick Municipal Golf Course, Spurgeon Park, the Santa Ana River Trail). While these areas afford appealing views, the views are limited to the foreground for viewers in these areas. The two features in Segment 1 that can be considered scenic or unique are the Santa Ana River Bridge, which is listed in the NRHP, and the Santa Ana River Trail. The Santa Ana River Trail is the Santa Ana River region's longest recreational trail and parkway. When complete, this 110-mile trail and bikeway corridor will reach from Big Bear Lake, high in the San Bernardino Mountains, to the mouth of the Santa Ana River at the Pacific Ocean. To date, a total of 43 miles of the trail have been completed. In the vicinity of the Study Area, the trail follows the concrete-lined Santa Ana River (Santa Ana River Trail and Parkway 2011) The trail is a unique feature in southern California.

The built environment ranges from tidy single-family residential neighborhoods and manufactured housing complexes with tree-lined streets to heavy industrial, including a large scrap metal recycling facility, which allows outdoor storage of materials that are visible to the public. Views in these areas are not considered scenic or unique.

### **Segment 2: Raitt Street to Flower Street**

Views in this segment consist primarily of low- to mid-rise commercial buildings, single- and multi-family residences, elementary schools, and tree-lined roadways. While the residential neighborhoods with their tree-lined streets are attractive, the view along this segment would not be considered unique or of aesthetic significance.

### **Segment 3A: Downtown Santa Ana, Streetcar Alternative 1**

Segment 3A is characterized by low-to mid-rise commercial and light-industrial development adjacent to wide tree-lined streets, residential neighborhoods with smaller tree-lined streets, and public facilities, including the Garfield Elementary School. As previously indicated, the residential neighborhood between French Street and Poinsettia Street contains several vacant, previously developed lots as well as several boarded-up residences and apartment buildings, which will be redeveloped and/or rehabilitated as part of the "Station District" project.

The two unique and scenic features present in Segment 3A are Sasscer Park and the SARTC facility. Sasscer Park stands out as a pleasant and intimate oasis of grass, trees, and water features among the more impersonal mid-rise buildings and parking lots/ structures that characterize the downtown commercial district. In addition, Sasscer Park is historically significant having been named after a 24-year-old police officer, Nelson Sasscer, who was

gunned down in 1969 in the line of duty by members of the Black Panthers (Orange County Weekly News 2009)<sup>4</sup>.

The SARTC facility contains a 475,000-square-foot Mediterranean building located on seven acres of land and includes a five-story theme tower. Unique features such as a cooling three-tiered fountain, tile-paved pedestrian arcades, a spectacular entry rotunda, and a three-story domed translucent ceiling, complement the facility. Outside the SARTC, ceramic tile roofs, paved walkways and Spanish-style lighting are used to set an historical mood. An attractively landscaped courtyard and extensive exterior landscaping throughout the facility also adds to the distinctive old world flavor that is part of the one-hundred-plus-year heritage of Santa Ana (City of Santa Ana 2011). This elegant facility stands out in contrast to the surrounding warehouse buildings and waste transfer facility.

Portions of Segment 3A are also within the Downtown Santa Ana Historic District, which is listed on the NRHP and consists of numerous architecturally and historically significant buildings listed on the SARHP. Significant landmarks in this area include the Old Orange County Courthouse, the Spurgeon Station Post Office, the United Presbyterian Church, the Rankin Department Store, and the Spurgeon Building. Additional information regarding these landmarks and other historic properties within the historic district can be found in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project.

### **Segment 3B: Downtown Santa Ana, Streetcar Alternative 2**

Scenic or unique vistas within Segment 3B are similar to those described in Segment 3A, since Segment 3B also includes Sasser Park and SARTC, and portions of Segment 3B are also located within the Downtown Santa Ana Historic District. Significant landmarks within Segment 3B include the Old Orange County Courthouse, the Dr. Howe-Waffle House, the Episcopal Church of the Messiah, the Spurgeon Station Post Office, and the Masonic Temple. A small portion of Segment 3B along Civic Center Drive just east of Spurgeon Street is within the French Park Historic District, which is listed on the NRHP and consists of numerous architecturally and historically significant buildings listed on the SARHP. However, none of the buildings adjacent to the Streetcar Alternative 2 are considered contributing resources to the historic district. Additional information regarding these landmarks and other historic properties within the historic district can be found in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project.

Aside from Sasser Park, the SARTC facility, and the Downtown Santa Ana Historic District, the most notable area within Segment 3B is the Downtown Santa Ana business district, which is characterized by mid-rise government buildings, in contrast to the low-rise commercial retail, office, and residential buildings that surround this area. The mid-rise buildings, while not considered architecturally unique, introduce a vertical element in an area that is otherwise characterized by flat or horizontal lines.

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<sup>4</sup> Source: <http://www.ocweekly.com/2009-09-10/news/black-panthers-santa-ana-olice-michael-lynem-nelson-sasser/>

## Chapter 3 Regulatory Environment

The following sections describe the federal, State and local codes, regulations, guidelines, and ordinances that pertain to the proposed Project.

### 3.1 Federal

#### 3.1.1 NEPA

NEPA (42 USC Section 4231) requires that all actions sponsored, funded, permitted, or approved by federal agencies undergo planning to ensure that environmental considerations such as impacts related to aesthetics and visual quality are given due weight in project decision-making.

NEPA Section 101(b)(2) states that it is the “continuous responsibility” of the federal government to “use all practicable means” to “assure for all Americans safe, healthful, productive, and esthetically and culturally pleasing surroundings.” Under the Council on Environmental Quality implementing regulations, “...environmental analysis is to consider impacts on urban quality, historic and cultural resources, and the design of the built environment.” (Section 1502.6). Section 1507.2 mandates that “Agencies shall identify methods and procedures to insure that presently unquantified environmental amenities and values may be given appropriate consideration.”

In support of NEPA, under federal regulations, aesthetic resources are managed using various programs and guidelines, depending on the type of federal land and/or the federal agency involved with a given project. Specific federal aesthetic guidelines include the Federal Highway Administration’s (FHWA’s) *Visual Impact Assessment for Highway Projects*, the U.S. Department of the Interior, Bureau of Land Management’s (BLM’s) *Visual Resource Management Manual*, and the U.S. Department of Agriculture (USDA) Forest Service’s (USFS) *Landscape Aesthetics, A Handbook for Scenery Management*.

#### 3.1.2 Federal Highway Administration Visual Resource Guidelines

FHWA added Title 23 to the U.S. Code to reflect NEPA's directives. In order to regulate aesthetic adherence to Title 23, FHWA developed guidelines presented in the document *Visual Impact Assessment for Highway Projects* (FHWA 1981).

Under FHWA guidelines, visual impact is defined as follows: resource change + viewer response = visual impact. To evaluate resource change, one must define the visual resources in the area, their character, and their quality. To evaluate viewer response, one must define the viewers (“of” and “from” the road), their exposure, and their sensitivity. Landscape character (e.g., water, vegetation, and manmade development) is usually described by identifying landscape types that form visual units. These units include pattern elements (form, line, color, texture) and pattern character (dominance, scale, diversity, continuity). Landscape quality is defined by vividness, intactness, and unity. Viewer exposure is defined as the physical location of the viewer, number of people in each viewer group, and the duration of their view. Viewer sensitivity is defined as viewer activity, awareness, local values, and cultural significance of the visual resource.

Because federal funds would be used to construct this Project, FHWA guidelines were incorporated into this report.

### **3.1.3 Federal Land Policy and Management Act**

Section 102 (a)(8) of the Federal Land Policy and Management Act of 1976 places an emphasis on the protection of the quality of scenic resources located on public land. Section 101 (b) of NEPA requires that measures be taken to ensure aesthetically pleasing surrounding views be retained for all Americans. To meet its responsibility to maintain the scenic value of public lands, the BLM has developed the Visual Resource Management (VRM) system. The VRM system is implemented through the Resource Management Plan and the Management Framework Plan processes. The BLM contrast rating system is used to determine potential visual impacts of proposed Projects and any alternatives under consideration. The BLM developed the VRM methodology to identify and quantify scenic values, and to analyze the impacts of proposed landscape modifications. This methodology is used to establish the scenic quality of an area and then to evaluate the degree of contrast between the existing landscape and the proposed action.

In addition to the VRM System, the BLM manages Areas of Critical Environmental Concern (ACECs), which have been identified as containing unique or limited natural features or habitat areas. Other BLM special management areas are Unusual Plant Associations (UPAs) and Wilderness Study Areas (WSAs). A review of the BLM website revealed that no ACECs, UPAs, or WSAs are located in Orange County, California (BLM 2011).

### **3.1.4 U.S. Forest Service**

Under the authority of the Department of Agriculture, the USFS manages the majority of federal lands within California. A review of the USFS website revealed that several national forests are located in southern California; however, no national forests are located in Orange County, California (U.S. Forest Service 2011).

### **3.1.5 National Trails**

The National Trails System (12 USC Section 1242) allowed federal designation to those extended trails (over 100 miles in length) that provide for the maximum outdoor recreation potential and for the conservation and enjoyment of the significant scenic, historic, natural, or cultural qualities of the areas through which they pass. The intent of establishing the code is to protect the trail corridors associated with national scenic trails, and the high priority potential sites and segments of national historic trails, to the degrees necessary to ensure that the values for which each trail was established remain intact. A review of the National Park System website revealed that no national historic trails, national parks or national monuments are located in Orange County, California (National Park Service 2011).

### **3.1.6 Federal Wild and Scenic Rivers**

According to the Wild and Scenic Rivers Act (16 USC 1271 et seq.), it is the policy of the U.S. that certain selected rivers of the nation which, with their immediate environments, possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values, shall be preserved in free-flowing condition, and that they and their immediate environments shall be protected for the benefit and enjoyment of present and future generations. The Congress declared that the established national policy of dam and other construction at appropriate sections of the rivers of the U.S. needs to be complemented by a policy that would preserve other selected rivers or sections thereof in their free-flowing condition to protect the water quality of such rivers and to fulfill other vital national conservation purposes.

The Wild and Scenic Rivers Act created the National Wild and Scenic Rivers System to preserve certain rivers with outstanding natural, cultural, and recreational values in a free-flowing condition for the enjoyment of present and future generations.

A review of the National Wild and Scenic Rivers Site Index (2011) revealed that no wild and scenic rivers are present in Orange County, California.

### **3.1.7 Federal Aviation Administration**

The Federal Aviation Administration (FAA) has strict policies related to features more than 200 feet in height, which include standards for marking and lighting structures to promote aviation safety. However, because no structures associated with the Study Area are 200 feet or taller in height, FAA lighting requirements are not examined in this report.

### **3.1.8 Federal Scenic Byways**

Federal scenic byways include: National Forest Scenic Byways, BLM Back Country Byways, National Wildlife Refuges (U.S. Fish and Wildlife Services), and America's Byways, and National Scenic Byways Program (FHWA).

The vision of FHWA's National Scenic Byways Program is "To create a distinctive collection of American roads, their stories and treasured places." The National Scenic Byways Program was established under the Intermodal Surface Transportation Efficiency Act of 1991, and reauthorized in 1998 under the Transportation Equity Act for the 21st Century. Under the program, the U.S. Secretary of Transportation recognizes certain roads as National Scenic Byways or All-American Roads based on their archaeological, cultural, historic, natural, recreational, and scenic qualities. There are 125 such designated Byways in 44 states. The FHWA promotes the collection as America's Byways.

A review of the America's Byways website revealed that one byway is present in Orange County, California. This roadway, identified as Route 91 – Riverside Freeway, is designated under the category "Other Byway" (America's Byways 2011). Route 91 is not located in the vicinity of the Study Area; at its nearest point, it is located 6.4 miles north of the Study Area.

## **3.2 State**

### **3.2.1 California Environmental Quality Act**

CEQA guidelines for visual resources are a recognized way of measuring potential visual impacts and are therefore, included in this assessment. The significance of potential aesthetic impacts is determined based on relevant CEQA guidelines (California Code of Regulations, Title 14, Section 1500 et seq.) and other relevant considerations. Using these thresholds, the proposed Project facilities would be considered to have significant aesthetic impacts if they were to:

- have a substantial adverse effect on scenic vistas;
- substantially degrade the existing visual character or quality of the site or its surroundings;
- substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway; and/or
- create a new source of substantial light or glare that would adversely affect day or nighttime views in the area.

CEQA requires that all feasible mitigation be imposed for any potentially significant environmental effects. Standards of significance for all aesthetic resource impacts are described in Section 4.

### **3.2.2 State Scenic Highway Program**

Scenic corridor protection programs include policies intended to preserve the scenic qualities of the highway corridor, including regulation of land use and density of development, detailed land and site planning, control of outdoor advertising (including a ban on billboards), careful attention to and control of earthmoving and landscaping, and careful attention to design and appearance of structures and equipment (California Streets and Highways Code Section 260 et seq.).

California's Scenic Highway Program was created by the California Legislature to preserve and protect scenic highway corridors from changes that would diminish the aesthetic value of land adjacent to those highways. When a city or county nominates an eligible scenic highway for official designation, it must adopt ordinances to preserve the scenic quality of the corridor or document such regulations that already exist in various portions of local codes. These ordinances make up the scenic corridor protection program.

The California Department of Transportation (Caltrans) maintains the State Scenic Highway Program. A review of the Caltrans website revealed that no officially designated State or county scenic highways or historic parkways are located within or adjacent to the Study Area. In addition, no eligible State scenic highways are located within or adjacent to the Study Area (CDOT 2011c).

### **3.2.3 California State Parks and Recreation**

The California State Parks and Recreation Department's mission is to provide for the health, inspiration, and education of the people of California by helping to preserve the state's extraordinary biological diversity, protecting its most valued natural and cultural resources, and creating opportunities for high-quality outdoor recreation. A review of the California State Parks website revealed that the State parks located in Orange County, California are situated on or near the coastline; no State parks are located in the Santa Ana or Garden Grove areas (California State Parks 2011a).

### **3.2.4 California Wild and Scenic Rivers Act**

According to the California Wild and Scenic Rivers Act ([Public Resources Code] Section 5093.50-5093.70), it is the policy of the State of California that certain rivers that possess extraordinary scenic, recreational, fishery, or wildlife values shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state. The Legislature declares that such use of these rivers is the highest and most beneficial use, and is a reasonable and beneficial use of water within the meaning of Section 2 of Article X of the California Constitution.

The Caltrans website lists 15 rivers and creeks located in the State of California that have been designated "Wild and Scenic Rivers" and two creeks that have been designated "Special Rivers" under the California Wild and Scenic Rivers Act. None of these are located in the vicinity of the Study Area (CDOT 2011b).

### **3.2.5 State Trails**

The California Department of Parks and Recreation is responsible for over 3,000 miles of hiking, biking and equestrian trails within the State of California. The mission of the California Department of Parks and Recreation is to preserve the State's extraordinary biological diversity, protect its most valued natural and cultural resources, and create opportunities for high-quality outdoor recreation.

A review of the California State Parks website revealed that five State trails are located in Orange County; however, no State trails are located in or adjacent to the proposed Project boundaries. (California State Parks 2011b).

### **3.2.6 State Lands**

It is the mission of the California State Lands Commission to ensure the future quality of the lands, waterways and resources within its jurisdiction through protection, preservation and restoration. The proposed Project does not consist of any State Lands.

## **3.3 Local**

The proposed Project is located within the cities of Santa Ana and Garden Grove. Protection of scenic and visual resources in these communities is acknowledged in the General Plans for both communities. These portions of the General Plans are discussed below.

### **3.3.1 City of Santa Ana General Plan Visual Resources Policies**

Three elements of the City of Santa Ana's General Plan, (the Land Use, Urban Design, and Scenic Corridors Elements), contain policies directly related to visual resources that would apply to the proposed Project. This section identifies the elements and their respective policies, as well as the proposed Project's consistency with these policies.

#### **City of Santa Ana General Plan—Land Use Element**

The Land Use Element of the City's General Plan serves as a long-range guide for land use and development in the City. This element indicates the type, location, and intensity of development and land uses permitted in the City. The primary objective of the element is to assist in the management of future growth, to improve the overall physical appearance, to minimize potential land use conflicts, and to facilitate growth and development reflecting the community's vision. The policies listed below are directly applicable to aesthetics/visual resources for the proposed Project:

- Policy 1.9. Coordinate street and parkway designs that are attractive, functional, and compatible with on-site or adjacent development.
- Policy 2.10. Support new development which is harmonious in scale and character with existing development in the area.
- Policy 3.1. Support development that provides a positive contribution to the neighborhood character and identity.
- Policy 3.5. Encourage new development and/or additions to existing development that are compatible in scale and consistent with the architectural style and character of the neighborhood.
- Policy 5.2. Protect the community from incompatible land uses.
- Policy 5.5. Encourage development which is compatible with, and supportive of surrounding land uses.

#### **City of Santa Ana General Plan—Urban Design Element**

The Urban Design Element of the City's General Plan establishes a long-range vision regarding the City's urban form in order to orchestrate a safe, functional, and aesthetically pleasing urban environment. This element aims to curtail obsolete, dysfunctional, and chaotic development. Specifically, this element addresses outdoor space and building form, and establishes programs

and measures to improve the physical setting in which community life takes place. The following policies are directly applicable to aesthetics/visual resources for the proposed Project.

- Policy 1.1. New development and redevelopment projects must have the highest quality design, materials, finishes, and construction.
- Policy 1.4. Development and other design features that prevent loitering, vandalism, graffiti, and visual deprivation are to be included in all projects.
- Policy 2.2. New development must be consistent with the scale, bulk, and pattern of existing development.
- Policy 2.11. New developments must re-enforce, or help establish district character.
- Policy 2.12. Development and subdivision patterns are to be compatible with existing patterns of development in and around districts and neighborhoods, and provide a smooth transition along designated edges.
- Policy 3.3. Enhanced streetscapes, architectural themes, and landscaping are to be provided to visually strengthen the path and enhance adjacent development.
- Policy 3.12. Scenic, historic, and attractive views along paths are to be preserved.
- Policy 3.13. Maximize and coordinate resources to improve visual impact at key locations.
- Policy 6.1. The design of development should frame and enhance landmarks, natural features, and view corridors.

### **City of Santa Ana General Plan—Scenic Corridors Element**

The Scenic Corridors Element of the General Plan is designed to identify the City's scenic corridors, and thereby to designate them for special treatment and improvements. No Orange County or State-designated scenic highways run through the City; however, a number of major transportation system and open space systems are of regional significance, in that many residents of the County form their image of the City from their travels along these corridors. The objectives listed below are related to aesthetics/visual resources for the proposed Project:

- Objective 1.1. Improve and develop the public portions of streetscapes in a comprehensive manner.
- Objective 2.3. Enhance the attractiveness of neighborhoods, neighborhood edges, and other Framework Plan components.

### **3.3.2 City of Garden Grove General Plan Visual Resources Policies**

Three elements of the City of Garden Grove's General Plan (the Land Use, Community Design and Circulation Elements), contain policies directly related to visual resources that would apply to the proposed Project. These elements and their respective policies, as well as the proposed Project's consistency with these policies, are identified below.

### **City of Garden Grove General Plan—Land Use Element**

The Land Use Element of the City of Garden Grove's General Plan sets forth the patterns of development activity and land use that will support and enhance the character of the City. The Land Use Element describes the type, intensity, and general distribution of uses of land for housing, business, industry, open space and public and quasi-public uses.

The policies listed below are directly applicable to aesthetics/visual resources for the proposed Project:

- Policy LU-6.3. Monitor the appearance of commercial and service facilities along the commercial corridors and in centers to prevent areas of decline by requiring improved maintenance or rehabilitation, as necessary.
- LU-IMP-6C. Encourage façade renovation, enhanced parking area landscaping, improved lighting, development of pad buildings, and the use of pedestrian amenities, such as fountains, plazas, promenades, seating, and like features.

