Santa Ana-Garden Grove Fixed Guideway Corridor

Appendix F

Cultural Resources Evaluation Report

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Santa Ana and Garden Grove Fixed Guideway Corridor

CULTURAL RESOURCES EVALUATION REPORT

DECEMBER 2013

CORDOBA CORPORATION

OCTA

DOWNTOWN ORANGE COUNTY SANTA ANA

GARDEN GROVE

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List of Abbreviations

ACHP	Advisory Council on Historic Preservation
APE	Area of Potential Effect
APN	Assessor Parcel Numbers
BRT	Bus Rapid Transit
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
CHL	California Historical Landmarks
CHRIS	California Historical Resources Information System
CPHI	California Points of Historical Interest
CPRC	California Public Resources Code
CRHR	California Register of Historical Resources
DPR	California Department of Parks and Recreation
EAs	Environmental Assessments
EIRs	Environmental Impact Reports
EISs	Environmental Impact Statements
FTA	Federal Transit Administration
HABS	National Parks Service Historic American Building Survey
HAER	Historic American Engineering Record
IOS	Initial Operable Segment
ISs	Initial Studies
LOSSAN	Los Angeles-San Diego-San Luis Obispo
NADB	National Archaeological Database
NAHC	Native American Heritage Commission
NEPA	National Environmental Policy Act of 1969
NHL	National Historic Landmarks
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
O & M	Operations and Maintenance
OCS	Overhead Contact System
OCTA	Orange County Transportation Authority
PRC	Public Resources Code
RCPG	Regional Comprehensive Plan and Guide
ROW	Right-of-way
RTP	Regional Transportation Plan
SA-GG	Santa Ana-Garden Grove
SARHP	Santa Ana Register of Historic Properties
SARTC	Santa Ana Regional Transportation Center
SCAG	Southern California Association of Governments
SCCIC	South Central Coastal Information Center

List of Abbreviations

Section 106	36 CFR Part 800 "Protection of Historic Properties"
SHPO	State Historic Preservation Office
SOI	Secretary of the Interior
TCPs	Traditional Cultural Properties and Resources
TPSS	Traction Power Substation
TSM	Transportation Systems Management
USGS	U.S. Geological Survey
YMCA	Young Men's Christian Association

Executive Summary

The Santa Ana-Garden Grove (SA-GG) Fixed Guideway Project is located in the Cities of Santa Ana and Garden Grove, in Orange County, California. It consists of the construction and operation of a 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 and includes an area within the former Pacific Electric Right-of-Way (PE ROW).

This document is intended to comply with the National Historic Preservation Act of 1966 (NHPA), codified under 36 CFR 800. This document was also prepared in accordance with Section 15064.5(a)(2)-(3) of the California Environmental Quality Act (CEQA) Guidelines using the criteria outlined in Section 5024.1 of the California Public Resources Code (CPRC).

The conceptual design process for the proposed project identified four project alternatives to be further evaluated in greater detail as part of the environmental studies to assess ridership potential, identify operational issues, estimate capital and operating costs, gauge land use and economic development impacts, and detect traffic operational issues. The four alternatives include the No Build and Transportation Systems Management (TSM) Alternatives, and two streetcar alignment alternatives, known as Streetcar Alternatives 1 and 2, respectively. As part of a modern streetcar transit system, the system in each of the two proposed alignments will include:

- Trackwork, station stops, a walkway, Overhead Contact System (OCS), and traction power substations (TPSS) sites
- Gate crossings, raised medians, curb closures, removed trees, and new traffic signals
- Operations and Maintenance (O & M) facility (two alternate locations presently identified)
- Overhead grade separation (i.e., transit bridge)
- Staging and construction areas
- Selected intelligent transportation strategies (advanced information systems) to foster transit use and enhance pedestrian safety
- Several building and structure removals/acquisitions and right-of-way (ROW) impacts;
- Parking Structure and "Park-and-Ride"
- Amenities and support facilities at station stops to facilitate bicycle and pedestrian connections and to enhance personal security and safety

Both of the proposed alignments will operate at-grade, with exception of the elevated option at the western project terminus. For the western half of the alignment between Harbor Boulevard and Raitt Street (within the PE ROW), streetcars would operate on tracks dedicated exclusively for streetcar use. For the eastern half of the alignment that is located between Raitt Street and SARTC, streetcars would operate in mixed flow traffic on tracks embedded within existing city streets. Exhibit A-1 includes the current engineering drawings for each alternative.