### **City of Garden Grove General Plan—Community Design Element**

The Community Design Element aims to recognize and enhance design opportunities throughout Garden Grove that will improve the livability of the community through physical design considerations in public areas and encourage quality new development through appropriate development policies. The Community Design Element is intended to build upon existing unique community characteristics and enhance efforts to differentiate Garden Grove as a unique place to live, work, play, and visit. The policies listed below are directly applicable to aesthetics/visual resources for the proposed Project:

- CD-IMP-1B. Review the existing Zoning Code and develop standards for citywide design considerations, with particular attention to infill development and redevelopment projects, and major ground floor additions and renovations to ensure compatibility with surrounding uses.
- Policy CD-4.1. Encourage improvement to the function and appearance of corridors based on each corridor's contribution to the City, its land use and transportation function, and how it is experienced by the public.
- Policy CD-4.5. Encourage new public and private parking facilities to meet aesthetic and functional standards beneficial to the urban environment.
- CD-IMP-4A. Require walls and fences that act as attractive elements of the streetscape, while providing privacy and views, creative design, and visual continuity.
- CD-IMP-4B. Review and update all street standards to support design features that will create an attractive and safe environment for pedestrians, transit users, and bicyclists.
- Policy CD-7.1. Encourage future development and redevelopment projects to reinforce district scale, identity, and urban form.
- Policy CD-7.3. Promote linkages between separate districts through bike trails, pedestrian paths, common medians or parkway landscaping in connecting streets, and other physical improvements as necessary.

### **City of Garden Grove General Plan—Circulation Element**

The Circulation Element represents the City of Garden Grove's overall transportation plan. The transportation plan consists of the physical transportation system, such as streets, highways, bicycle routes and sidewalks, as well as various modes of transportation, such as cars, buses, trucks (goods movement), rail, bicycles, ridesharing and walking. The following policies are applicable to aesthetics/visual resources for the proposed Project:

- Policy CIR-7.2. Review development plans and encourage designs that consolidate access locations onto streets and provide adequate turn lanes into sites to minimize conflicts with through traffic on adjacent streets.
- Policy CIR-9.2. Provide landscaped medians and greenbelts along major arterials, highways, and freeways, when economically feasible.
- Policy CIR-9.3. Ensure the aesthetic quality and maintenance of facilities within the City under the jurisdiction of other agencies.
- Policy CIR-9.4. Target and prioritize street beautification programs along Major arterials within the City.
- CIR-IMP-9A. Through design guidelines and zoning requirements, require the provision of landscaped medians and parkways for all new development or redevelopment projects.

### 3.4 Consistency Analysis

The purpose of the proposed Project is to address the mobility needs of residents, workers, and visitors traveling to, from, and within the Study Area by providing direct, more frequent, and more reliable public transportation service. A key aspect of the proposed Project is to improve livability and walkability within the communities that comprise this transit corridor. The municipalities recognize that livability is dependent on integrating transportation solutions with sound land use decisions, economic development, and housing opportunities. The cities of Santa Ana and Garden Grove have thus taken active steps to promote transit-oriented types of development and have targeted these efforts within the corridor. As currently envisioned, the proposed Project would involve a major investment in transportation infrastructure that would, in turn, reinforce economic development policies and initiatives within the corridor Study Area in a manner that is both environmentally responsible and sustainable.

As described, the General Plans for the Cities of Santa Ana and Garden Grove state that scenic views should be preserved and new development should be designed to frame natural features and view corridors. The proposed Project is designed to be consistent with policies contained in these General Plans, including those related to visual resources. The proposed Project is designed to assist in creating an environment that would be neighborhood-serving, and increase the visual quality of the proposed Project area, and surrounding neighborhoods. Additionally, once the design features have been selected, the City of Santa Ana would provide design review, that would consider architectural and aesthetic quality and compatibility with existing structures. Because the overall Project is designed to enhance and promote the aesthetic quality of the Study Area, implementation of the proposed Project would not conflict with the identified policies.

## Chapter 4 Impact Assessment

The following sections discuss the impact assessment methodology that was used for this VIA.

### 4.1 Analytic Method

Analysis of potential impacts to visual character is subjective by nature, since the qualities that create an aesthetically pleasing setting or that result in the perception of a visual element as aesthetically positive or negative vary from person to person. In preparing this analysis, the alternative alignments were surveyed to identify important views, key views, or visual resources that could theoretically be noticeably altered by the proposed Project. These views include the presence or absence of landscaping, the predominant land uses along the alignment, the scale of buildings along the alignment, and the major scenic views and substantive visual elements that are available along each segment of the alignment, such as open space resources, street trees, and building frontages.

An assessment of the visual character and quality was made based on the cohesion or variation in form, the level of upkeep or deterioration of the built environment and the level of landscaping and visual attractiveness for each visual character area (summarized in Section 2.3.2, Scenic Vistas). As recommended by the FHWA, views are described by the view character and quality; the visual resources present; viewer group, and viewer group sensitivity, and the duration of the views (i.e., amount of time available to see the view).

The character of a view is described by the topography, land uses, scale, form, and natural resources depicted in the view. The assessment of the visual character is descriptive and not evaluative because it is based on defined attributes. Visual quality refers to the aesthetics of the view. Determining the quality of a view can be subjective because it is based in part on the viewer's values and notions about what constitutes a quality setting. In an effort to establish an objective framework, this assessment's qualitative rankings (low, moderate low, moderate, moderate high, and high) are adapted from the FHWA guidelines.

Additionally, scenic vistas (i.e., scenic or unique views) were surveyed for potential impacts resulting from the proposed Project. Data used to prepare this section were taken from reviews of visual simulations of proposed elements of the project, actual site conditions, and information provided by the cities involved.

Potential impacts examined include the loss of scenic resources, obstruction of scenic views, and the introduction of new Project-related features that may influence the visual significance, scale, or character of the existing visual environment. The potential physical features of the proposed Project were considered in assessing changes to the visual setting and the existing visual quality. The features that could alter the visual setting and quality in a segment or visual character area include revised medians, tracks, stations (including ramps, platforms, fare vending equipment, and canopies to protect riders), the OCS, parking lots, the O&M facility, and elevated guideways. At-grade crossings would have gate arms to prevent entry into the trackway when trains pass.

## 4.2 CEQA Environmental Criteria

CEQA criteria, taken from Appendix G of the 2011 CEQA Guidelines, were used in preparing this assessment. According to CEQA guidelines, the proposed Project would have significant impacts on aesthetics and visual resources if the proposed Project does any of the following:

- Have a substantial adverse effect on a scenic vista (Criterion 1);
- Substantially damages a scenic resource, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway (Criterion 2);
- Substantially degrades the existing visual character or quality of the site and its surroundings (Criterion 3); and
- Creates a new source of substantial light or glare that would adversely affect day or nighttime views in the area (Criterion 4).

## 4.3 NEPA Environmental Criteria

For the evaluation of visual quality, URS did not identify any additional federal criteria, other than what has already been incorporated into the document, that should be included in this assessment.

## 4.4 Operational Impact Analysis

The following analysis describes impacts associated with the proposed improvements, in terms of each of the alternatives considered for the proposed Project. Impacts are evaluated based on the criteria identified in Section 4.2.

### 4.4.1 No Build Alternative

As indicated in Section 1.3, the No Build Alternative includes existing conditions as well as conditions that would be reasonably expected to occur in the foreseeable future *without* implementation of the proposed Project. While scenic vistas have been identified within the Project Site (e.g., Santa Ana River Bridge, Santa Ana River Trail, Sasser Park, French Park and Downtown Santa Ana Historic Districts, and SARTC), impacts related to adverse effects on scenic vistas or important aesthetic features from proposed or reasonably foreseeable development cannot be definitively accounted for, since potential impacts would be dependent on specific, detailed project information which is not available at this time. However, given the nature of the scenic/unique views within the proposed Project site, it is unlikely that any improvements in the vicinity of these areas would have a negative impact because, with the exception of the Santa Ana River Bridge: (1) the areas themselves are designed for continuous use in the foreseeable future, and certainly within the future planning horizon year for the proposed Project (i.e., 2035), and (2) the properties surrounding these scenic areas are built out with existing improvements that have a very low likelihood of being replaced by 2035 due to their present condition and/or use. For example, it is difficult to imagine a scenario in which the Old Orange County Courthouse would be demolished and replaced with another structure as a great effort was made recently to renovate it for the purpose of keeping it intact as an historic structure. Similarly, there would be no reason to replace or substantially alter the government buildings surrounding Sasser Park. As noted above, smaller impacts, such as those that would be associated with lighting and glare, would be dependent on the details of a specific project and cannot be determined at this time.

With regard to the Santa Ana River Bridge, based on the designation of the bridge as an historic resource, the future of the bridge, as determined in the EIR/EA analysis for this Project (removal versus avoidance), would undoubtedly be the same with any other proposed Project that could impact the bridge. The requirements for preservation of the bridge would be based on its presence on the NRHP as a structure of historic significance.

Accordingly, the No Build Alternative will not have a substantial impact on Criteria 1 through 4, as described in the Section 4.2 list above.

#### **4.4.2 Transportation Systems Management Alternative**

The TSM Alternative represents the best that can be done for mobility without construction of major new transportation facilities or physical capacity improvements. The TSM Alternative would involve small physical improvements and improvements to operations, such as focused traffic engineering actions, expanded bus service, and improved access to transit services within the Study Area. The TSM Alternative also would include modifications and enhancements to selected bus routes in the Study Area; intersection/signal improvements; and bus stop amenity upgrades. Because of the minor nature of these improvements, the TSM Alternative would not involve improvements that would adversely affect a scenic vista or aesthetic features, nor would it substantially degrade the existing visual character or quality of the Study Area. As indicated in Section 4.4.1, impacts associated with lighting and glare would be dependent on the details of a specific project and cannot be determined at this time.

Accordingly, the TSM Alternative will not have a substantial impact on Criteria 1 through 4, as described in the Section 4.2 list above.

#### **4.4.3 Streetcar Alternatives 1 and 2**

As indicated in Chapter 1, the two streetcar alternatives would be similar in most respects. The main difference between the two streetcar alternatives would be the location of the areas that would be used for unidirectional and bi-directional traffic flow, which would be located in the downtown Santa Ana area. In addition, under Streetcar Alternative 2, a loop would be created around the SARTC facility along Poinsettia Street, Santa Ana Boulevard, Santiago Street and Sixth Street. Thus, impacts to scenic resources for the streetcar alternatives would also be similar.

Due to funding constraints, it may be necessary to construct Streetcar Alternative 1 and 2 in shorter segments, identified as IOS-1 and IOS-2, which follow the same alignment as Streetcar Alternative 1 and 2 respectively. However, IOS-1 and IOS-2 terminate at Raitt Street and Santa Ana Boulevard. Impacts from the implementation of IOS-1 and IOS-2 are also similar to those identified for Streetcar Alternative 1 and 2. Any exceptions under IOS-1 and IOS-2 will be indicated in the analysis below.

##### **Criterion 1: *Would the Project result in an adverse effect on a scenic vista?***

Scenic and unique views within the proposed Project Site include the Santa Ana River Bridge, Santa Ana River Trail, Sassafras Park, the French Park and Downtown Santa Ana Historic Districts, and SARTC. In order to understand the possible impact of the proposed improvements on these areas, photographs were taken of the areas that would have the greatest likelihood of being impacted, and simulations were created showing how these areas would appear should the proposed improvements be constructed. These images are presented in Figure 4-1 through 4-6.

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Source: URS Corporation Simulation using June 2011 Field Review Photographs

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### **Santa Ana River Bridge**

As indicated in Section 1.6.4, two alternatives are being considered for the Santa Ana River Bridge, a replacement alternative and an avoidance alternative. The replacement alternative is being considered because of the deteriorated condition of the existing bridge (e.g., the steel superstructure hasn't been maintained and nearly all of the members have rusted) (Cordoba, et al. 2011). As shown in Figure 4-1 and Figure 4-2, while the existing historic bridge would no longer be present under one of the replacement alternatives, this replacement alternative would involve construction of a new bridge that would be very similar in appearance to the existing bridge and would feature an ornamental truss matching the design of the historic bridge. From a visual standpoint, the difference between the two bridges would be minimal. In addition, the new bridge would not have the deteriorated look of the historic bridge (See Photo 4 in Figure 2-1a) and therefore could be considered an improvement in visual quality. Alternatively, if a new bridge is constructed adjacent to the existing bridge, the original bridge would be preserved for those interested in the historic nature of the bridge, but the new bridge would be constructed without the ornamental truss and would not obscure views to the existing bridge for recreational viewers visiting the area. Thus, existing views of the bridge would not be substantially impacted by the streetcar alternatives.

The Santa Ana River Bridge is not included in IOS-1 and IOS-2. Thus, there would be no impacts to the Santa Ana River Bridge as a result of IOS-1 or IOS-2.

### **Santa Ana River Trail**

Figure 4-1 and Figure 4-2 show existing and simulated views of the Santa Ana River Bridge from the Santa Ana River Trail. The proposed Project would not substantially alter the views of the bridge for trail users. In addition, the existing bridge is currently closed due to safety issues and not accessible to pedestrians or railway traffic. Moreover, the proposed Project would result in a functioning bridge, which would allow unique views of the trail for travelers on the streetcars crossing the bridge.

The Santa Ana River Trail is not included in IOS-1 and IOS-2. Thus, there would be no impacts to the Santa Ana River Trail as a result of IOS-1 or IOS-2.

### **Sasscer Park**

Figures 4-3 through 4-6 demonstrate that views to and from Sasscer Park would not be substantially impacted by the presence of the streetcars. Because Sasscer Park is so geographically small, the aesthetic appeal of the park would primarily be experienced only after entering the park or while standing on the perimeter of the park. Viewers looking at the park from across the street, for example, would not be able to see most of the features of the park, except for the mature trees which would not be substantially obscured by the intermittent presence of streetcars.

### **French Park and Downtown Santa Ana Historic Districts**

The proposed streetcars would run adjacent to the French Park Historic District (Streetcar Alternative 2) and through the Downtown Santa Ana Historic District (Streetcar Alternative 1 and 2). Figure 4-15 and Figure 4-16 show existing and simulated views of the intersection of Fourth Street and Sycamore Street, which is within the Downtown Santa Ana Historic District. As discussed in the *Cultural Resources Evaluation Report* provided as Appendix C of the environmental document for the proposed Project, the construction and operation of the proposed Project would not disrupt the essential form or integrity of the historic districts. Project improvements would not change or remove any significant features associated with the historic districts. Furthermore, the addition of the streetcars within the districts would be a minor change

when considering the existing traffic and built-up environment of the proposed Project area. Thus, the proposed Project would not affect the visual narrative or quality of the historic districts.

### **SARTC**

The SARTC facility, since it is already used for multiple forms of transportation, would not be substantially impacted by the presence of the proposed streetcars passing by along Santiago Street. The main focus of the SARTC facility is the tower in the center of the facility that would rise substantially above the height of the streetcars. In addition, if the proposed O&M facility (currently occupied by a materials recycling and transfer station) is constructed adjacent to the south of the SARTC facility (one of two locations being considered), vehicular traffic to the facility along Santiago and Sixth Streets, adjacent to SARTC, would be lower in volume (since the traffic to and from the transfer facility is very high-volume). The O&M facility would be less unsightly than the existing transfer station, in which large piles of trash are clearly visible from the south end of the SARTC facility.

Based on information provided to date, some trees would be removed from medians along Westminster Avenue at Nautilus Drive, and along Fairview Street between Civic Center Drive and Fifth Street (See Figure 2-1b). However, the trees that would be removed are not located in the vicinity of scenic vistas within the Study Area; therefore, scenic vistas would not be impacted by the removal of trees from these areas. In addition, any trees that are removed during construction of the proposed improvements would be replaced with new vegetation that enhances the character of the area, in accordance with the General Plans of the Cities of Santa Ana and Garden Grove (e.g., Policy 3.3. of the Urban Design Element of the Santa Ana General Plan states “Enhanced streetscapes, architectural themes, and landscaping are to be provided to visually strengthen the path and enhance adjacent development.”) Accordingly, the improvements associated with the two streetcar alternatives will not have a substantial impact on scenic vistas or important aesthetic features.

**Criterion 2:** *Would the Project substantially damage a scenic resource, including but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?*

As discussed under Criterion 1, scenic resources within the proposed Project area include the Santa Ana River Bridge, the Santa Ana River Trail, Sassafer Park, the French Park and Downtown Santa Ana Historic Districts, and SARTC. Construction and operation of the proposed Project would involve temporary and/or minor visual changes to the built environment. With the exception of the Santa Ana River Bridge, these changes would not result in the physical alteration of the scenic resources that have been identified. The Santa Ana River Bridge would either be replaced with a new bridge similar in appearance to the existing bridge, or avoided by constructing a new bridge adjacent to the existing. Thus, the proposed Project would not substantially damage a scenic resource.

**Criterion 3:** *Would the Project substantially degrade the existing visual character or quality of the Project site and its surroundings?*

Based on the information provided in Table 2-1, the visual quality of the Study Area ranges from low (e.g., the light industrial area along Fifth Street west of Raitt Street, the locations of the proposed O&M facilities (currently occupied by the Madison Materials transfer station and the SA Scrap Metal Recycling Facility) to moderate (e.g., downtown Santa Ana Business District, along the Santa Ana River Trail, Sassafer Park). Since the Study Area is relatively horizontal in nature, components of the proposed Project that are more vertical would be more likely to impact the Study Area than the horizontal elements. In order to understand the possible impact of such improvements, photographs were taken of representative areas that would contain more vertical elements, and simulations were created showing how these areas would appear should

the proposed improvements be constructed. These images are presented in Figures 4-7 through 4-18.

The most vertical elements of the project would consist of (1) the bridge on Westminster Avenue between Harbor Boulevard and Nautilus Drive and (2) the TPSS sites. The bridge would consist of a single span, 220 feet long with a maximum height of 23 feet above the ground surface. As shown in Figure 4-7 and Figure 4-8, the bridge would be located in an area consisting primarily of warehouse-type buildings. Westminster Avenue in this area is a wide boulevard with a median landscaped with grass and several tall, mature trees. The mature trees would supply a vertical element consistent with the vertical element of the proposed bridge and would also screen/block views of the bridge by vehicular and pedestrian traffic. The viewers in this area would consist primarily of motorists driving along Westminster Avenue through this fairly high-traffic area. Motorists would have short-term views of the bridge while driving through the area. Furthermore, the contemporary and streamlined design of the proposed bridge would not negatively impact the visual character of the Study Area. Rather, the planned contemporary and streamlined bridge design would enhance the visual character of the Study Area, which is otherwise lacking in visual interest, due to the plainness of the architectural features associated with the warehouse-type buildings located in this area.

The TPSSs located throughout the Study Area provide a moderate vertical element. As discussed in Section 1.6.3 above, the building dimensions of the TPSS sites would be 15 feet by 20 feet with a height of approximately 12 feet. As shown on Figures 2-1b through 2-7b, the TPSS sites would be located in areas that are commercial/light industrial in nature and of low to moderate low visual quality. Based on the nature of the areas in which the TPSS sites would be located, the TPSS structures would be harmonious with the other structures and equipment typical of the location, as illustrated in Figure 4-9 and Figure 4-10. In addition, landscaping features and other features, such as walls and paint colors associated with the TPSS structure, would be selected to increase the visual harmony of the proposed TPSS sites with the surrounding environment.

From an aesthetic standpoint, Streetcar Alternative 1 is preferable to Streetcar Alternative 2 for the eastbound routes. Traveling east through the downtown area, Streetcar Alternative 2 uses Fifth Street, while Streetcar Alternative 1 uses Fourth Street. The East End shopping district, which is located in this neighborhood, is host to more than 40 unique businesses ranging from privately-owned stores to theaters and restaurants. As opposed to Fourth Street, Fifth Street between Broadway and French Street is not a shopping area and is characterized primarily by low-rise commercial/office buildings. This area does not support heavy pedestrian or vehicular traffic and is significantly “quieter” than Fourth Street. Thus, the addition of a streetcar system along Fifth Street in this area would be more visually disruptive to pedestrians and vehicular traffic than a streetcar traveling east along Fourth Street in the same neighborhood. In addition, a streetcar would be more visually consistent along Fourth Street since it is a major shopping area with heavy pedestrian and vehicular traffic, and a corridor where streetcar operations occurred in the past.

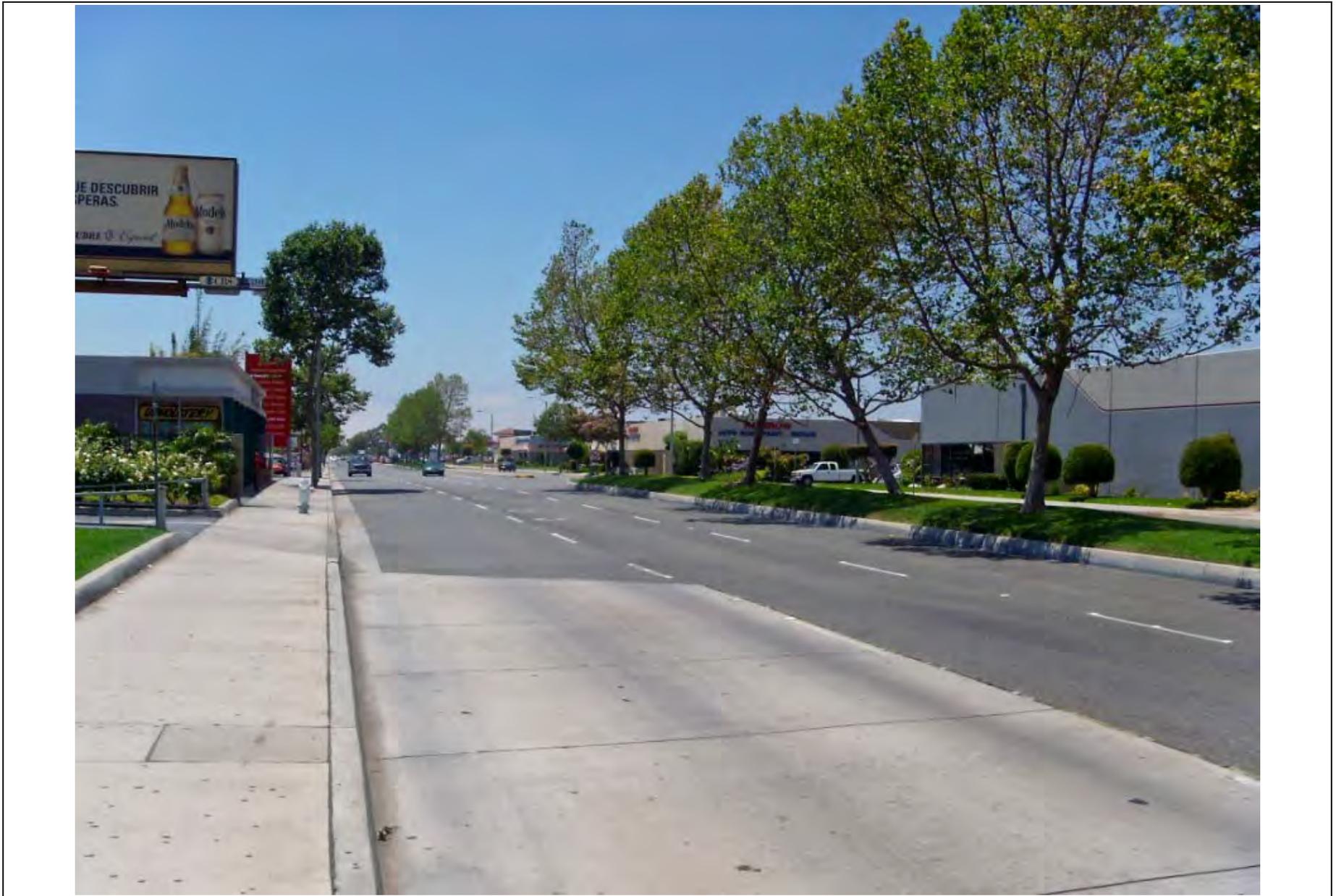
In summary, the improvements associated with the two streetcar alternatives will not have a substantial impact on the existing visual character or quality of the Study Area and its surroundings.

**Criterion 4:** *Would the Project create a new source of substantial light or glare that would adversely affect day or nighttime views in the area?*

The geographic context for both light and glare impacts is site-specific and consists of (1) the lighting associated with the proposed O&M facilities, and (2) the lighting associated with the

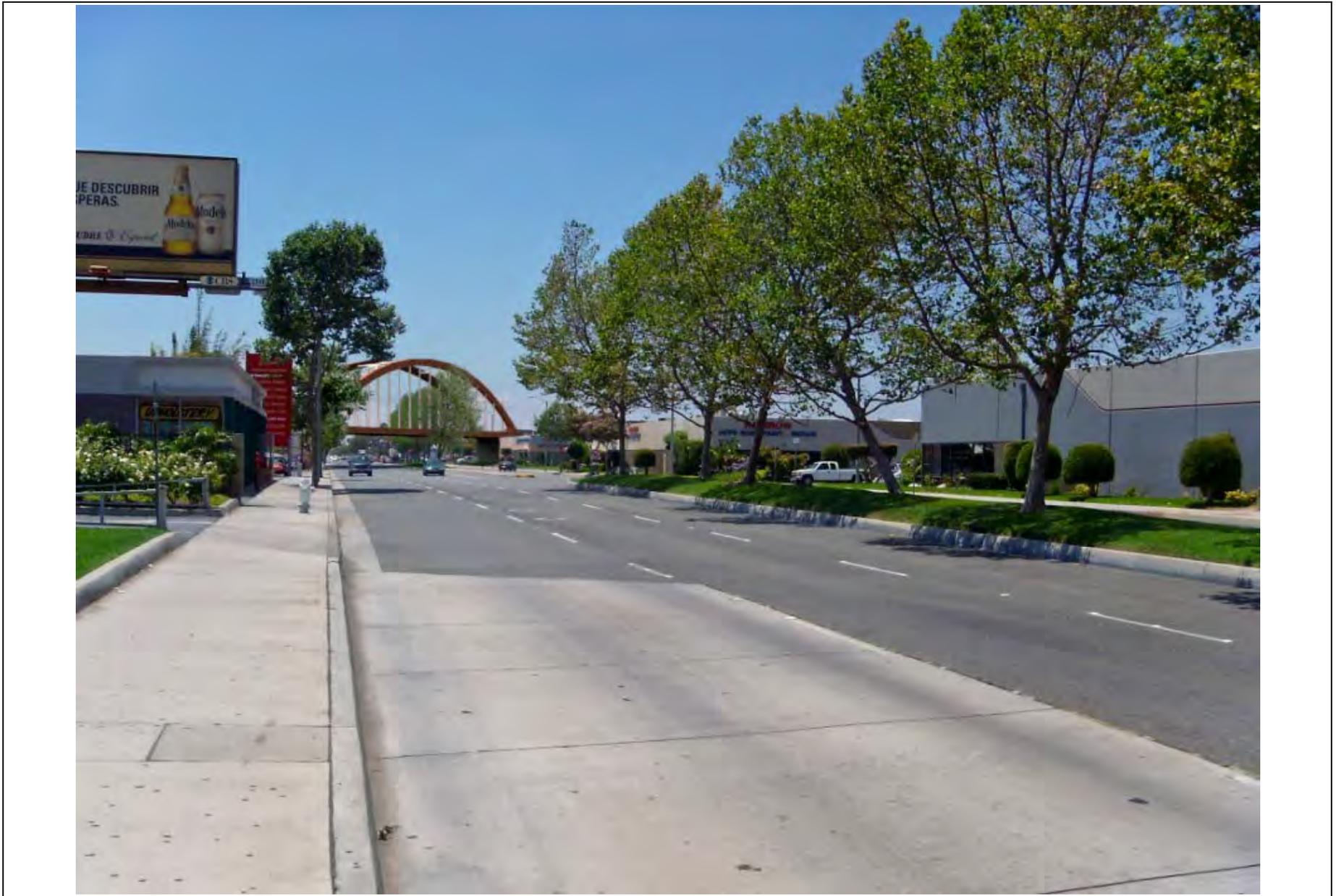
proposed station locations. Figure 4-11 and Figure 4-18 demonstrate the lighting systems that could be associated with these features. To minimize the impacts of project-related lighting, the following lighting standards will be incorporated into the proposed Project during the final design phase and upon Project operation:

- a. Permanently installed lighting shall not blink, flash, or be of unusually high intensity or brightness.
- b. Timers, where acceptable, shall be used to turn off lights during hours when they are not needed.
- c. Uniformity or, where appropriate, compatibility of lighting type (i.e., height, wattage, energy efficiency, base support, finish material, texture, color and style of poles and luminaires) shall be provided.
- d. Landscaping and pedestrian walkway lights shall be low-profile.



Source: URS Corporation, June 2011 Field Review Photographs

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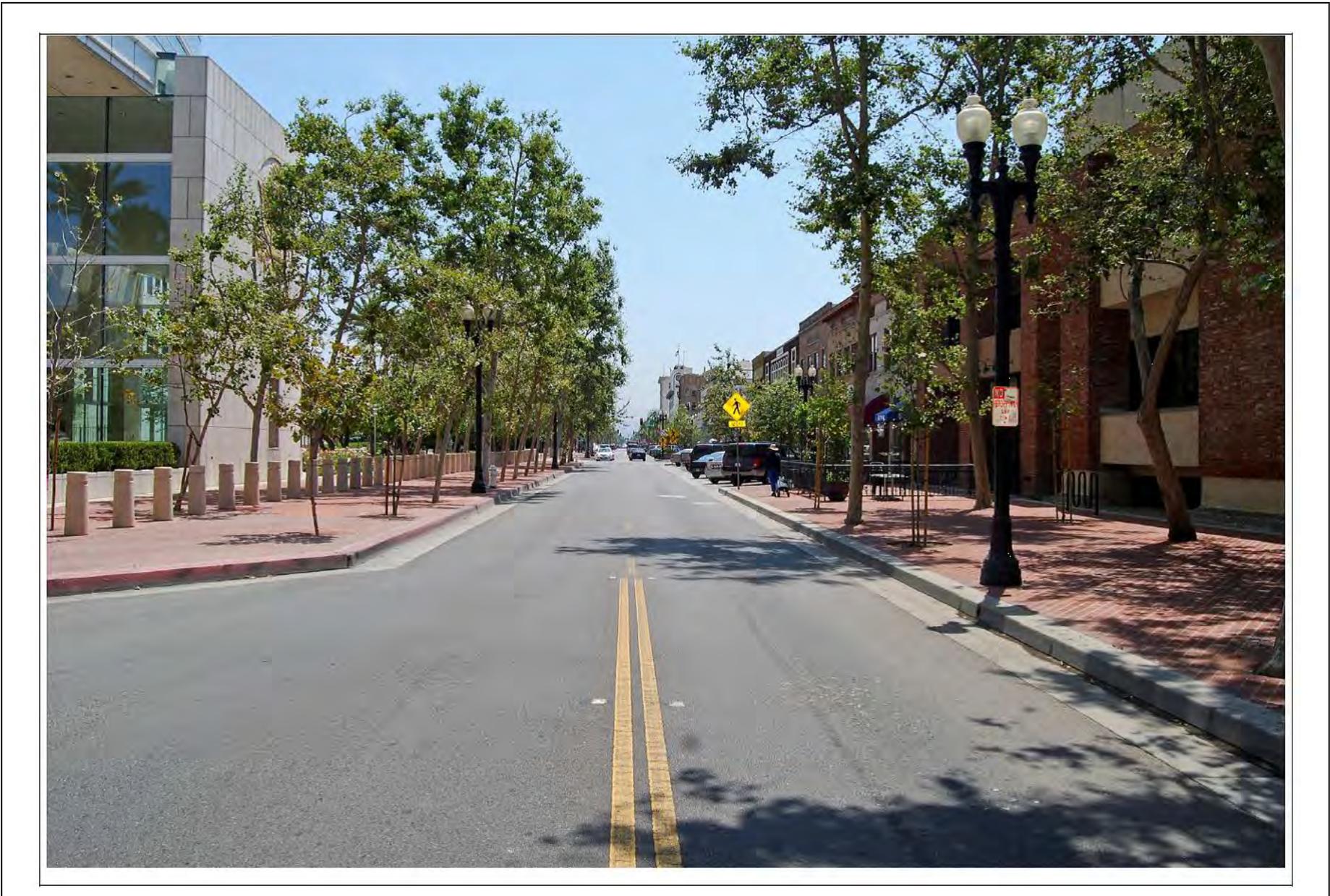


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Source: URS Corporation Simulation using June 2011 Field Review Photographs

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While the lighting design, including intensity and height, has not been determined to date, in general, the lighting will be designed to direct light to the immediate area, and will be consistent with the existing lighting in the area. However, it is possible that lighting associated with the proposed O&M facility Site B, located on Fifth Street between English Street and Daisy Avenue (adjacent to a residential area), and the lighting associated with stations/platforms located adjacent to residential neighborhoods (e.g., the stations located on Santa Ana Boulevard east and west of the intersection with Bristol Street) could create a new source of lighting that might impact nighttime views in those areas. However, the project design features identified below have been incorporated into the project design.

- During the final design phase of the proposed Project, all lighting fixtures shall be architecturally integrated with the character of the surrounding environment. In addition, freestanding light poles and luminaires shall not exceed a maximum height of 18 feet, to mitigate any impacts to adjoining/adjacent properties. These lighting details shall be included in plans prepared and submitted for City approval by the Project proponent. Project plans will be reviewed and approved by City staff for compliance with this measure prior to the issuance of building permits.
- During the final design phase of the proposed Project, all lighting shall be energy-efficient, and shielded or recessed so that direct glare and reflections are confined to the maximum extent feasible within the boundaries of the site, and shall be directed downward and away from adjoining properties and public rights-of-way. These lighting details shall be included in plans prepared and submitted for City approval by the Project proponent. Project plans will be reviewed and approved by City staff for compliance with this measure prior to the issuance of building permits.

With these project design features, lighting associated with the proposed Project improvements adjacent to residential areas do not adversely affect nighttime views nor potentially create a visual impact.

## 4.5 Construction Impact Analysis

The following analysis describes impacts associated with the construction of the proposed Project, which are evaluated based on the criteria identified in Section 4.2.

### 4.5.1 No Build Alternative

Under the No Build Alternative, the proposed Project would not be constructed. Thus, there are no construction impacts associated with this alternative.

### 4.5.2 Transportation Systems Management Alternative

The TSM Alternative would not involve construction of major new transportation facilities or physical capacity improvements. Minor physical improvements and improvements to operations proposed under the TSM Alternative would not adversely affect a scenic vista or aesthetic features, nor would it substantially degrade the existing visual character or quality of the Study Area. Any impacts associated with lighting and glare from construction sites would be minor and temporary in nature. Thus, construction impacts from the TSM Alternative, as evaluated using Criteria 1 through 4, would be less than significant.

### 4.5.3 Streetcar Alternatives 1 and 2

As previously discussed, the two streetcar alternatives would be similar in most respects. Scenic and unique views within the two streetcar alternatives would include the Santa Ana River Bridge, Santa Ana River Trail, Sasser Park, Downtown Santa Ana Historic District, and SARTC. Construction of the proposed Project would involve temporary and/or minor visual

changes to the built environment. Construction of the streetcar alternatives may temporarily prohibit access to portions of these scenic resources. Views to and from these scenic resources would also be blocked by construction equipment and barricades. However, these impacts are temporary and would not permanently alter any scenic resources. Any impacts associated with lighting and glare from construction sites would also be minor and temporary in nature. Thus, construction impacts from the two streetcar alternatives, as evaluated using Criteria 1 through 4, would be less than significant.

Construction impacts for the shortened streetcar alignments IOS-1 and IOS-2, which would be implemented in the event of funding constraints, would be similar to the two streetcar alternatives with the exception of impacts to the Santa Ana River Bridge and the Santa Ana River Trail. These scenic resources would not be included in the shorter segments. Construction impacts for IOS-1 and IOS-2 would remain less than significant.

## 4.6 Cumulative Impact Analysis

According to the CEQA Guidelines, Appendix G, the proposed Project would be expected to result in a cumulative impact if the project would have impacts which are individually limited, but cumulatively considerable.

The CEQA Guidelines, Appendix G, further states, “ ‘Cumulatively considerable’ means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.”

The cumulative setting for aesthetic and visual resources is the proposed, approved, and conceptual development anticipated in the Study Area which calls out general and specific standards. Projects considered for cumulative impacts to visual resources include those located along the proposed Project alignment. Standards considered include the following:

- highest quality design, materials, finishes and construction
- design features that prevent loitering, vandalism, graffiti and visual deprivation;
- consistency with the scale, bulk and pattern of existing development;
- reinforcement and/or establishment of district character; façade renovation;
- enhanced parking area landscaping;
- improved lighting, development of pad buildings;
- the use of pedestrian amenities, such as fountains, plazas, promenades, seating, and like features;
- compatibility with existing patterns of development in and around districts and neighborhoods; and,
- enhanced streetscapes, architectural themes and landscaping.

Table 4-1 lists the projects that have been approved or are under review or construction within the Study Area. The visual assessment completed for the proposed Project indicates that at Streetcar Alternatives 1 and 2 could directly result in adverse impacts due to lighting; however, project features adjacent to residential neighborhoods, such as stations/platforms and the proposed O&M facility located on Fifth Street between English Street and Daisy Avenue, reduce the lighting that would otherwise impact nighttime views in residential areas. Therefore, a less than cumulatively considerable impact would be expected to occur.

**Table 4-1: Santa Ana and Garden Grove Fixed Guideway - Cumulative Projects List**

No.	Project	Description/ Land Use	No. of u or square feet (sf)	Location	Primary APN
<b>Approved</b>					
1	Alliance Church of Orange	Church addition (gym/classroom), <i>approved 2009</i>	21,000 sf	2130 N. Grand Ave.	396-191-44
2	Christ Our Savior Cathedral	Sanctuary (2,800-seat), <i>approved 2005</i>		2001 W. McArthur Blvd.	140-061-94
3	Discovery Science Center Ph. II	IMAX theatre (275-seat), <i>approved 2002</i>		2032 N. Main St.	399-102-09
4	Lyon Homes	Residential (Condo), <i>approved 2011</i>	300 u	100-130 E. McArthur Blvd.	411-081-26
5	Promenade Point	Residential (Condo), <i>approved 2005</i>	194 u	200 E. First American Wy.	411-074-03
6	CVS/Sav-On Drug Store	Pharmacy, drive through, <i>approved 2008</i>	15,836 sf	115 N. Harbor Blvd.	198-182-22
7	Skyline Phase II	Residential (Condo), <i>approved 2005</i>	150 u	10 E. Hutton Ctr.	411-081-28
8	Vista Del Rio	Residential, <i>approved 2009</i>	41 u	1600 W. Memory Ln.	101-055-27
9	Xerox Tower II	Office, <i>approved 2001</i>	210,000 sf	200 N. Cabrillo Park Dr.	400-071-03
10	YMCA	Recreational Facility, <i>approved 2007</i>	32,000 sf	2100 W. Alton Ave.	140-061-91
11	1306 W. Santa Ana Blvd.	Medical/Office Building, <i>approved 2011</i>	6,000 sf	1306 W. Santa Ana Blvd.	007-183-08
12	Grand Avenue Widening NOTE: Specifically included in SAFG No Build Description	Roadway Widening		First St. to Fourth St.	Multiple APNS
13	Broadway Reconstruction	Street Reconstruction		Civic Center Dr. to Santa Clara St.	Multiple APNS
14	Bristol Street Widening NOTE: Specifically included in SAFG No Build Description	Street Widening		Warner Ave. to Memory Ln.	Multiple APNS
15	First and Cabrillo Towers	Residential (Condo), <i>approved 2007</i>	374 u	1901 E. First St.	400-081-08
16	Related Co. Apartments	Residential (Apartments)	74 u	611 E. Minter St.	398-301-07
A	First Street Widening Source: RTIP / RTP. Specifically included in SAFG No Build Description	Roadway widening from 4 to 6 Lanes		Susan St. to Fairview St.	Multiple APNS
B	Transit Zoning Code NOTE: Specifically included in SAFG No Build Description	Land Use/Zoning Overlay, <i>approved 2010</i>		eastern third of SAFG Project area	Multiple APNS
<b>Application Under Review</b>					
17	C & C Affordable Housing Project	Residential (Apartments)	36 u	605 E. Washington Ave.	398-151-12
18	Dayton Commercial Center	Commercial	7,275 sf	W. Edinger Ave.	408-273-11
19	Dr. Bui Medical Building	Medical Office	6,500 sf	202 N. Euclid Ave.	099-223-26
20	Francis Xavier	Residential (Affordable/Special Needs)	12 u	801 E. Santa Ana Blvd.	398-303-04
21	Related Co. Apartments	Residential (Apartments)	13 u	714 E. Santa Ana Blvd.	398-312-18
22	Related Co. Apartments	Residential (Apartments)	12 u	801 E. Brown St.	398-312-09
23	Related Co. Apartments	Residential (Apartments)	12 u	806 E. Santa Ana Blvd.	398-313-02