Due to funding constraints, it may be necessary to construct Initial Operable Segments (IOS) in lieu of the full streetcar alternatives. These shortened segments of Streetcar 1 and 2 have been identified as IOS-1 (termini at Raitt Street and SARTC) and IOS-2 (termini at Raitt Street and SARTC), which follow the same alignment as Streetcar Alternatives 1 and 2 respectively. However, IOS-1 and IOS-2 terminate at Raitt Street and Santa Ana Boulevard.

As part of the proposed project, a maximum of 19 parcels will be acquired, partially acquired, and/or have building removals depending on the alternative and design options chosen.

Overall, the area is characterized by dense urban development within the Cities of Santa Ana and Garden Grove. The Study Area is shown on the USGS 7.5-Minute Anaheim, Orange, Tustin, and Newport Beach Quadrangles (United States Geological Survey [USGS] 1964-1965). The western terminus of the proposed project is at UTM 11S 414807 mE/ 3736009 mN, Section 3 of Township 5 South, Range 10 West (S.B.B.M). The eastern terminus is at UTM 11S 420629 mE/ 3734896 mN, Section 7 of Township 5 South, Range 9 West (S.B.B.M). A project map and a vicinity map are located in Exhibit A-2 with the preliminary Area of Potential Effect (APE) Maps.

The proposed project-specific APE was delineated to ensure identification of significant architectural history and archaeological resources that may be directly or indirectly affected by the proposed project, and are listed as being in, or eligible for, inclusion in, the National Register of Historic Places (NRHP) and/or California Register of Historical Resources (CRHR), or considered historical resources for purposes of CEQA. The APE was established through initial consultation with personnel from the Federal Transit Administration (FTA), the Cities of Santa Ana and Garden Grove, and the Orange County Transportation Authority (OCTA), using methodologies consistent with those of previous FTA projects, information and data obtained from the South Central Coastal Information Center (SCCIC), agency records (e.g., City of Santa Ana Office of Historic Resources, Orange County Assessor), historical research (e.g., Sanborn Fire Insurance Maps), and field surveys.

The APE for both archaeology and architectural history encompasses the maximum footprint for construction, ground-disturbance, and grading, and generally extends one parcel past the limits of the above-ground project improvements, and/or direct impacts for the TPSS sites, gated crossings, tree removal areas, maintenance facilities, transit structures, raised medians, staging areas, property acquisitions, and ROW impacts. The APE also includes previously recorded cultural resources located adjacent to the above-ground project improvements and direct impact areas.

In addition, the APE includes parcels adjacent to the proposed project footprint as part of the architectural history field surveys for properties that may be potentially indirectly affected by visual, audible, or atmospheric intrusions; shadow effects; vibrations from construction activities; or change in access or use. These areas of the APE would not be physically demolished, destroyed, relocated/removed, materially altered, or impacted from neglect or deterioration as a result of this project. While the APE may extend one parcel in certain areas, the archaeological survey areas were limited to the maximum footprint for construction. The

archaeological survey did not entail entering private properties that would not be directly affected by the proposed project.