No.	Project	Description/ Land Use	No. of u or square feet (sf)	Location	Primary APN
24	Related Co. Site A	Residential (Rowhouse)	6 u	501-515 E. Fifth St.	398-332-06
25	Related Co. Site B	Residential (Rowhouse)	9 u	606-620 E. Fifth St.	398-228-02
26	Related Co. Site C1 & C2	Residential (Rowhouse and duplex)	6 u	601-607 E. Fifth St.	398-333-01
27	Related Co. Site D	Residential (Rowhouse)	4 u	615-621 E. Fifth St.	398-333-05
28	Related Co. Site E	Residential (Duplex)	2 u	712 E. Fifth St.	398-337-03
29	Santa Ana Blvd. Spec. Plan Area	Mixed-used	600 u	Santa Ana Blvd.	398-311-14
30	The MET at South Coast	Residential (Condo) (five- and six-story over parking)	TBD	200 E. First American Wy.	411-074-03
31	TAVA Homes	Residential (Single Family)	24 u	1584 E. Santa Clara Ave.	396-052-14
32	Town and Country Independent Living	Residential (Condo)	144 u	555 E. Memory Ln.	041-213-04
33	Vista Del Rio	Residential (Apartments/Special needs)	41 u	1600 W. Memory Ln.	101-055-27
34	1100 S. Grand Ave.	McDonald's with drive through	3,838 sf	1100 S. Grand Ave.	011-263-02
35	3312 W. First St.	Office (two-story)	29,000 sf	3312 W. First St.	144-341-07
36	630 S. Hathway St.	Industrial (two-story)	4,100 sf	630 S. Hathaway	011-311-04
C	Santa Ana Blvd. Grade Separation NOTE: PSR / conceptual engineering is in process. City of Santa Ana is lead. Not included in SAFG No Build	Reconstruct Santa Ana Blvd. at Metrolink railroad tracks		north of SARTC	Multiple APNS
D	SARTC Expansion / Redevelopment NOTE: Master Planning Stage - Santa Ana is lead, funded by OCTA Go Local. Not included in SAFG No Build	Intermodal Transportation Center / Land Use Development		SARTC and surrounding parcels including east of existing Metrolink tracks	Multiple APNS
E	PE Major Arterial NOTE: RSTIS completed. OCTA to issue RFQ for PSR phase in 2011. OCTA is lead. Project is listed as part of the MPAH. Not included in SAFG No Build	New four-lane roadway in PE ROW / ramps to SR-22		PE ROW, from SR-22 to Raitt St.	Multiple APNS
F	Class II bike lane on Civic Center Dr. NOTE: City of Santa Ana is lead and planning concept for this bike lane has been identified. Not in SAFG No Build, but design for SAFG Streetcar Alternative 2 accounts	Early planning stages (per Citywide bicycle program)		TBD – on Civic Center Dr.	Multiple APNS
G	Class I bicycle facility on PE ROW NOTE: No work has been completed. Not in SAFG No Build list.	OCTA and County of Orange Bicycle Master Plan only.		Harbor Blvd. to Raitt	Multiple APNS

No.	Project	Description/ Land Use	No. of u or square feet (sf)	Location	Primary APN
<b>Under Construction</b>					
37	Alton Court	Residential (Single Family)	38 u	3321 S. Fairview St.	414-171-01
38	Wintersburg Presbyterian Church	Classrooms, Gym, Outreach Center	24,348 sf	2000 N. Fairview St.	101-652-13
39	Audi Dealership	Commercial, addition to showroom	7,700 sf	1425 S. Auto Mall Dr.	402-101-37
40	Courtyard by Marriot Hotel	Hotel (155 rooms)	100,000 sf	8 McArthur Pl.	411-081-28
41	Downtown Artist Lofts III	Artist Live/Work Lofts	16 u	SWC Main/Third St.	398-601-02
42	Dr. Do Medical Office	Office (two-story)	6,000 sf	4718 W. First St.	108-101-45
43	Goodwill Industries	Office/Industrial	12,000 sf	410 N. Fairview St.	405-222-04
44	Latino Health Access	Community Center	3,074 sf	602 E. Fourth St.	398-481-05
45	Santa Ana Express Car Wash	Drive-through car wash		202 E. First St.	398-51-401
46	Olen Properties (Parkcenter)	Office (one and two-story)	29,170 sf	601 N. Park Center Dr.	400-042-04
47	One Broadway Plaza	Office (37-story)	518,000 sf	1109 N. Broadway	398-561-07

**Source:** Santa Ana Planning Department Aug. 2011

**Notes:**

Unit (u), Not Applicable (N/A)

Projects A - G are reasonably foreseeable, but note that Projects C – F are not yet funded and committed.

Projects A and B have been approved. Projects C - F are in various stages of early project development.

Project Number: 12-14 retrieved from City of Santa Ana Capital Improvement Program FY 09-10 CIP Projects by Category ([http://www.ci.santaana.ca.us/finance/budget/1011/10-11\\_proposed\\_annual\\_budget.pdf](http://www.ci.santaana.ca.us/finance/budget/1011/10-11_proposed_annual_budget.pdf))

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\_\_\_\_\_, 2011b. U.S. Department of the Interior, National Park Service. [http://www.nps.gov/nts/nts\\_trails.html](http://www.nps.gov/nts/nts_trails.html). Accessed July 6.

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## **Appendix A: Detailed Project Description**

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## Project Description

The alternatives addressed in this EA/DEIR consist of a No Build Alternative, which is used as a basis for comparing the costs and benefits of the three alternatives, TSM, Streetcar 1 and Streetcar 2, each of which responds to purpose and need, study goals, and community input. Additional details are provided below.

## Project Location

The Study Area is located in the Cities of Santa Ana and Garden Grove, in Orange County, California. The transit corridor is regionally located in central Orange County, California and directly accesses both the Los Angeles-San Diego (LOSSAN) rail corridor and the Pacific Electric Right-of-Way (PE ROW) rail corridor. The Study Area is generally bounded by Harbor Boulevard to the west, 17th Street/Westminster Avenue to the north, Grand Avenue to the east, and 1st Street to the south. The approximate four-mile transit corridor extends from the Harbor Boulevard/Westminster Avenue intersection in the City of Garden Grove at its western terminus to the Santa Ana Regional Transportation Center (SARTC) in the City of Santa Ana at its eastern terminus. **Figures A-1** and **A-2** provide the Regional Location and Study Area maps, respectively

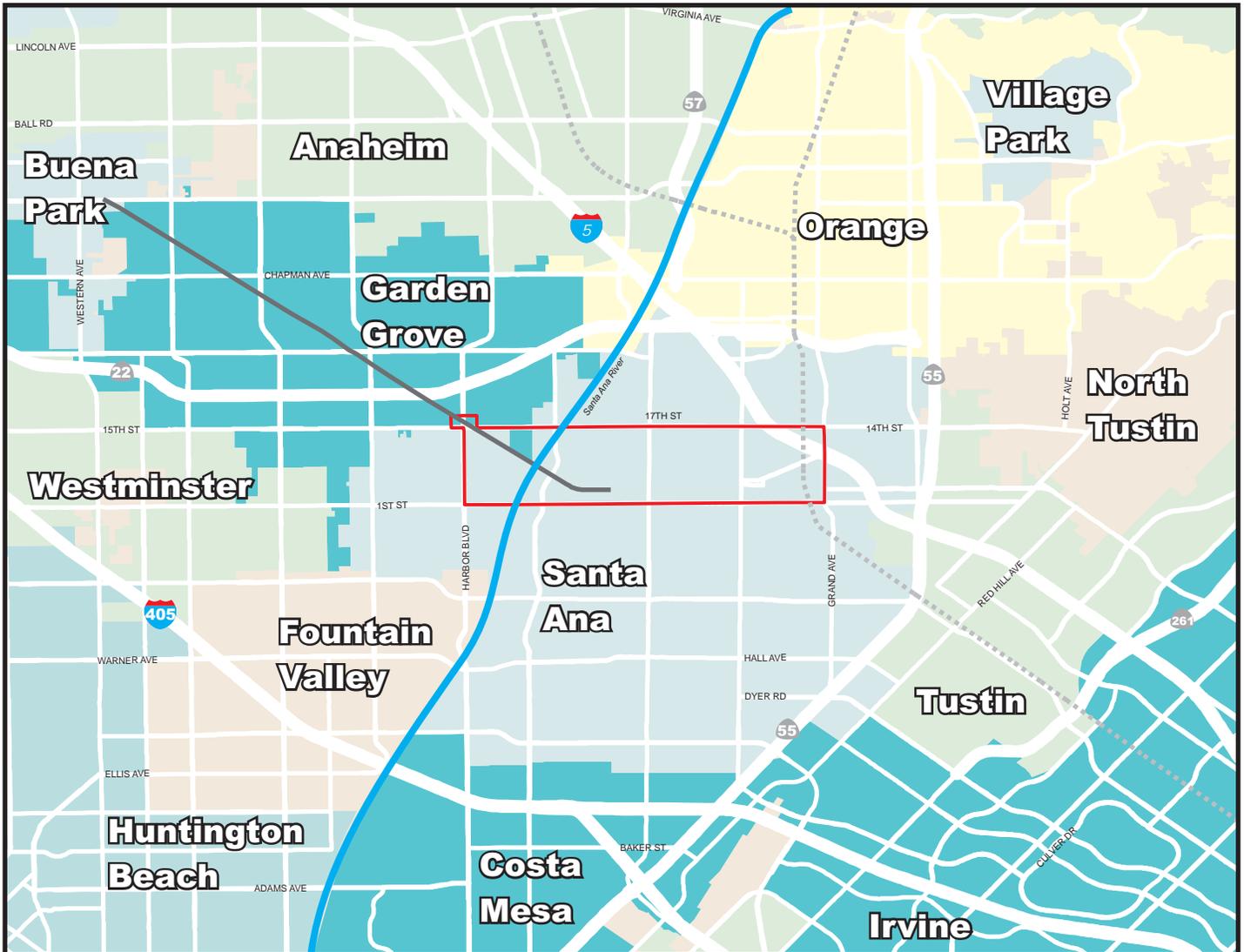
## No Build Alternative

The No Build Alternative includes existing conditions, as well as conditions that would be reasonably expected to occur in the foreseeable future without implementation of any of the build alternatives. The No Build Alternative provides the basis for comparing future conditions resulting from other alternatives. Conditions in the foreseeable future (through planning horizon year 2035) include projects that (1) have environmental analysis approved by an implementing agency and (2) have a funding source identified for implementation.

Other projects in the foreseeable future include:

- Implementation of the Transit Zoning Code (SD 84A and SD 84B), both project-level and program-level components, that are anticipated for build-out by 2028
- Implementation of the Station District Development Projects, which consist of a variety of residential develop projects, community open space and some limited neighborhood-serving commercial development
- Transit improvements including modest adjustments to existing local bus routes; and expanded Metrolink service
- Three, new bus rapid transit routes: (1) Harbor Boulevard Bus Rapid Transit Corridor [Costa Mesa to Fullerton, 10-minute headways, peak period]; (2) Westminster/17<sup>th</sup> Street Bus Rapid Transit Corridor [Santa Ana to Long Beach, 10-minute headways, peak period]; and (3) Bristol Street Bus Rapid Transit Corridor [Irvine Transportation Center to Brea Mall, 10-minute headways, peak period]
- Roadway improvements including the Bristol Street Widening project, which will widen Bristol Street from four to six lanes between Warner Avenue and Memory Lane, and the

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**LEGEND:**

- Study Area
- PE ROW
- Metrolink/Amtrak Rail Line

0 1.1 2.2 MILES



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**LEGEND:**

- Study Area
- Activity Center
- PE ROW
- Metrolink/Amtrak Rail Line
- Boundary of City of Garden Grove

NORTH



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- Grand Avenue Widening project, which will widen Grand Avenue from four to six lanes between 1<sup>st</sup> Street and 17<sup>th</sup> Street

## **TSM Alternative**

The TSM Alternative enhances the mobility of existing transportation facilities and transit network without construction of major new transportation facilities or significantly, costly physical capacity improvements. Consistent with FTA guidelines, the TSM Alternative emphasizes low cost (i.e., small physical) improvements and operational efficiencies such as focused traffic engineering actions, expanded bus service, and improved access to transit services. Included within the TSM Alternative are modifications and enhancements to selected bus routes in the Study Area including:

- Skip-stop overlay service on 1<sup>st</sup> Street (Route 64) which includes access to SARTC
- A new route between SARTC and Harbor Boulevard/Westminster Avenue via Civic Center Drive, Bristol Street and 17<sup>th</sup> Street/Westminster Avenue, providing 10-minute peak and 20-minute off-peak service
- Expanded service span for StationLink service (Route 462) between SARTC and the Civic Center, providing 15-minute service during both peak and off-peak hours.

**Figure A-3** is a map of the proposed routes for the TSM bus network enhancements.

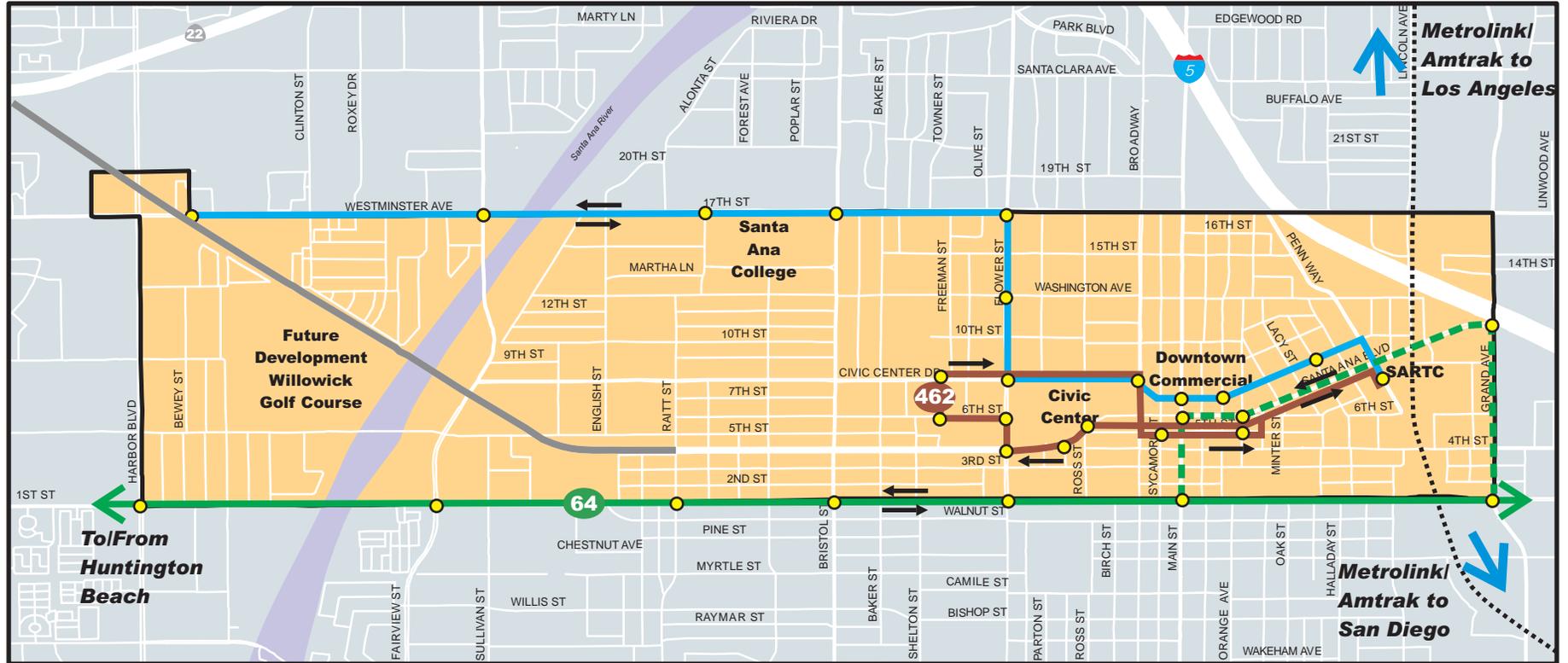
In addition, the following system operational improvements are included in the TSM Alternative:

- Traffic signal timing improvements at select congested locations along Santa Ana Boulevard and Civic Center Drive to provide for enhanced east-west bus flow, potential including but not limited to:
  - Main Street at Civic Center Drive
  - Broadway at Civic Center Drive
  - Flower Street at Civic Center Drive
  - Fairview Street at Civic Center Drive
  - Santa Ana Boulevard at Santiago Street
  - Santa Ana Boulevard at Lacy Street (install traffic signal)
- Real-time bus schedule information at high-volume transit stops (e.g., Flower Street and 6<sup>th</sup> Street, Santa Ana Boulevard and Main Street)
- Improvements to transit stop amenities (benches, shelters, kiosks, sidewalk connections, etc.) along the Santa Ana Boulevard and Main Street corridors
- Improvements to bicycle and pedestrian circulation to promote safe, convenient and attractive connectivity between the transit system and surrounding neighborhoods and activity centers , including accommodating bicycles on all buses, providing real time bus arrival information via internet and mobile devices, installing bicycle storage facilities at SARTC and the Harbor/Westminster stop, and providing study area maps/walking guides on all buses

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Transportation Systems Management (TSM) Alternative



**LEGEND:**

- Study Area
- Proposed Stop
- PE ROW
- TSM 1st Street Alignment (OCTA Route 64)
- TSM Civic Center Alignment
- Skip Stop Overlay to/from SARTC
- TSM Station Link Enhancement (OCTA BRT Route 462)

0 1500 3000 FEET

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## Streetcar Alternative 1

Streetcar Alternative 1 would utilize the PE ROW through the western half of its alignment and generally operate along Santa Ana Boulevard and 4<sup>th</sup> Street on the way to SARTC. The 4.1-mile alignment for Streetcar Alternative 1 would include 12 stations. It is anticipated that the streetcar system would operate seven days a week with 10-minute headways during peak periods and 15-minute headways during off-peak periods. The streetcars would be electrically powered using an overhead contact system and a series of TPSS located intermittently along the alignment. Although the specific vehicle has not been selected at this preliminary stage, streetcars generally have a capacity of 30 to 40 seated passengers and 80 to 90 standing passengers for a total of 120 to 130 passengers. **Table A-1** provides a summary description of the key physical and operational attributes of Streetcar Alternative 1 (PE ROW with Santa Ana Boulevard and 4th Street Couplet). **Figure A-4** provides a conceptual illustration of the alignment for Streetcar Alternative 1 relative to the existing street network within the Study Area.

### Sasscer Park Alignment

In Streetcar Alternative 1, the Downtown Santa Ana segment features couplet operations with the westbound streetcar alignment on Santa Ana Boulevard and the eastbound streetcar alignment on 4<sup>th</sup> Street. For the eastbound transition from Santa Ana Boulevard to 4<sup>th</sup> Street, a direct route from Santa Ana Boulevard along a public easement on the southern edge of Sasscer Park to 4<sup>th</sup> Street has been identified in **Figure A-5**.

## Streetcar Alternative 2

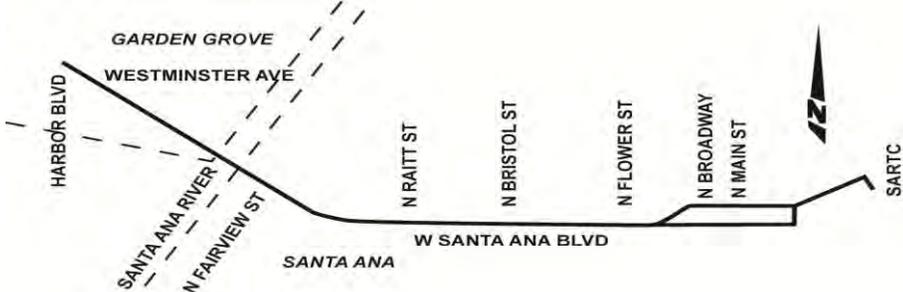
Streetcar Alternative 2 would utilize the PE ROW through the western half of its alignment and substantially operate along Santa Ana Boulevard, Civic Center Drive, and 5<sup>th</sup> Street along the eastern half of the alignment to SARTC. The operational characteristic of this alternative are identical to Streetcar Alternative 1. The differences between the two streetcar alternatives are the alignment and the fact that Streetcar 2 would have one additional station for a total of 13. **Table A-2** provides a summary description of the key physical and operational attributes of Streetcar Alternative 2 (PE ROW with Santa Ana Boulevard and 5<sup>th</sup> Street/Civic Center Drive Couplet). This table also includes station locations for comparison to station locations for Streetcar Alternative 1 shown in Table A-1, above. **Figure A-6** provides a conceptual illustration of the alignment for Streetcar Alternative 2 relative to the existing street network within the Study Area.

### Civic Center Bike Lane

The Streetcar Alternative 2 alignment travels westbound through the Civic Center along Civic Center Drive between Spurgeon and Flower Streets. As part of the City of Santa Ana's Complete Streets Program, and not as part of the SA-GG Fixed Guideway, the City plans to construct bicycle lanes along Civic Center Drive. Streetcar Alternative 2 would acquire additional ROW (**Figure A-7**) in order not to preclude the westbound bike lane.

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**TABLE A-1: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 1**

Key Attributes	Descriptions											
Transmit Mode	Streetcar											
Termini	Western Terminus: Harbor Blvd. Eastern Terminus: SARTC											
Alignment Description	<p><u>Routing by Segment:</u></p> <ul style="list-style-type: none"> <li>• PE ROW, from Harbor Blvd. to Raitt St.: streetcars operate at-grade, bi-directionally, in exclusive ROW.</li> <li>• Santa Ana Blvd., from Raitt St. to Ross St.: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic.</li> <li>• 4<sup>th</sup> St./Santa Ana Blvd. Couplet, from Ross St. to Mortimer St.: streetcars operate in the street, at-grade, one-way, along with mixed-flow traffic.</li> <li>• Santa Ana Blvd., from Mortimer St. to SARTC: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic.</li> </ul> 											
Length of Alignment	4.1 miles (Harbor Blvd. to SARTC)											
Stations (12 Stations)	<p><u>Station Locations:</u></p> <ol style="list-style-type: none"> <li>1. Harbor Blvd. and Westminister Ave.</li> <li>2. Willowick</li> <li>3. Fairview St. and PE ROW</li> <li>4. Raitt St. and Santa Ana Blvd.</li> <li>5. Bristol St. and Santa Ana Blvd.</li> <li>6. Flower St. and Santa Ana Blvd.</li> </ol> <table border="1" data-bbox="531 1177 1955 1356"> <thead> <tr> <th data-bbox="531 1177 1239 1209"><i>Couplet Section (Eastbound)</i></th> <th data-bbox="1249 1177 1955 1209"><i>Couplet Section (Westbound)</i></th> </tr> </thead> <tbody> <tr> <td data-bbox="531 1218 1239 1242">7E. Sasser Park</td> <td data-bbox="1249 1218 1955 1242">7W. Ross St. and Santa Ana Blvd.</td> </tr> <tr> <td data-bbox="531 1250 1239 1274">8E. Broadway and 4<sup>th</sup> St.</td> <td data-bbox="1249 1250 1955 1274">8W. Broadway and Santa Ana Blvd.</td> </tr> <tr> <td data-bbox="531 1282 1239 1307">9E. Main St. and 4<sup>th</sup> St.</td> <td data-bbox="1249 1282 1955 1307">9W. Main St. and Santa Ana Blvd.</td> </tr> <tr> <td data-bbox="531 1315 1239 1339">10E. French St. and 4<sup>th</sup> St.</td> <td data-bbox="1249 1315 1955 1339">10W. French St. and Santa Ana Blvd.</td> </tr> </tbody> </table> <ol style="list-style-type: none"> <li>11. Lacy St. and Santa Ana Blvd.</li> <li>12. SARTC</li> </ol>		<i>Couplet Section (Eastbound)</i>	<i>Couplet Section (Westbound)</i>	7E. Sasser Park	7W. Ross St. and Santa Ana Blvd.	8E. Broadway and 4 <sup>th</sup> St.	8W. Broadway and Santa Ana Blvd.	9E. Main St. and 4 <sup>th</sup> St.	9W. Main St. and Santa Ana Blvd.	10E. French St. and 4 <sup>th</sup> St.	10W. French St. and Santa Ana Blvd.
<i>Couplet Section (Eastbound)</i>	<i>Couplet Section (Westbound)</i>											
7E. Sasser Park	7W. Ross St. and Santa Ana Blvd.											
8E. Broadway and 4 <sup>th</sup> St.	8W. Broadway and Santa Ana Blvd.											
9E. Main St. and 4 <sup>th</sup> St.	9W. Main St. and Santa Ana Blvd.											
10E. French St. and 4 <sup>th</sup> St.	10W. French St. and Santa Ana Blvd.											

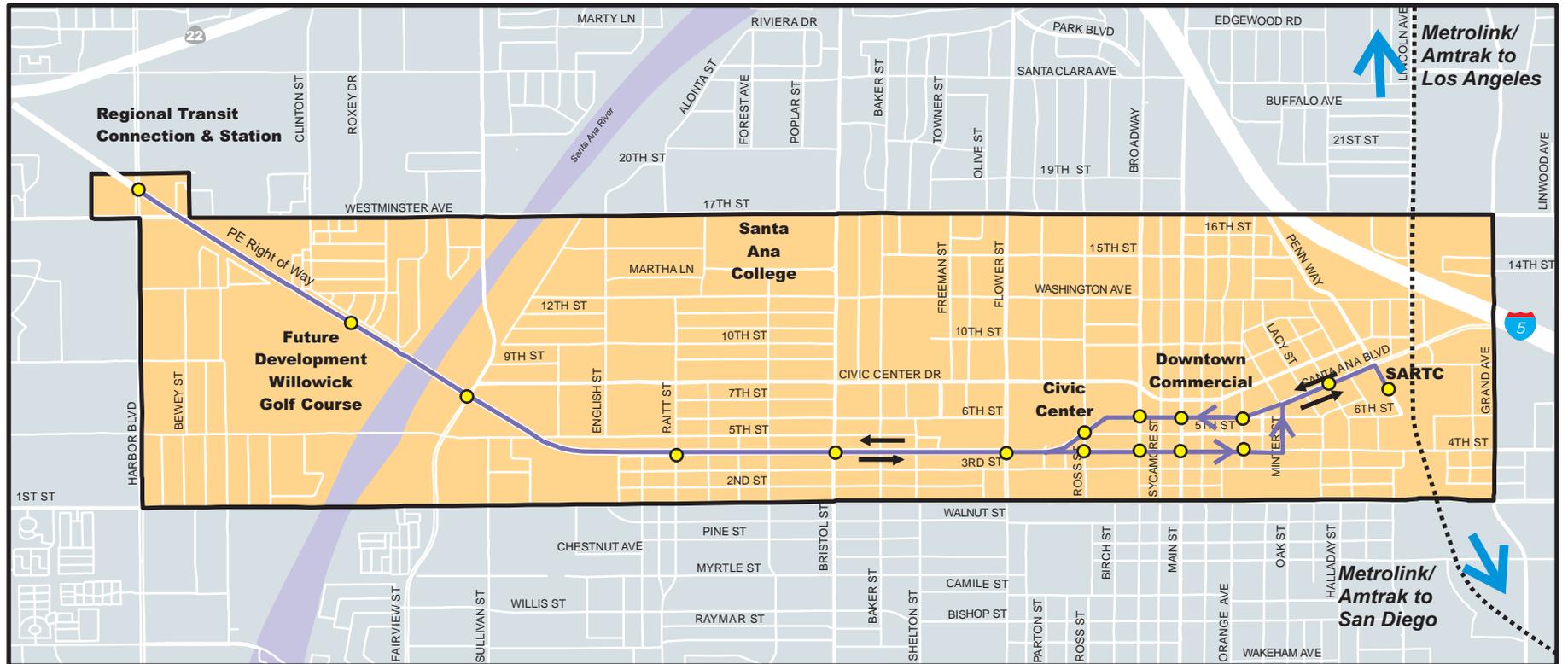
**TABLE A-1: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 1**

Key Attributes	Descriptions
Design Options Carried Forward	Santa Ana River Crossing: <ul style="list-style-type: none"> <li>• Adjacent Single Track Bridge Option</li> </ul> 4 <sup>th</sup> Street Parking Scenarios: <ul style="list-style-type: none"> <li>• Scenario A: South side parallel</li> <li>• Scenario B: South side removal</li> <li>• Scenario C: South side and north side removal</li> </ul>
Headways	Peak: 10 minutes (6:00 a.m. to 6:00 p.m.) Off-Peak: 15 minutes (after 6:00 p.m.)
Hours of Operation (in revenue service)	Monday – Thursday: 6:00 a.m. to 11:00 p.m. (17 hours) Friday and Saturday: 6:00 a.m. to 1:00 a.m. (19 hours) Sunday: 7:00 a.m. to 10:00 p.m. (15 hours)
Transit Vehicle	Streetcar – Vehicle type selection has yet to be determined. The two classifications under consideration include: <ul style="list-style-type: none"> <li>• Classic Modern Streetcar (e.g., Portland, Oregon)</li> <li>• CPUC Compliant Streetcar (e.g., San Diego, California)</li> </ul>
Power Source	Electric, Overhead Contact System, Traction Power Substations (TPSS) <u>TPSS Locations:</u> <ol style="list-style-type: none"> <li>a. Northwest of Harbor Boulevard and Westminster Avenue</li> <li>b. Along PE ROW, west of Susan Street</li> <li>c. Along PE ROW, east of Santa Ana River</li> <li>d. North on Santa Ana Boulevard. East of Bristol Street</li> <li>e. North of 5<sup>th</sup> Street, east of Main Street</li> </ol>
Operations and Maintenance Facility Sites	Two Candidate Sites: <ul style="list-style-type: none"> <li>• Site A: South of SARTC, bordered by 4<sup>th</sup> St., 6<sup>th</sup> St., Poinsettia St., and Metrolink tracks.</li> <li>• Site B: West of Raitt St., between the PE ROW and 5<sup>th</sup> Street</li> </ul>
Major Bicycle and Pedestrian Features	<ul style="list-style-type: none"> <li>• Sidewalk and pedestrian improvements in the vicinity of proposed station platforms.</li> <li>• 4<sup>th</sup> St.: In conjunction with on-street parking modifications, widen sidewalks on 4<sup>th</sup> St. between Ross St. and French St.:                             <ul style="list-style-type: none"> <li>– Scenario A: On south side by 8 ft. for a total width of 20 ft.</li> <li>– Scenario B: On south side by 16 ft. for a total width of 28 ft.</li> <li>– Scenario C: On both sides by 16 ft. for a total width of 28 ft.</li> </ul> </li> </ul>

Source: Cordoba Corporation, Conceptual Design Plan Set, August 2011.



Streetcar Alternative 1 Alignment



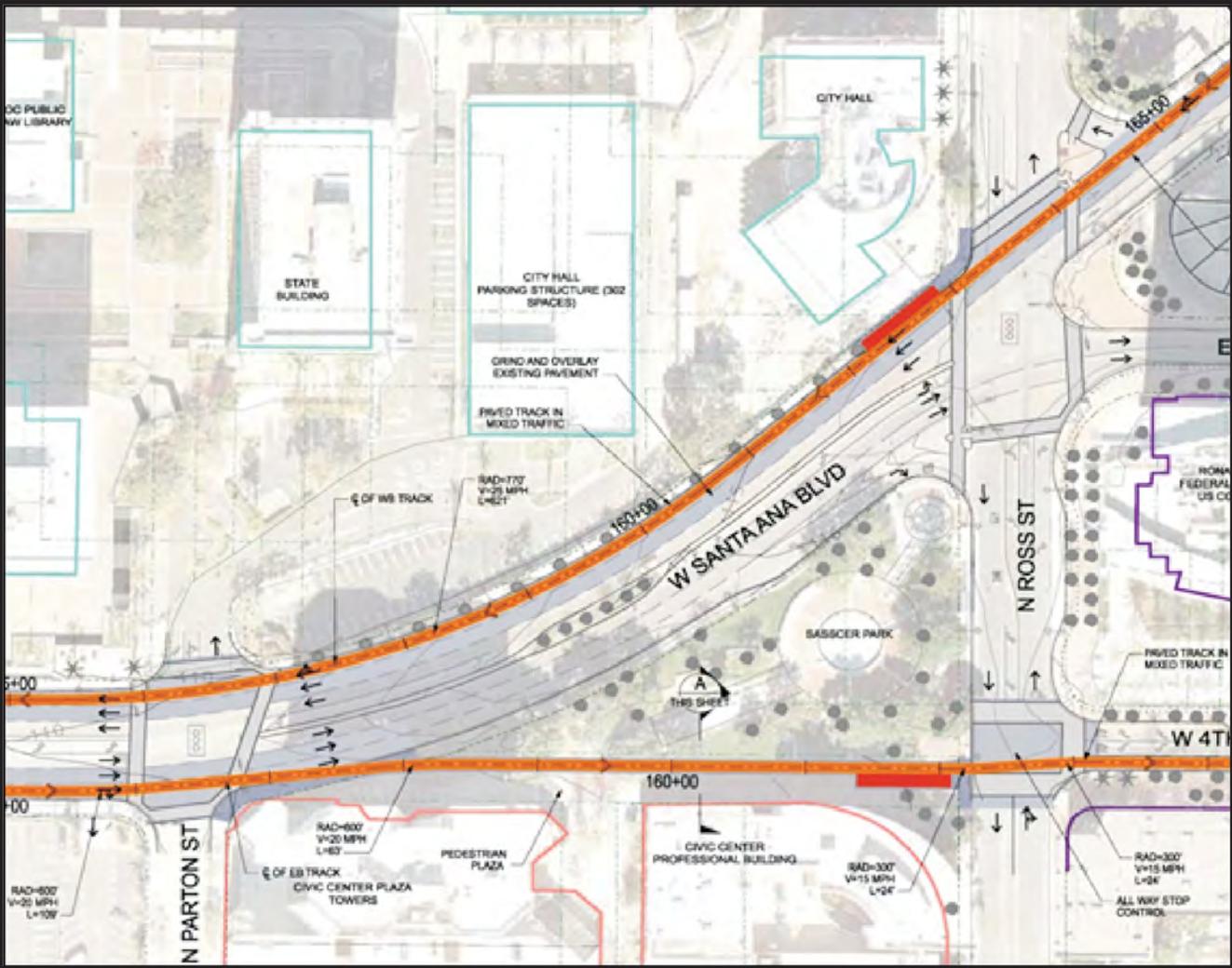
**LEGEND:**

- Study Area
- Proposed Stop
- Streetcar Alternative 1

0 1500 3000 FEET

Source: Cordoba Corporation, *Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study*, July 11, 2012; updated by Terry A. Hayes Associates Inc., August 2012.

Note: Termini for Initial Operable Segment 1 (IOS-1) are located at Raitt Street and SARTC.



Source: Cordoba Corporation, Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study, July 11, 2012.

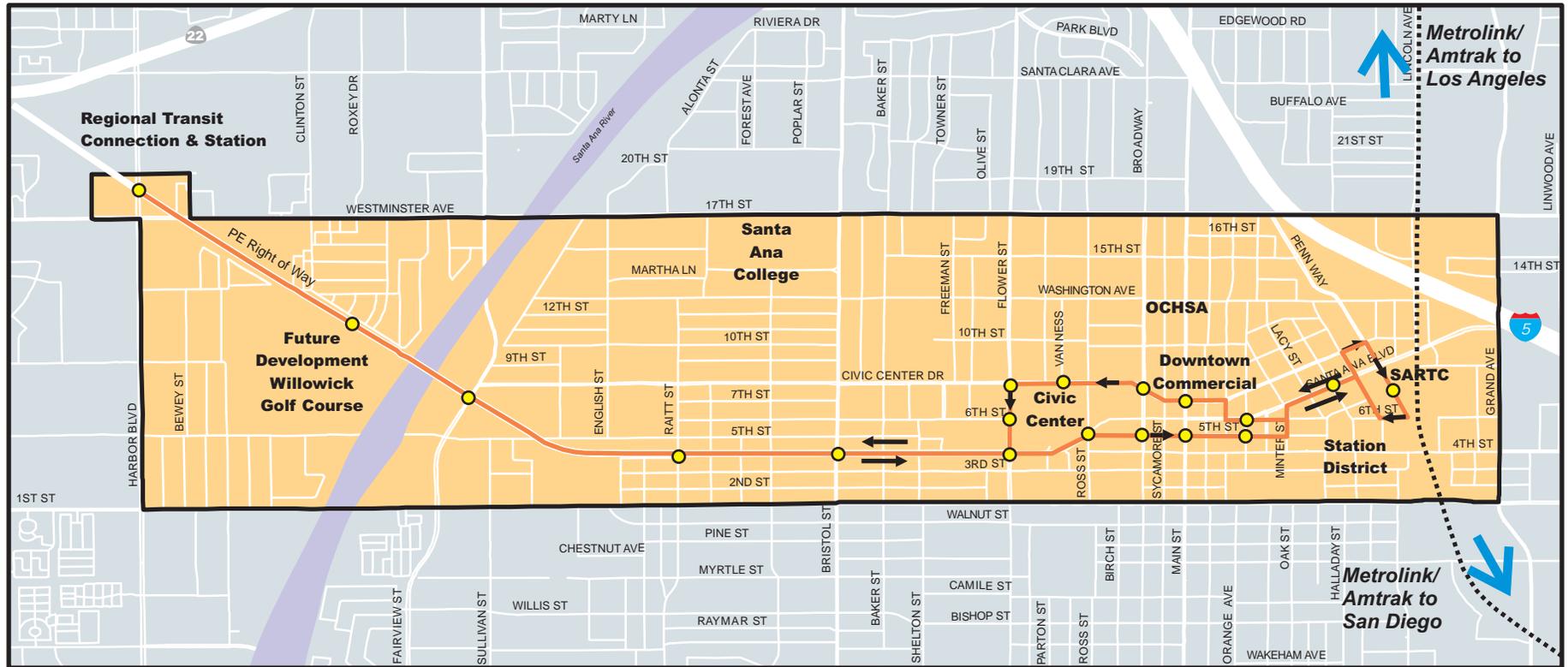
TABLE A-2: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 2			
Key Attributes	Descriptions		
Transit Mode	Streetcar		
Termini	Western Terminus: Harbor Blvd. Eastern Terminus: SARTC		
Alignment Description	<p><u>Routing by Segment:</u></p> <ul style="list-style-type: none"> <li>• PE ROW, from Harbor Blvd. to Raitt St.: streetcars operate at-grade, bi-directionally, in exclusive ROW.</li> <li>• Santa Ana Blvd., from Raitt St. to Flower St.: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic.</li> <li>• Santa Ana Blvd./5<sup>th</sup> St. and Civic Center Dr. Couplet, from Flower St. to Minter St.: streetcars operate in the street, at-grade, one-way, along with mixed-flow traffic.</li> <li>• 6<sup>th</sup> St./Brown St., from Minter St. to Poinsettia St.: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic.</li> <li>• Poinsettia St./Santa Ana Blvd./Santiago St./6<sup>th</sup> St. (SARTC Loop): streetcars operate in a one-way loop, in the street, at-grade, along with mixed-flow traffic.</li> </ul>		
Length of Alignment	4.5 miles (Harbor Boulevard to SARTC)		
Stations(13 Stations)	<p><u>Station Locations:</u></p> <ol style="list-style-type: none"> <li>1. Harbor Blvd. and Westminster Ave.</li> <li>2. Willowick</li> <li>3. Fairview St. and PE ROW</li> <li>4. Raitt St. and Santa Ana Blvd.</li> <li>5. Bristol St. and Santa Ana Blvd.</li> </ol> <table border="0" style="width: 100%;"> <tr> <td style="width: 50%; vertical-align: top;"> <p><i>Couplet Section(Eastbound)</i></p> <ol style="list-style-type: none"> <li>6E. Flower St. and Santa Ana Blvd.</li> <li>7E. -----</li> <li>8E. Ross St. and Santa Ana Blvd.</li> <li>9E. Broadway and 5<sup>th</sup> St.</li> <li>10E. Main St. and 5<sup>th</sup> St.</li> <li>11E. French St. and 5<sup>th</sup> St.</li> </ol> </td> <td style="width: 50%; vertical-align: top;"> <p><i>Couplet Section(Westbound)</i></p> <ol style="list-style-type: none"> <li>6W. Flower St. and 6<sup>th</sup> St.</li> <li>7W. Flower St. and Civic Center Dr.</li> <li>8W. Van Ness Ave. and Civic Center Dr.</li> <li>9W. Broadway and Civic Center Dr.</li> <li>10W. Main St. and Civic Center Dr.</li> <li>11W. French St. and Santa Ana Blvd.</li> </ol> </td> </tr> </table> <ol style="list-style-type: none"> <li>12. Brown St. and Lacy St.</li> </ol>	<p><i>Couplet Section(Eastbound)</i></p> <ol style="list-style-type: none"> <li>6E. Flower St. and Santa Ana Blvd.</li> <li>7E. -----</li> <li>8E. Ross St. and Santa Ana Blvd.</li> <li>9E. Broadway and 5<sup>th</sup> St.</li> <li>10E. Main St. and 5<sup>th</sup> St.</li> <li>11E. French St. and 5<sup>th</sup> St.</li> </ol>	<p><i>Couplet Section(Westbound)</i></p> <ol style="list-style-type: none"> <li>6W. Flower St. and 6<sup>th</sup> St.</li> <li>7W. Flower St. and Civic Center Dr.</li> <li>8W. Van Ness Ave. and Civic Center Dr.</li> <li>9W. Broadway and Civic Center Dr.</li> <li>10W. Main St. and Civic Center Dr.</li> <li>11W. French St. and Santa Ana Blvd.</li> </ol>
<p><i>Couplet Section(Eastbound)</i></p> <ol style="list-style-type: none"> <li>6E. Flower St. and Santa Ana Blvd.</li> <li>7E. -----</li> <li>8E. Ross St. and Santa Ana Blvd.</li> <li>9E. Broadway and 5<sup>th</sup> St.</li> <li>10E. Main St. and 5<sup>th</sup> St.</li> <li>11E. French St. and 5<sup>th</sup> St.</li> </ol>	<p><i>Couplet Section(Westbound)</i></p> <ol style="list-style-type: none"> <li>6W. Flower St. and 6<sup>th</sup> St.</li> <li>7W. Flower St. and Civic Center Dr.</li> <li>8W. Van Ness Ave. and Civic Center Dr.</li> <li>9W. Broadway and Civic Center Dr.</li> <li>10W. Main St. and Civic Center Dr.</li> <li>11W. French St. and Santa Ana Blvd.</li> </ol>		