The proposed project would occur almost entirely within the street and PE ROW, which have been previously disturbed with pavement, utility lines and a previous rail line. Within the street ROW, construction would require a depth of approximately 18 inches below ground surface for excavation to place foundation material and lay track. Within the PE ROW, a similar or less depth of excavation would occur as the tracks would be placed on ballasts. Additional depth of excavation would be required for utility relocations and the installation of catenary poles at a depth of five feet or less, but this would not likely encounter substantial amounts of previously undisturbed soil. Additional ROW required for the bicycle lane and street modifications would occur on previously disturbed soil and would not exceed the depths described above. Due to the proximity of the existing historic railroad bridge to the proposed bridge over the Santa Ana River, the foundation for the new bridge would be a pile cap supported by driven steel piles. The proximity of the two bridge structures would make the use of cast in place, drilled hole piles infeasible because the necessary equipment (drill rig, cranes and pile driver) to place the piles would be too constrained by the existing historic bridge. The use of steel piles allows for shorter piles that are installed with smaller equipment. The pile cap would be within the five foot depth described above and would be no deeper than the ground disturbed when the channel was originally constructed. Similarly, the abutments for this bridge would be built into the levees, so ground disturbance would be limited to areas previously disturbed. In addition, the foundation for the bridge over Westminster Avenue, which would occur within the previously disturbed street ROW, would have similar constraints to the Santa Ana River and the abutments would be constructed above grade. A small trench area in the maintenance facility for the pit to service street cars may require excavation to a depth of ten feet. Therefore, the vertical APE for these areas described above would be limited to five feet below the ground surface and ten feet at the maintenance facility site.

As part of the proposed project, and research conducted herein, contacts were made with knowledgeable individuals, interested parties, and organizations. Specifically, the Santa Ana Historical Preservation Society, the Santa Ana Public Library History Room, the Orange County Historical Society, the Garden Grove Historical Society, and the City of Santa Ana Planning Division, were each contacted. Copies of correspondence with the above contacts are included Exhibit A-3, and copies of relevant historic research, including maps and images, are included in Exhibit A-6.

On June 6, 2011, a records search was completed at the SCCIC at California State University, Fullerton, through the California Historical Resources Information System (CHRIS) cultural resources database for relevant previously recorded cultural resources and previous investigations completed for the APE and a quarter-mile search radius (i.e., half-mile record search area).

The SCCIC records search indicated 66 previously conducted investigations occurred within the quarter-mile search radius of the APE. A review of the records at the SCCIC indicates that there

are 79 previously recorded cultural resources within a quarter-mile search radius of the APE. Of the 79 previously recorded cultural resources, 24 are located within the APE. As a result of the above records searches, two existing NRHP-listed historic districts have been identified within the APE: the Downtown Santa Ana Historic District (NR 84000438) and the French Park Historic District (NR 99000051).

Based on the background research and historic research, there are seven previously recorded archaeological resources in the APE. These resources were not re-located or re-recorded during field surveys due to limited or restricted access, safety concerns, redevelopment, or data recovery efforts. Many of the redeveloped properties were part of the construction of a federal courthouse and civic complex in the early 1990s, which demolished several downtown blocks.

Within the APE, 68 architectural history resources were recorded and evaluated for eligibility to the NRHP, CRHR, or as historical resources for purposes of CEQA as Map Reference 1 through 68 (See **Table 7-1** in Chapter 7 of this report). The 11 architectural history resources recorded in the western 3rd of the APE are mostly vernacular-style one-story industrial buildings and structures constructed between 1905 and the 1950s, including warehouses, a pair of Quonset huts (MR 2) and the Pacific Electric Santa Ana River Bridge (MR 3). Several small vernacular-style commercial buildings, one- and two-story, which were constructed between 1938 and 1947, and a 1953 Ranch-style residence were also recorded. Of the 53 properties in the eastern 3rd of the APE, which is situated in historic Downtown Santa Ana, 34 are two-part commercial blocks constructed between 1877 and 1924, most with façade renovations in the 1930s and 1950s. There are a smaller number of one-part commercial blocks (seven) constructed between 1877 and 1920 and three-part commercial blocks (three) built in 1923. In addition, the Downtown area contains a theater built in 1915 (MR 17), four churches constructed between 1895 and 1937, a 1901 courthouse, a 1923 YMCA, a 1931 post office, and four residences constructed between 1887 and approximately 1906. The far eastern portion of the APE contains a portion of the 1885 through 1888 Burlington Northern Santa Fe Railway. Architectural styles are diverse, and include vernacular, Ranch, Craftsman, Neoclassical, Spanish Colonial Revival, Art Deco, Queen Anne, and Gothic Revival. There are two NRHP districts within the Study Area: the Downtown Historic District and the French Park Historic District.