<b>TABLE A-2: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 2</b>	
<b>Key Attributes</b>	<b>Descriptions</b>
	13. SARTC
Design Options Carried Forward	<u>Santa Ana River Crossing:</u> Adjacent Single Track Bridge
Headways	Peak: 10 minutes (6:00 a.m. to 6:00 p.m.) Off-Peak: 15 minutes (after 6:00 p.m.)
Hours of Operation (in revenue service)	Monday – Thursday: 6:00 a.m. to 11:00 p.m. (17 hours) Friday and Saturday: 6:00 a.m. to 1:00 a.m. (19 hours) Sunday: 7:00 a.m. to 10:00 p.m. (15 hours)
Transit Vehicle	Streetcar – Vehicle type selection has yet to be determined. The two classifications under consideration include: <ul style="list-style-type: none"> <li>• Classic Modern Streetcar (e.g., Portland, Oregon)</li> <li>• CPUC Compliant Streetcar (e.g., San Diego, California)</li> </ul>
Power Source	Electric, Overhead Contact System, Traction Power Substations(TPSS) <u>TPSS Locations:</u> <ol style="list-style-type: none"> <li>a. Northwest of Harbor Boulevard and Westminster Avenue</li> <li>b. Along PE ROW, west of Susan Street</li> <li>c. Along PE ROW, east of Santa Ana River</li> <li>d. North on Santa Ana Boulevard, east of Bristol Street</li> <li>e. North of 5<sup>th</sup> Street, east of Main Street</li> </ol>
Operations and Maintenance Facility Sites	Two Candidate Sites: <ul style="list-style-type: none"> <li>• Site A: South of SARTC, bordered by 4<sup>th</sup> St., 6<sup>th</sup> St., Poinsettia St., and the Metrolink tracks.</li> <li>• Site B: West of Raitt St., between the PE ROW and 5<sup>th</sup> St.</li> </ul>
Major Bicycle and Pedestrian Features	<ul style="list-style-type: none"> <li>• Sidewalk and pedestrian improvements in the vicinity of proposed station platforms.</li> <li>• Civic Center Drive: Provide sufficient street width on Civic Center Drive between Flower Street and Spurgeon Street to support the City’s planned development of a striped bike lane on each side of the street.</li> </ul>

Source: Cordoba Corporation, Conceptual Design Plan Set, August 2011.



Streetcar Alternative 2 Alignment



**LEGEND:**

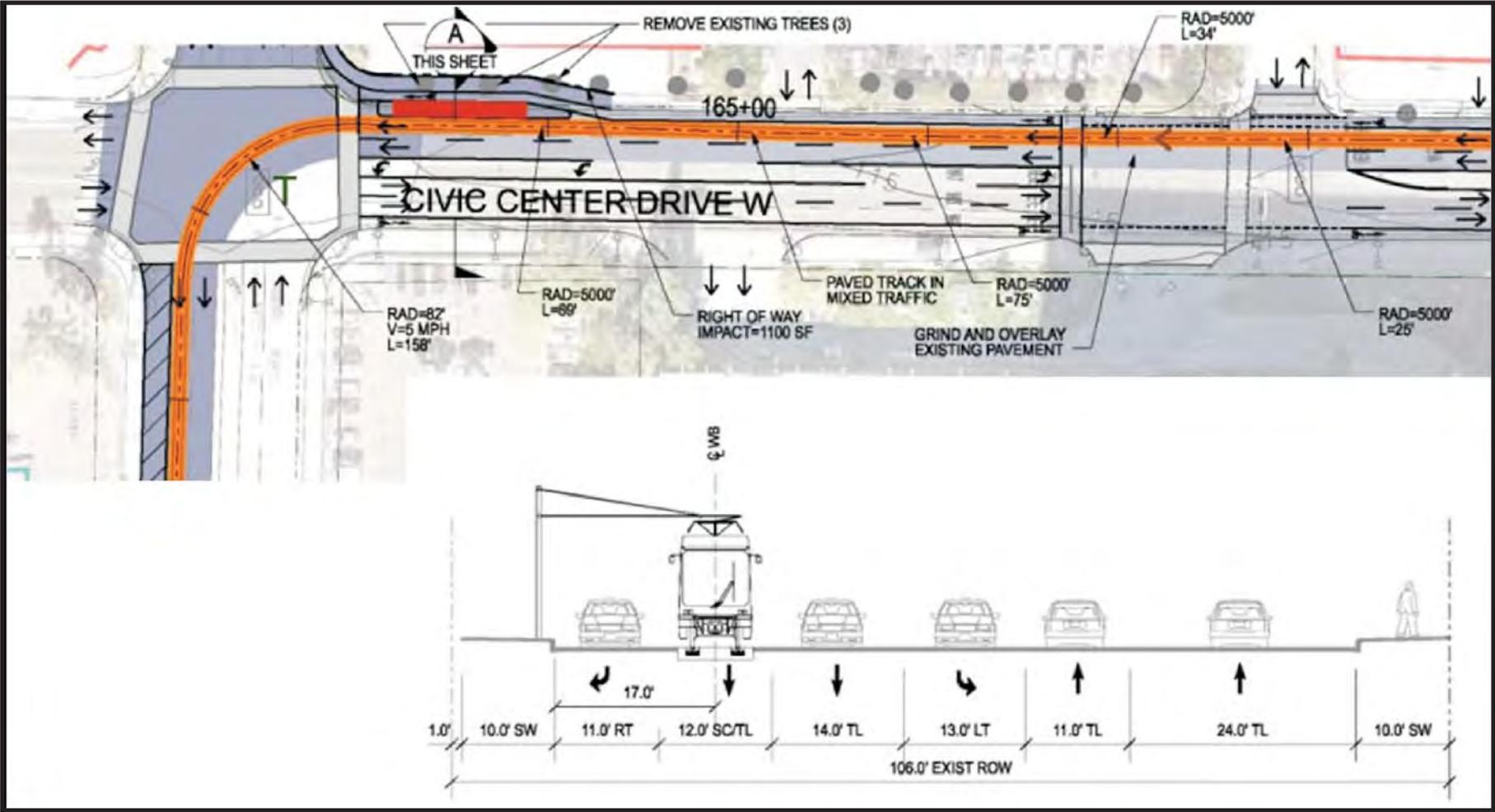
- Study Area
- Proposed Stop
- Streetcar Alternative 2

0 1500 3000 FEET

Source: Cordoba Corporation, *Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study*, July 11, 2012; updated by Terry A. Hayes Associates Inc., August 2012.  
 Note: Termini for Initial Operable Segment 2 (IOS-2) are located at Raitt Street and SARTC.



Civic Center Drive Bike Lane



Source: Cordoba Corporation, Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study, July 11, 2012.

## Streetcar Alternatives Initial Operable Segments

In response to funding and phasing issues raised by fiscal constraints identified during OCTA's long-range transportation planning process, IOSs which are shorter segments of Streetcar Alternatives 1 and 2 were developed for the SA-GG Fixed Guideway Project. The intent of the IOSs was to identify starter segments that could be constructed and operated until funding is assembled to complete the projects. Both IOS-1 and IOS-2 would terminate at Raitt Station (Raitt Street and Santa Ana Boulevard) rather than Harbor Station (Harbor Boulevard and Westminster Avenue). Both would include the same project features and design options as their respective full alignment build alternatives between Raitt Street and SARTC. These tracks would extend another hundred feet west within the PE ROW to reach the O & M Facility Site B should this site ultimately be selected for either IOS-1 or IOS-2.

The configuration of Raitt as an interim terminus station is the same for IOS-1 and IOS-2. Just over 50 spaces would be provided for station parking at Raitt within the PE ROW on an interim basis to be replaced by parking at Harbor Station upon completion of the full Project. Vehicular access to Raitt Station parking would be via Daisy Avenue.

**IOS-1 (Santa Ana Boulevard and 4<sup>th</sup> Street Couplet).** IOS-1 follows the same alignment as Streetcar Alternative 1, but terminates at Raitt Station rather than extending to Harbor Station (**Figures A-8** through **A-10**). The IOS-1 streetcar alignment is about 2.2 miles in length. IOS-1 includes the same project features, design options, and parking scenarios as Streetcar Alternative 1 between Raitt Street and SARTC (**Table A-3**).

**IOS-2 (Santa Ana Boulevard/5<sup>th</sup> Street and Civic Center Drive Couplet).** IOS-2 follows the same alignment as Streetcar Alternative 2, but terminates at Raitt Station rather than extending to Harbor Station (**Figures A-8** through **A-10**). The IOS-2 streetcar alignment is about 2.6 miles in length. IOS-2 includes the same project features and design options as Streetcar Alternative 2 between Raitt Street and SARTC (**Table A-3**).

## Key Attributes

### Western Terminus Elevated Crossing

The western terminus for both of the streetcar alternatives is located at the northeast corner of Harbor Boulevard and Westminster Avenue; the transition from the PE ROW to the western terminus site will include an elevated crossing. This crossing is illustrated in **Figure A-11**.

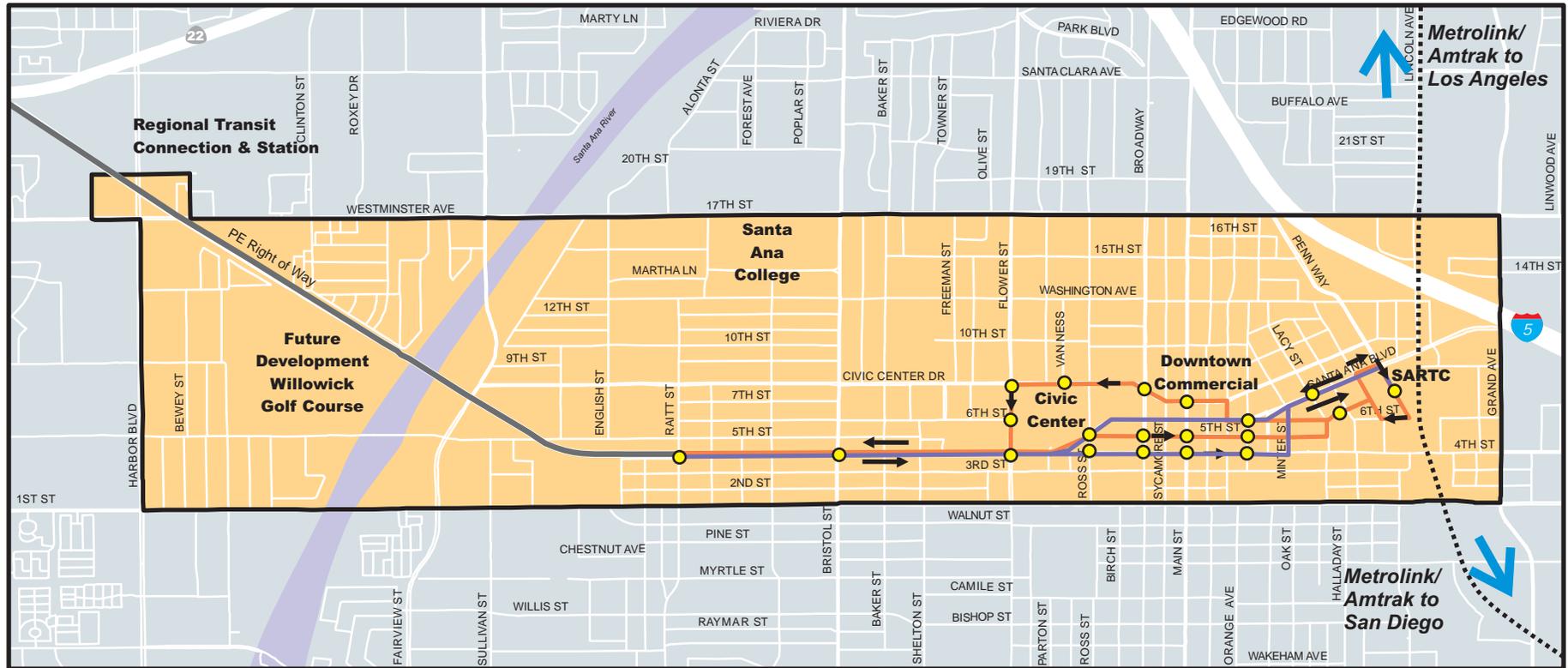
### Streetcar Stations

The stations for each streetcar alternative alignment are located curbside adjacent to the platforms within the public ROW. They will consist of a shelter constructed substantially of transparent materials. In addition to seating, the stations will provide traveler information such as estimates of next train arrival time. The two terminus stations will include parking (approximately 52 spaces at the western terminus station; shared-use of SARTC parking for the eastern terminus station). The terminus stations and one inline station in the Downtown

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IOS-1 and IOS-2 Alignments



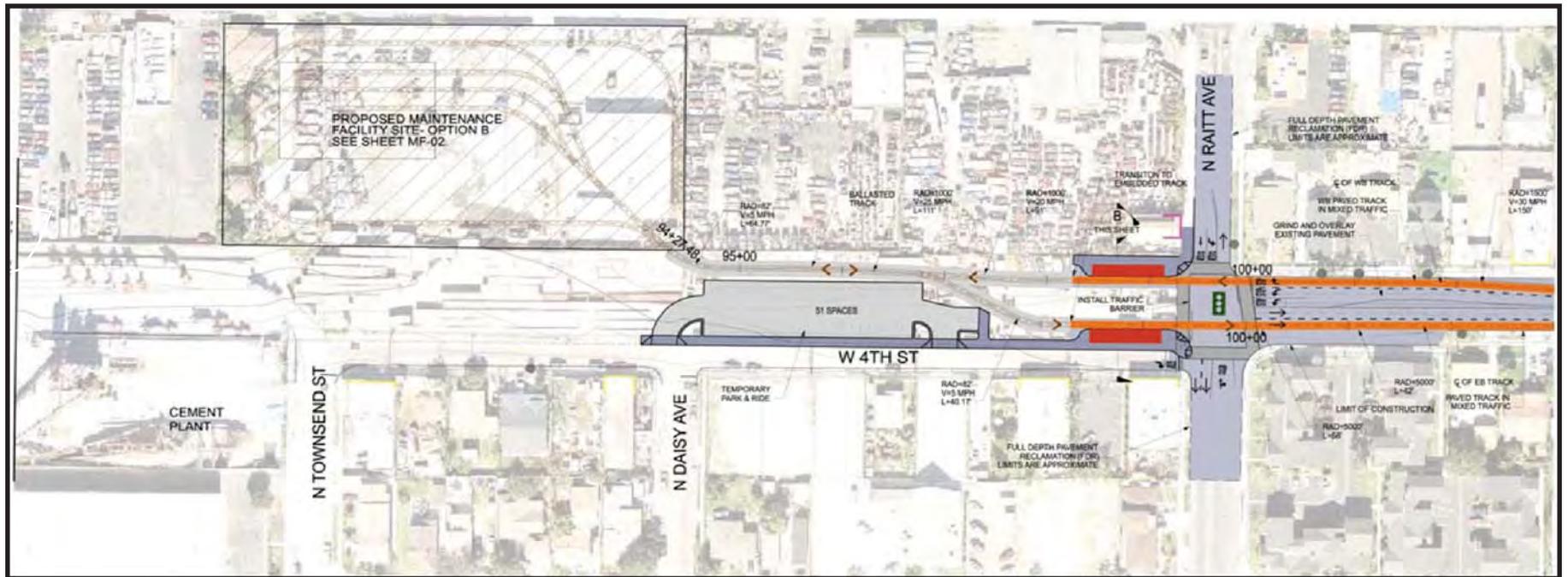
**LEGEND:**

- Study Area
- Proposed Stop
- Streetcar Alternative 1
- Streetcar Alternative 2

0 1500 3000 FEET



IOS-1 and IOS-2 Raitt Street Terminus Configuration with O & M Facility





IOS-1 and IOS-2 - Raitt Street Terminus Configuration without O & M Facility

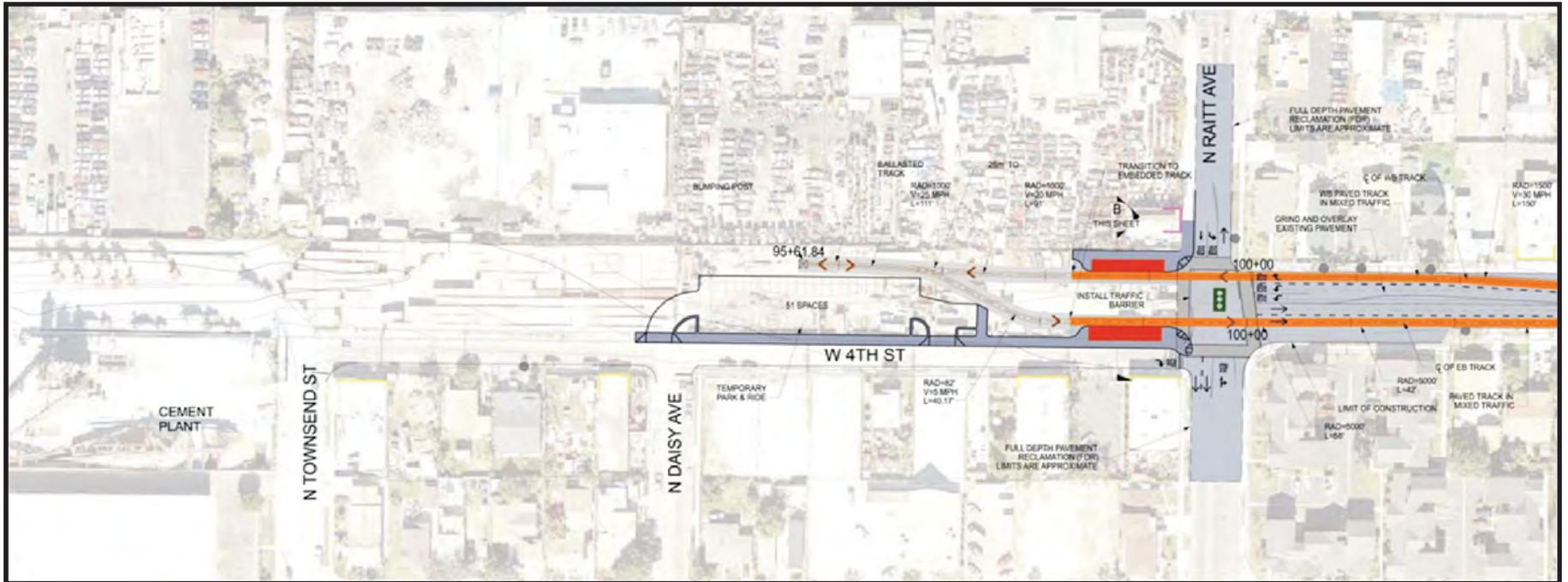




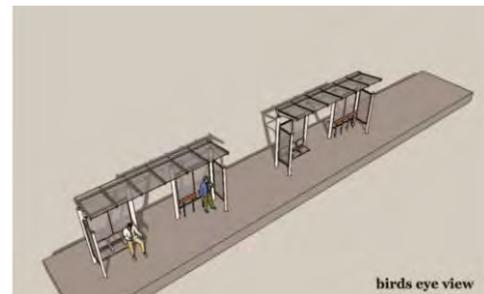
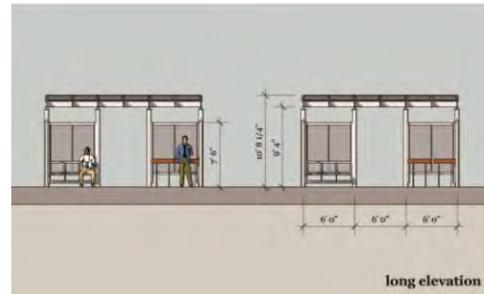
TABLE A-3: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR IOS-1 AND IOS-2				
Key Attributes	IOS-1		IOS-2	
Termini	Western Terminus: Raitt St. Eastern Terminus: SARTC			
Alignment Description	<u>Routing by Segment:</u> <ul style="list-style-type: none"> <li>• Santa Ana Blvd., from Raitt St. to Ross St.: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic.</li> <li>• 4<sup>th</sup> St./Santa Ana Blvd. Couplet, from Ross St. to Mortimer St.: streetcars operate in the street, at grade, one-way, along with mixed-flow traffic.</li> <li>• Santa Ana Blvd., from Mortimer St. to SARTC: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic.</li> </ul>		<u>Routing by Segment:</u> <ul style="list-style-type: none"> <li>• Santa Ana Blvd., from Raitt St. to Flower St.: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic.</li> <li>• Santa Ana Blvd./5<sup>th</sup> St. and Civic Center Dr. Couplet, from Flower St. to Minter St.: streetcars operate in the street, at-grade, one-way, along with mixed-flow traffic.</li> <li>• 6<sup>th</sup> St./Brown Street, from Minter St. to Poinsettia St.: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic.</li> <li>• Poinsettia St./Santa Ana Blvd./Santiago St./6<sup>th</sup> St. (SARTC Loop): streetcars operate in a one-way loop, in the street, at-grade, along with mixed-flow traffic.</li> </ul>	
Length of Alignment	2.2 miles (Raitt St. to SARTC)		2.6 miles (Raitt St. to SARTC)	
Stations	<u>Station Locations:</u> 4. Raitt St. and Santa Ana Blvd. 5. Bristol St. and Santa Ana Blvd. 6. Flower St. and Santa Ana Blvd.		<u>Station Locations:</u> 4. Raitt St. and Santa Ana Blvd. 5. Bristol St. and Santa Ana Blvd.	
	<i>Couplet Section (Eastbound)</i> 7E. Sasser Park 8E. Broadway and 4 <sup>th</sup> St. 9E. Main St. and 4 <sup>th</sup> St. 10E. French St. and 4 <sup>th</sup> St.	<i>Couplet Section (Westbound)</i> 7W. Ross St. and Santa Ana Blvd. 8W. Broadway and Santa Ana Blvd. 9W. Main St. and Santa Ana Blvd. 10W. French St. and Santa Ana Blvd.	<i>Couplet Section (Eastbound)</i> 6E. Flower St. and Santa Ana Blvd. 7E. ----- 8E. Ross St. and Santa Ana Blvd. 9E. Broadway and 5 <sup>th</sup> St. 10E. Main St. and 5 <sup>th</sup> St. 11E. French St. and 5 <sup>th</sup> St.	<i>Couplet Section (Westbound)</i> 6W. Flower St. and 6 <sup>th</sup> St. 7W. Flower St. and Civic Center Dr. 8W. Van Ness Ave.* and Civic Center Dr. 9W. Broadway and Civic Center Dr. 10W. Main St. and Civic Center Dr. 11W. French St. and Santa Ana Blvd.
	11. Lacy St. and Santa Ana Blvd. 12. SARTC		12. Lacy St. and Santa Ana Blvd. 13. SARTC	
Headways	Peak: 10 minutes (6:00 a.m. to 6:00 p.m.) Off-Peak: 15 minutes (after 6:00 p.m.)			
Hours of Operation (in revenue service)	Monday – Thursday: 6:00 a.m. to 11:00 p.m. (17 hours) Friday and Saturday: 6:00 a.m. to 1:00 a.m. (19 hours) Sunday: 7:00 a.m. to 10:00 p.m. (16 hours)			
Power Source	Electric, Overhead Contact System, Traction Power Substations (TPSS) TPSS Locations: d. North on Santa Ana Boulevard. East of Bristol Street e. North of 5 <sup>th</sup> Street, east of Main			
Operations and Maintenance Facility Sites	Two Candidate Sites: <ul style="list-style-type: none"> <li>• Site A: South of SARTC, bordered by 4<sup>th</sup> St., 6<sup>th</sup> St., Poinsettia St. and Metrolink tracks.</li> <li>• Site B: West of Raitt St., between the PE ROW and 5<sup>th</sup> St.</li> </ul>			

Source: Cordoba Corporation, Conceptual Design Plan Set, August 2011.

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area will also include ticketing machines for the convenience of passengers who may want an alternative to the on-vehicle ticketing during busy peak periods.

Streetcar Alternative 1 includes 12 stations along its 4.1-mile long alignment. Streetcar Alternative 2 includes 13 stations along its 4.5-mile long alignment. An additional station is included in Streetcar Alternative 2 compared to Streetcar Alternative 1. It is located at Flower Street and 6<sup>th</sup> Street for the westbound streetcar couplet. This is because of the distance between the directional Flower Street stations in Streetcar Alternative 2, with the eastbound stop at Santa Ana Boulevard and the corresponding westbound stop at Civic Center Drive. Additionally, Flower Street, at 6<sup>th</sup> Street, is a gateway to the Civic Center Plaza with City, County, State and federal offices, as well as the Orange County Sheriff’s Department and jail, and the Santa Ana Police Department.



Views of typical streetcar station structure and platform.

Source: Cordoba Corporation

### Streetcar Vehicles



Views of typical streetcar vehicles.

Source: Cordoba Corporation

Two types of streetcar vehicles have been identified for use: classic European style streetcar, and the CPUC-compliant vehicle. The former would be similar to the vehicles currently in service in Portland, Oregon and Tucson, Arizona, manufactured by Oregon Ironworks. Neither the Portland vehicle nor the Tucson vehicle meet all CPUC structural requirements, and would therefore require either a waiver from the CPUC or a revision of the CPUC regulations that specifically acknowledge streetcars operating in mixed flow traffic at lower speed. The CPUC-compliant vehicle is derived from a light rail vehicle design. Light rail vehicles are typically CPUC-compliant and do not require CPUC waivers. The Siemens built “S70 short” is a CPUC-compliant vehicle. Both the Oregon Ironworks vehicle and the Siemens vehicle comply with Section 165: “Buy America” provisions of the Surface Transportation Assistance Act of 1982.

### Santa Ana River Crossing

Both streetcar alternatives would utilize the PE ROW and cross over the Santa Ana River. This alignment was once used for the Pacific Electric Railway red car system and the Old Pacific Electric Santa Ana River Bridge still remains.

However, it has long been closed for use and not utilized by vehicles or pedestrians since 1950. The historic bridge is inadequate to accommodate the proposed project due to its age, size, (it was constructed as a single-track bridge), disrepair, undetermined structural integrity (both superstructure and foundation) and non-compliance with current building and safety requirements. Four design options were developed for Streetcar Alternatives 1 and 2 at the Santa Ana River Crossing.

These design options were evaluated against identified criteria (cost, feasibility, and potential impacts) to determine which were to be carried forward for evaluation in the EA/DEIR. As detailed in the Section 4(f) Resources Technical Report, Appendix D, and Bridge Design Options Technical Memorandum, Appendix N, four design options were developed for Streetcar Alternatives 1 and 2 at the Santa Ana River Crossing. One was determined feasible for carrying forward for analysis in the EA/DEIR, as illustrated in **Figure A-12**.

The existing bridge would remain in its current location and condition. A new single-track bridge would be constructed immediately south of the existing bridge for the fixed guideway. Through the use of gates and signaling, the single-track bridge would accommodate bi-directional fixed guideway traffic.

## Design Options

During detailed evaluation, design options were developed to avoid identified constraints or to take advantage of specific opportunities presented along the alignments. In most cases the design options are the same for Streetcar Alternatives 1 and 2. However, where the design option is unique to a specific alternative, it is identified in the discussion. The full results of the analysis of the design options are provided in the Detailed Evaluation of Alternatives Technical Report, March 2012. Based on this technical report, the design options that have been carried into the environmental assessment are described below:

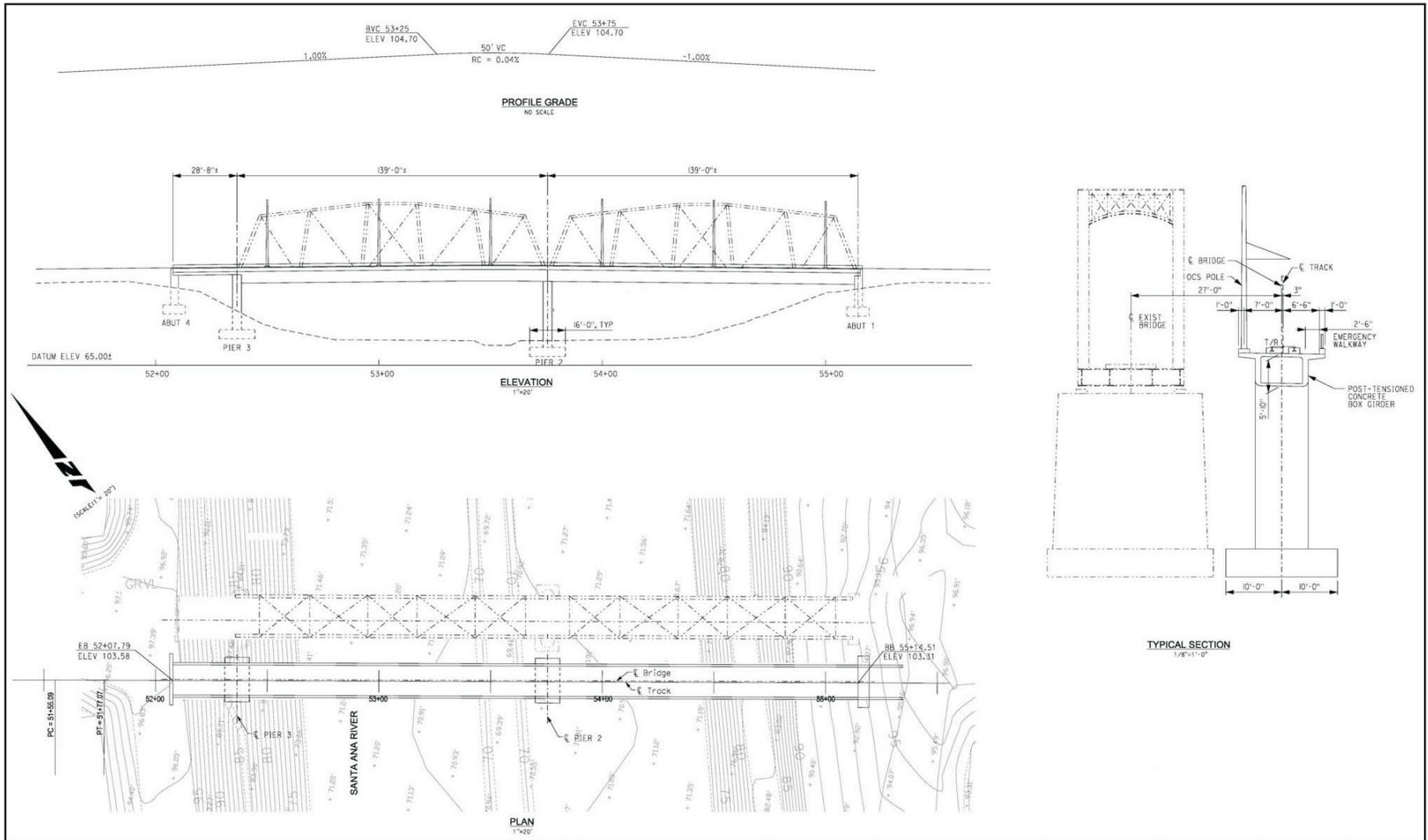
### Operations and Maintenance (O & M) Facility Site Options

Both Streetcar Alternatives 1 and 2 would require the construction of an O & M Facility for streetcar operations. An O & M Facility is a stand-alone building which would meet the maintenance, repair, operational and storage needs of the proposed streetcar system. The O & M Facility accommodates daily and routine vehicle inspections, interior/exterior cleaning of the streetcars, preventative (scheduled) maintenance, unscheduled maintenance, and component change-outs. The proposed facility would also provide a venue for parking vehicles that are not in use and for rebuilding components.

The site for the O & M Facility would need to accommodate a building that houses both maintenance and administrative functions; provides for off-street employee parking; and provides for various functions such as outside storage of system components, vehicle washing, and local requirements for landscaping and screening. Currently, two candidates O & M Facility sites have been identified for either Streetcar Alternative 1 or 2. See **Figure A-13** for the approximate locations of these sites.



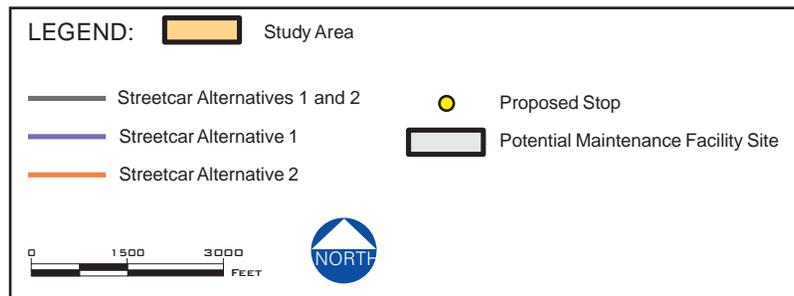
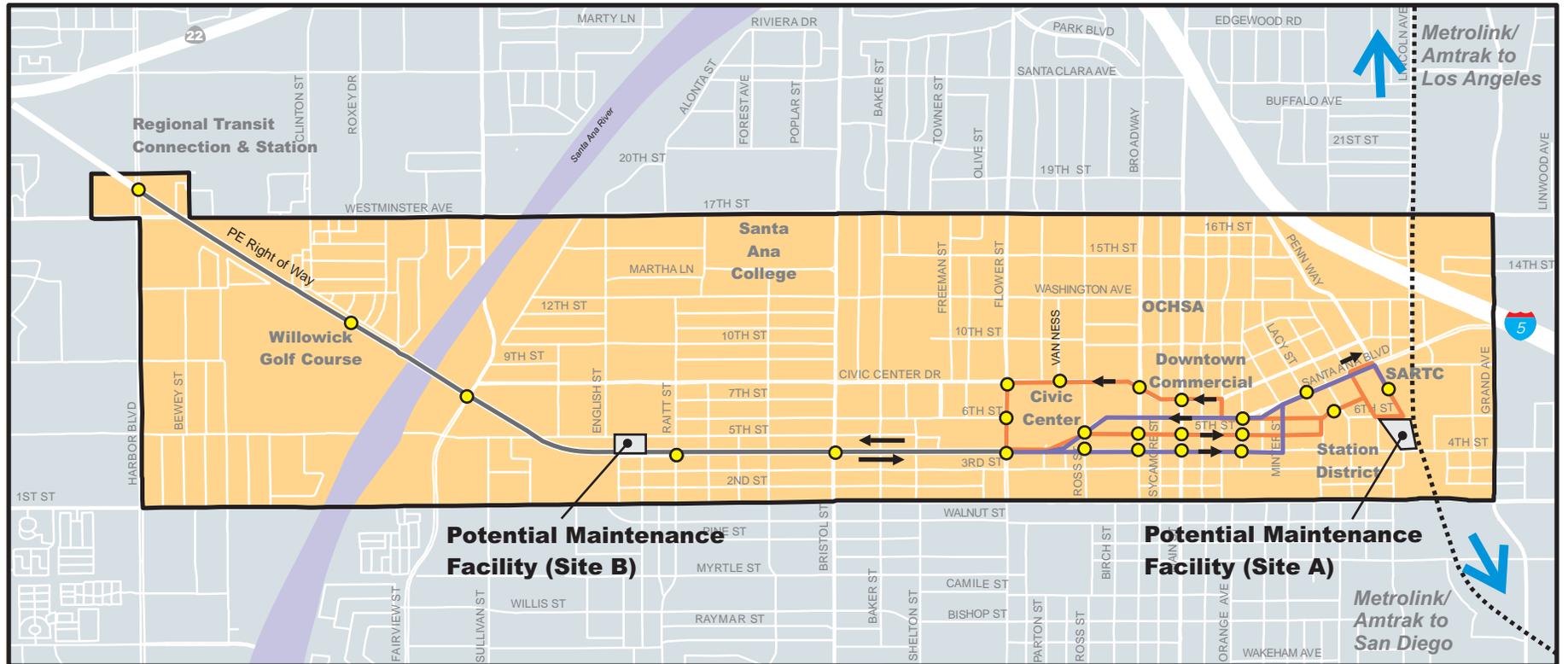
Santa Ana River Crossing



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Candidate Sites of Operations and Maintenance Facilities



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**O & M Facility Site A (near SARTC).** O & M Facility Site A is an irregularly shaped parcel slightly larger than 2.2 acres, and bordered by 6<sup>th</sup> Street to the north, 4<sup>th</sup> Street to the south, the Metrolink tracks to the east, and various industrial and commercial businesses to the west. Currently used as a waste transfer and recycling center, this site contains one primary structure with the remainder of the site used for receiving and sorting recycling materials, and parking. **Figure A-14** shows the proposed location of Site A and **Figure A-15** shows a conceptual layout of Site A. This site connects to either Streetcar Alternative 1 or 2 via a nonrevenue extension of track on Santiago Street for the equivalent of approximately two city blocks.

**O & M Facility Site B (near Raitt Street).** O & M Facility Site B is a rectangular site slightly larger than 2.4 acres. It is located west of Raitt Street and is bordered by 5<sup>th</sup> Street to the north and the PE ROW to the south. Located in an area zoned for industrial and commercial uses, this site is comprised of three parcels, two of which contain existing businesses and a combination of industrial buildings. The third parcel contains several residences. **Figure A-16** shows the proposed location of Site B and **Figure A-17** shows a conceptual layout of Site B. This site connects to the streetcar alignment for Streetcar Alternative 1 or 2 from the PE ROW. Motor vehicle access to the site would be to and from 5<sup>th</sup> Street.

#### **Fourth Street Parking Scenarios**

The Streetcar Alternative 1 alignment would utilize 4<sup>th</sup> Street between Ross Street and Mortimer Street in the westbound direction. From east of Ross Street to French Street, 4<sup>th</sup> Street has one travel lane in each direction with head-in diagonal parking along each side of the roadway. The diagonal parking, with vehicles exiting parking spaces by backing into the travel lane, is incompatible with reliable streetcar operations. Three design scenarios were identified to address the diagonal parking on 4<sup>th</sup> Street as described below and shown on **Figure A-18**.

**Scenario A:** Convert the diagonal parking along the south side of 4<sup>th</sup> Street, between Ross Street and French Street, to parallel parking and widen the sidewalk along the south side from 12 feet to 20 feet, and replace streetlights and landscaping. A total of 26 on-street parking spaces would be removed under this scenario.