Map References 1 through 11 are located in a mixed-use (primarily residential, commercial, and light industrial) area of Santa Ana, surrounded by similar properties. Map References 12 through 68 (commercial, religious, residential, and civic) are located in the densely developed downtown and are surrounded by similar properties. There are no cultural landscapes as defined by NRHP guidance located within the APE. The attached California Department of Parks and Recreation (DPR) 523 forms (Exhibit A-7) provide specific descriptions and evaluations for each of the recorded properties.

Overall, historic research and field survey analysis identified the presence of 53 significant historic properties that were either previously listed or determined eligible for the CRHR and as historical resources for purposes of CEQA within the APE. Forty-six of these 53 historic resources were eligible at the federal level for the NRHP. Forty (40) properties are currently listed on the NRHP,

and one was previously determined to be eligible for the NHRP. Five (5) additional properties were found to be eligible for the NRHP as individual properties as a result of the cultural resources survey and evaluation completed for the Project in 2011 which included a historic context statement and completion of DPR forms 523 A and B. One of the five properties, Bristol Drug Company (Resource No 11), has since been demolished after being evaluated. The significant historic properties located within the APE will not be adversely affected or significantly impacted by the proposed project, under Streetcar Alternatives 1 and 2.

In conclusion, the proposed project is not expected to have an adverse effect on historic properties, inclusive of historic architecture and archaeological resources, under NEPA and Section 106 of the NHPA. Under CEQA, the proposed project is not expected to have a significant impact on archaeological resources. However, given the sensitivity of the area for archaeological resources, archaeological monitoring shall be conducted for earth-disturbing activities that could encounter previously undisturbed soils.

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Chapter 1 Introduction

1.1 Background

In 2008, the Cities of Santa Ana and Garden Grove completed a study that identified the benefits of developing a fixed guideway corridor to link key activity and employment centers in their communities to SARTC. In 2009, the Cities initiated the Alternative Analysis and EA/EIR for the SS-GG Fixed Guideway Project in coordination with OCTA. Funding for the SS-GG Fixed Guideway Project was awarded to the City of Santa Ana in 2008 through OCTA's four-step Go Local Program, which provides competition-based grants to local jurisdictions that have an interest in initiating local transit connections to Metrolink.

1.2 Location and Study Area History

The proposed project is regionally located in central Orange County, California and directly accesses both the Los Angeles-San Diego-San Luis Obispo (LOSSAN) rail corridor and the PE ROW rail corridor. The Study Area is generally bounded by Harbor Boulevard to the west, 17th Street to the north, Grand Avenue to the east, and 1st Street to the south. Santa Ana and Garden Grove are mature, densely populated, and ethnically diverse cities located in the heart of Orange County, California. The City of Santa Ana was incorporated in 1886, and when Orange County was formed in 1889, Santa Ana was selected to be the County seat. Administrative activity increased, newcomers poured in, residential and commercial development surged, and public services began to expand and evolve as the 19th century came to a close. After the turn of the century, the introduction of automobiles, the rise of the oil industry, and the proliferation of utility networks combined to push Santa Ana further from its rural beginnings. It was during this period that the modern Downtown Santa Ana Historic District was first developed. Downtown Santa Ana is bounded by Civic Center Drive on the north, Ross Street on the west, 1st Street on the south, and Spurgeon Street on the east.

Whereas Santa Ana developed rapidly, Garden Grove, its neighbor to the west, had a far more deliberate early development and remained a quiet rural crossroads until the turn of the 20th century.

Several efforts were made to establish a streetcar system in the vicinity of Santa Ana. On November 6, 1905, the first Pacific Electric train arrived in Santa Ana as an extension of local train service in Orange County that had begun in 1904. The Santa Ana-Orange Line operated between the Southern Pacific Santa Ana Station (immediately south of the present day station at the SARTC) and the PE ROW, traveling through Downtown Santa Ana along 4th Street.

1905 also brought the arrival of the Pacific Electric train to the town of Garden Grove. This development sparked a period of significant growth for the community.

Much of the PE ROW that had served the communities from Santa Ana to Los Angeles has been abandoned, and is no longer available for transportation purposes. Within Orange County, the PE ROW is substantially owned by the OCTA, which has preserved the corridor for future transit use while allowing temporary interim uses. The PE ROW alignment runs through the heart of Garden Grove and leads directly into central Santa Ana. The land uses along 4th Street in Downtown Santa Ana were originally built around the Pacific Electric streetcar system.

1.3 Purpose and Structure

This report examines the affected environment and potential impacts of the proposed project related to historical and archaeological (cultural) resources. A discussion of applicable regulatory framework and adopted plans and policies of the communities and jurisdictions affected by the proposed project is followed by an analysis of the impacts of the proposed project on cultural resources.

1.4 Area of Potential Effects (APE)

For the undertaking, a project-specific APE was established in accordance with 36 CFR Part 800.16 (d), which defines an APE as:

> *…the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such properties exist. The area of potential effects is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking.*

The project-specific APE was delineated to ensure identification of significant architectural history and archaeological resources that may be directly or indirectly affected by the proposed Project and are listed in or eligible for inclusion in the National Register of Historic Places (NRHP) and/or California Register of Historical Resources (CRHR), or considered historical resources for purposes of CEQA. The APE was established through initial consultation with personnel from the Federal Transit Administration (FTA), the Cities of Santa Ana and Garden Grove, and OCTA, using methodology consistent with those of previous FTA projects, information and data obtained from the South Central Coastal Information Center (SCCIC), agency records (e.g., City of Santa Ana Office of Historic Resources, Orange County Assessor), historical research (e.g., Sanborn Fire Insurance Maps), and field surveys.

The APE for both archaeology and architectural history encompasses the maximum footprint for construction, ground-disturbance, and grading, and generally extends one parcel past the limits of the above-ground project improvements, and/or direct impacts for the power substations, gated crossings, tree removal areas, maintenance facilities, transit structures, raised medians, staging areas, property acquisitions, and right-of-way impacts. The APE also includes previously recorded cultural resources located adjacent to the above-ground project improvements and direct impact areas.

In addition, the APE includes: parcels adjacent to the Project footprint as part of the architectural history field surveys that may be potentially indirectly affected by visual, audible, or atmospheric intrusions; shadow effects; vibrations from construction activities; or change in access or use. These areas of the APE would not be physically demolished, destroyed, relocated/removed, materially altered, or impacted from neglect or deterioration as a result of this project. For archaeology field surveys, while the APE may extend one parcel in certain areas, the archaeological survey areas were limited to the maximum footprint for construction. The archaeological survey did not enter private properties that would not be directly affected by the proposed Project.