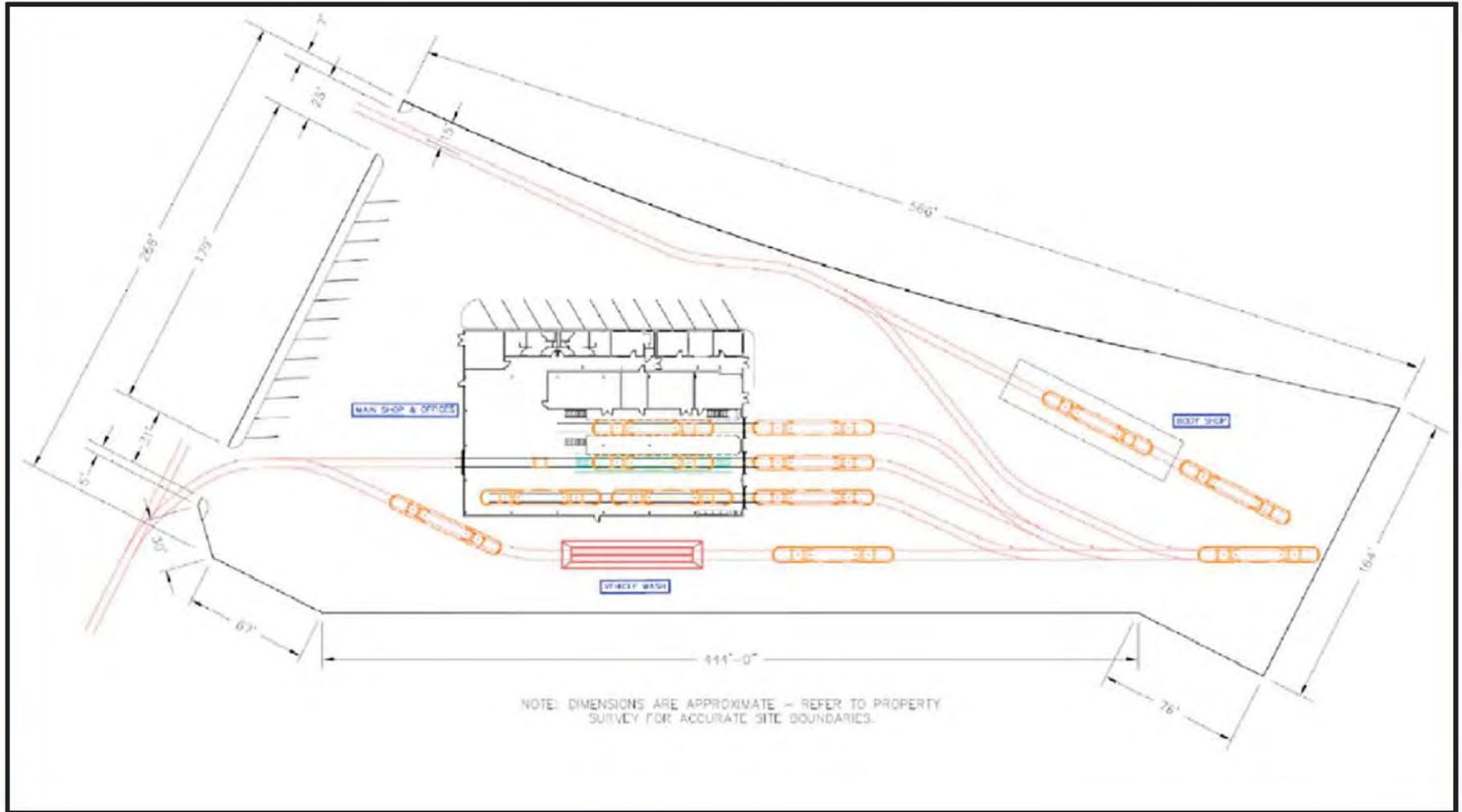
**Scenario B:** Remove the diagonal parking along the south side of 4<sup>th</sup> Street, between Ross Street and French Street, and widen the sidewalk along the south side from 12 feet to 28 feet, and replace streetlights and landscaping. A total of 77 on-street parking spaces would be removed under this scenario.

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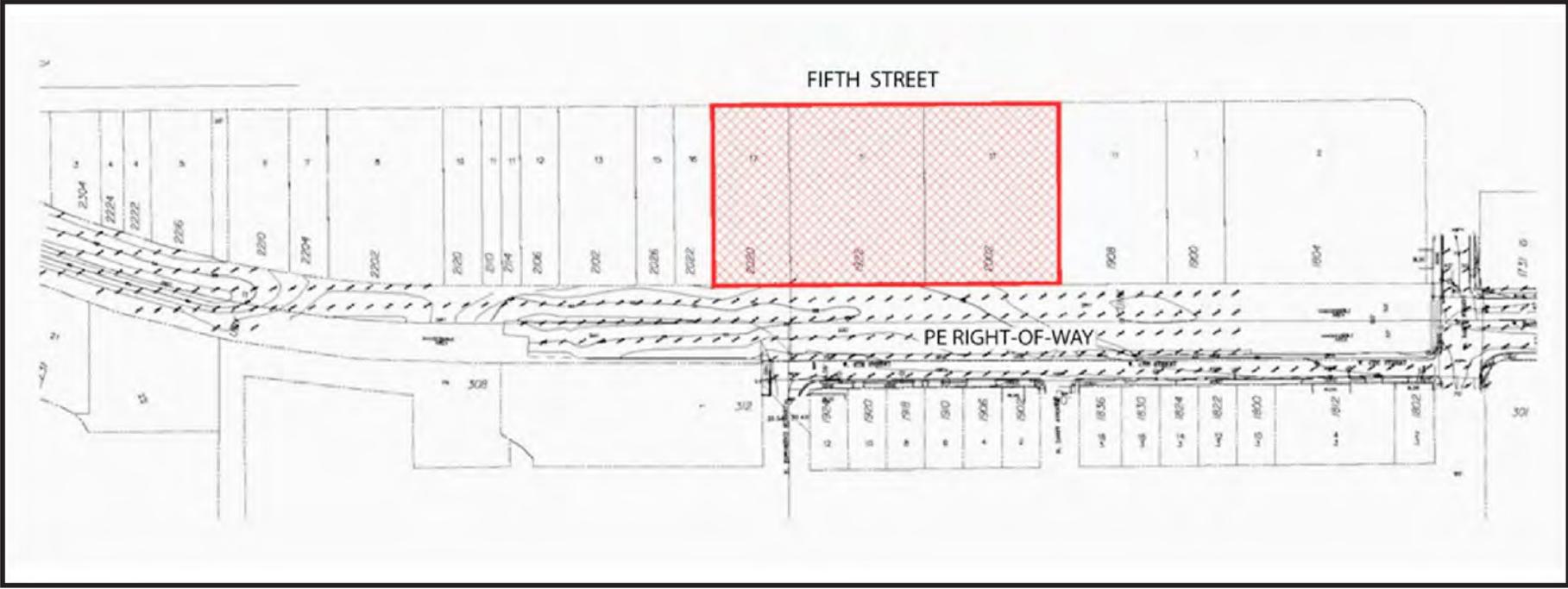


Operations and Maintenance Facility Site A - Conceptual Layout





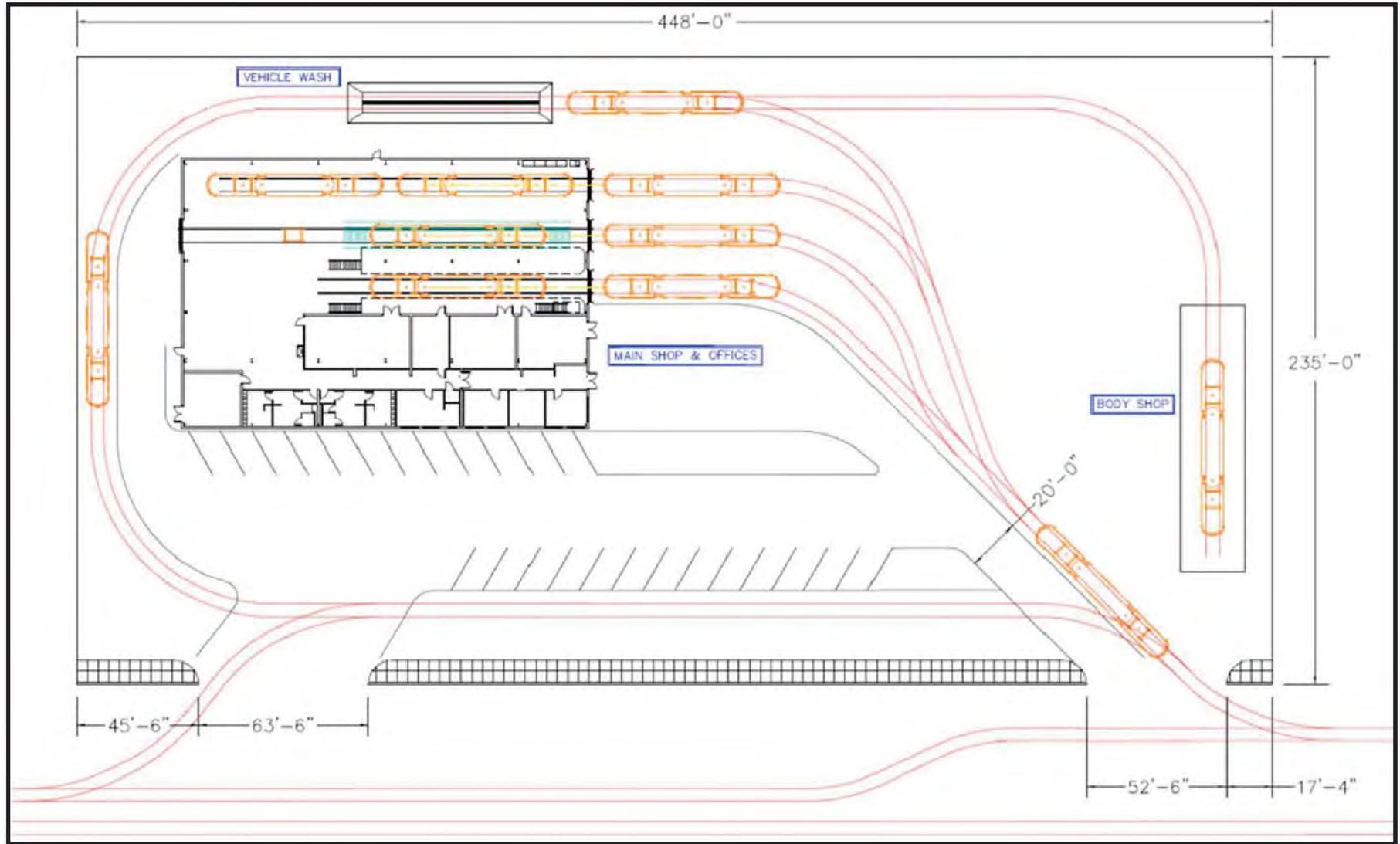
Operations and Maintenance Facility Site B - Location and Configuration



Source: Cordoba Corporation, Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study, July 11, 2012.

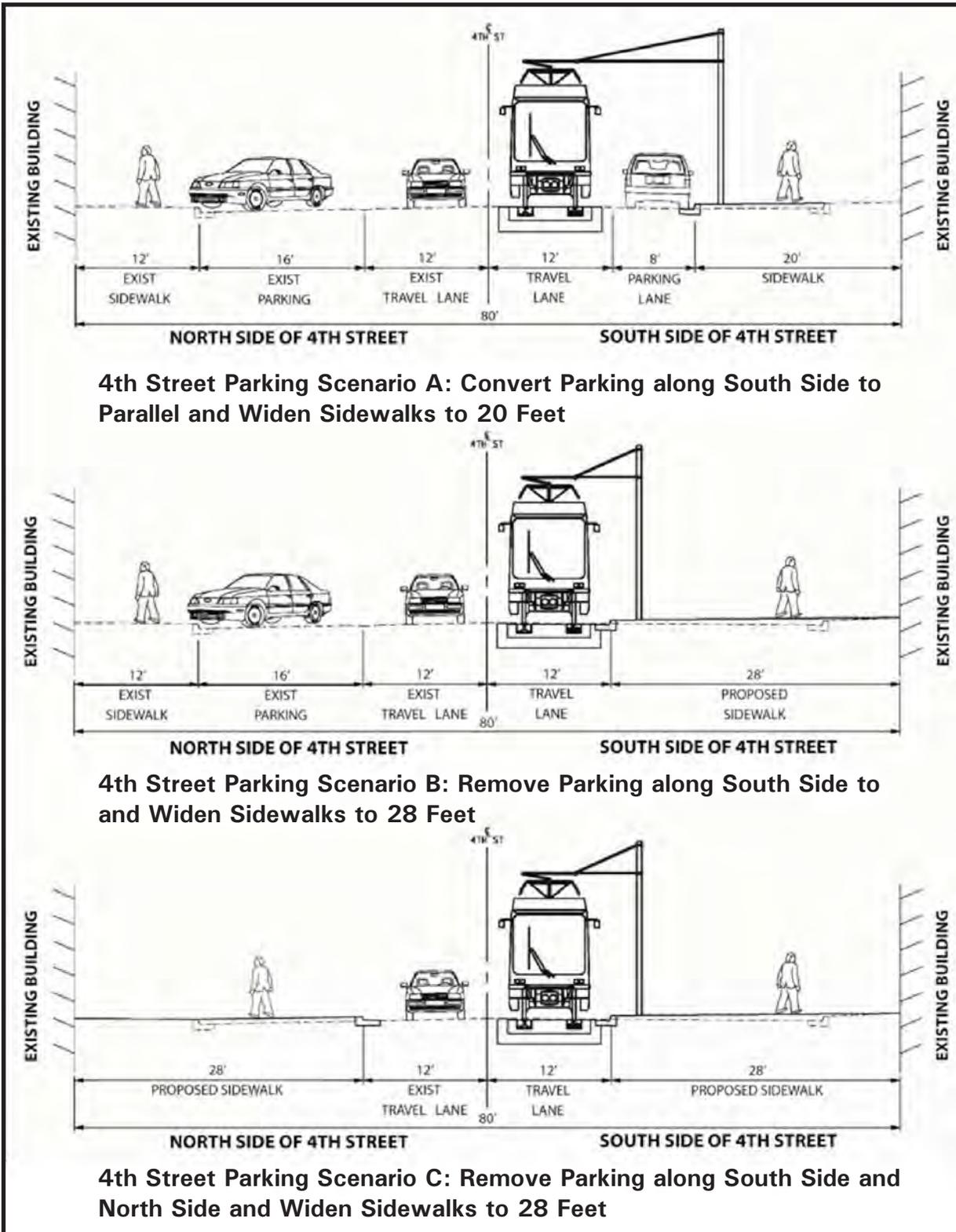


Operations and Maintenance Facility Site B - Concept Layout





4th Street Parking Scenarios



Scenario C: Remove the diagonal parking along both sides of 4<sup>th</sup> Street, between Ross Street and French Street, widen the sidewalks along both sides from 12 feet to 28 feet. In this scenario, only the parking removal and sidewalk widening along the south side would be included in the cost of the project. The City of Santa Ana would pursue alternative funding to construct the improvements to the north side.

## Construction

Construction of either Streetcar Alternative 1 or 2 would take place on a segment-by-segment basis along the streetcar alignment, with the exception of the bridge structures and the O & M Facility. The duration of concentrated construction activities would be no more than six months at one location along the alignment. The construction approach would be the same for Streetcar Alternatives 1 and 2. Construction activities would include, but would not be limited to, site preparation, bridge structure construction, roadway and sidewalk reconstruction, laying streetcar track and embedded trackwork, and construction of an O & M Facility.

Construction hours would generally occur between 7:00 a.m. and 6:00 p.m., Monday through Friday. There are some exceptions, such as nighttime construction, where temporary street lane closures and utility work would be required. Project construction would follow the applicable local, State, and federal laws for building and safety. In addition, standard conditions would be included in project construction contracts to ensure consistency with applicable laws for traffic, noise, vibration, and dust control.

The following description summarizes the construction approach and methods that have been defined for the project at this preliminary stage of conceptual design:

- In general, all construction of tracks would be within the existing PE ROW, existing streets, or proposed future streets;
- Construction of the O & M Facility would be within one of the designated sites along the alignment, as defined in the project description as O & M Facility Sites A and B;
- The construction period is anticipated to be approximately 30 months, with major activities to be completed within the first 24-month period;
- It is anticipated that the construction activities would be staged and sequenced based on location and types of construction. The likely staging of the proposed project would include four to five segments to allow for construction crews to work in sequence, moving one team to a new location, while the next team takes over the next set of activities; and
- Two potential areas are identified as construction staging and track laydown areas:
  - The east end of the PE ROW at Raitt Street would be used as a temporary construction and welding plant and material storage sites. This location would serve as the midpoint of distribution to both east and west directions of the alignment. The welding plant would be a combined operation of flash butt welding and laydown storage to produce designated length of rail ribbons to be dragged or truck-hauled into position for embedment or attachment to ties; and

- The second area is identified as land owned by the City of Santa Ana, located at the corner of 6<sup>th</sup> and Santiago Streets. Some special trackwork and pre-curved rails could be stored at this location;
- Construction of the proposed project would require the relocation of one catch basin under Alternative 2 at Flower Street and Civic Center Drive in addition to the installations of approximately 50 new catch basins to improve drainage along the alignment.

**Construction Scenario**

The project would use conventional construction techniques and equipment typical to the Southern California region and follow all applicable federal, State, and local laws for building and safety. Working hours would be varied to meet special circumstances and restrictions. Customary local practices consistent with all applicable laws would be used to control traffic, noise, vibration, erosion, and dust during construction. Design and construction would include mitigation commitments. Generally, construction would be divided into a series of often overlapping activities to minimize the construction duration and associated impacts. **Table A-4** depicts a typical construction activities sequencing for an LRT project of similar scope and complexity.

<b>TABLE A-4: TYPICAL CONSTRUCTION SEQUENCE AND AVERAGE CONSTRUCTION TIME</b>		
<b>Activity/a/</b>	<b>Tasks</b>	<b>Average Time Required (months)</b>
Preconstruction	Locate utilities; establish right-of-way and project control points and centerlines; establish and relocate survey monuments	2 – 4
Site Preparation	Establish environmental controls and install soil and erosion-control measures; relocate utilities and clear and grub right-of-way (demolition); establish detours and haul routes; erect safety devices and mobilize special construction equipment; prepare construction equipment yards, and stockpile materials	3 – 6
Heavy Construction	Construct aerial structure, retaining walls, trackbed drainage, at-grade guideway, soil stabilization, pile caps/foundations, abutments, bents, and dispose of excess material	12 – 16
Medium Construction	Lay track, construct stations, install off-site drainage, and construct elevated station enclosures	6 – 12
Light Construction	Finish work, install systems elements (electrical, signals, and communication), street lighting where applicable, traffic signals, signing and striping, landscaping, close/remove detours, and clean up and test system	3 – 9
Pre-Revenue Service	Test vehicles, power, communication, signaling, train operators and maintenance personnel	1 – 3

/a/ Some of these activities would be conducted in parallel.

Source: Terry A. Hayes Associates Inc., 2012.

- Some profile grade leveling, clearing, and grubbing of the PE ROW would take place during the early stages to establish grade for the ballast track sections. The duration of this activity would be two to three months;

Construction equipment would include graders, bulldozers, cranes, drill rigs, excavators, concrete-batching equipment, pumping equipment, concrete trucks, flat bed trucks, dump trucks, and rail-mounted equipment. While the final construction approach, including methods, staging, and sequencing coordination, will be determined in detail with the construction contractor, who has yet to be selected, the following describes the likely sequencing of the major construction activities. It should be noted that most of these activities overlap.

- Early work activities would include relocation of some of the private and public underground utilities identified as being in conflict with the track alignment;
- Work on the new bridge structure at Westminster Avenue and for the new Santa Ana River bridge structure would also begin early in the construction period;
- Demolition and clearing of the selected O & M Facility site would begin in the early phase of construction in order to be available for receipt and testing of the vehicles. Construction of the maintenance facility yard would also likely commence at this time;
- Prior to initiating work on the ballast track, overhead contact wire pole foundations and station foundations would be constructed to grade level. In addition, structure approach slabs, underground utilities, or subsurface structures would be constructed prior to the laying of the ballasted sections;
- Track construction would begin next for the in-street and the non-structure ballasted sections of the streetcar trackway. The steps would involve setting up the reinforcement for the concrete slab, placing the rail, boots, and ties and finally pouring track slab concrete. The following construction activities would also occur during the same 24-month timeframe as track construction:
  - Preparation for substation sites and installation of conduits, grounding mats, and substation foundations.
  - Track construction activity, including installation of special trackwork, field welds, installation of insulated joints and other special trackwork material.
  - Sidewalk improvements, platforms, pavement grading and resurfacing to the limits of the project between Raitt Street and SARTC.
  - Foundation work for new traffic signal, lighting, and overhead contact wire poles.
  - Roadway grinding and overlay operations beginning at Raitt Street and advancing eastward along the alignment; and
- The final steps of the construction work would include pavement striping, reestablishing ROW temporarily impacted by construction, landscaping, system testing, lining and surfacing of the ballasted track, and other miscellaneous finishing.

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