The proposed project would occur almost entirely within the street and PE ROW, which have been previously disturbed with pavement, utility lines and a previous rail line. Within the street ROW, construction would require a depth of approximately 18 inches below ground surface for excavation to place foundation material and lay track. Within the PE ROW, a similar or less depth of excavation would occur as the tracks would be placed on ballasts. Additional depth of excavation would be required for utility relocations and the installation of catenary poles at a depth of five feet or less, but this would not encounter substantial amounts of previously undisturbed soil. Additional ROW required for the bicycle lane and street modifications would occur on previously disturbed soil and would not exceed the depths described above. Due to the proximity of the existing historic railroad bridge to the proposed bridge over the Santa Ana River, the foundation for the new bridge would be a pile cap supported by driven steel piles. The proximity of the two bridge structures would make the use of cast in place, drilled hole piles infeasible because the necessary equipment (drill rig, cranes and pile driver) to place the piles would be too constrained by the existing historic bridge. The use of steel piles allows for shorter piles that are installed with smaller equipment. The pile cap would be within the five foot depth described above and would be no deeper than the ground disturbed when the channel was originally constructed. Similarly, the abutments for this bridge would be built into the levees, so ground disturbance would be limited to areas previously disturbed. In addition, the foundation for the bridge over Westminster Avenue, which would occur within the previously disturbed street ROW, would have similar constraints to the Santa Ana River and the abutments would be constructed above grade. A small trench area in the maintenance facility for the pit to service street cars may require excavation to a depth of ten feet. Therefore, the vertical APE for these areas described above would be limited to five feet below the ground surface and ten feet at the maintenance facility site. For parcels that contain entire complexes or rows of structures, only the front row of structures is included in the APE. The APE generally does not consider properties set far back from the edge/boundary of their parcel (e.g., where there is a sliver impact); entire complexes or rows of structures on a parcel or multiple parcels (e.g., shopping center); properties elevated high above the alignment due to topographic features; surface parking lots or vacant undeveloped parcels; and, properties separated from the proposed Project improvements by frontage roads or large retaining/sound barrier walls or fences. Very large linear properties were not identified or evaluated beyond the area reasonably subject to effects from the proposed Project. Rather, the identification and evaluation of these linear properties within the APE considered whether the segment in the APE would be a contributor or non-contributor

to a larger significant property as a whole (should that larger property ever be determined eligible for inclusion to the National Register and California Register, and for purposes of CEQA).

In areas where the Project would be contained within the right-of-way, the APE generally did not consider adjacent properties and would be limited to the existing roadway. At the east end of the proposed Project, however, there are two National Register-listed historic districts – the Downtown Santa Ana Historic District (NR 84000438) and the French Park Historic District (NR 990000551) – and the APE takes into account the portions of those districts adjacent and within the proposed Project Area, though the proposed Project is primarily located within the right-of-way. Further, the APE was not extended one parcel past the platform areas, since the platforms are expected to be built less than three inches higher than the existing sidewalk or grade, and this would not create a noticeable difference from the current conditions. The platform areas are expected to look similar to existing bus stop vestibules, and therefore would have a minimal visual intrusion to the surrounding area.

In accordance with 36 CFR Part 800.3, FTA, and in coordination with the City of Santa Ana, FTA initiated the Section 106 process with the State Historic Preservation Office (SHPO) personnel on July 13, 2011, via a notification letter. The notification letter detailed the Project need, description and alternatives, proposed APE and its delineation methodology, consultation coordination, and scoping efforts to date. On October 10, 2011, FTA sent SHPO a letter requesting concurrence with the proposed APE. The letter indicated that SHPO concurrence would be assumed unless SHPO provided comments to the contrary to FTA within 30 days. Given that no comments were received from SHPO within that time period, SHPO concurrence with the APE was assumed. It should be noted that, in a subsequent meeting with representatives from the City of Santa Ana and its environmental consultant on December 6, 2011, Amanda Blosser of SHPO provided verbal confirmation that SHPO concurred with the APE. Copies of correspondence and the APE maps are included in Exhibit A-2. The preliminary APE maps were delineated on aerial-based maps at a scale of one inch equals 200 feet, and depict the following:

- Project improvement boundaries inclusive of the project features identified in Section 1.1 (e.g., walkways, platforms, alternate maintenance facility locations);
- Potential property takes, building removals, and right-of-way impacts, including areas which may be used as construction staging areas, station portals, and construction areas;
- Stations, alignment, and options delineated and identified by name;
- APE Boundaries;
- Assessor Parcel Number for parcels within the APE (per City of Santa Ana records [June 2011]);
- Built Year (per City of Santa Ana records [June 2011]) for parcels within the APE and immediately outside of the APE; and
- Location and boundaries of previously identified and newly identified historic properties in the APE.

1.5 Laws, Ordinances, Regulations, and Standards

The following federal, State, and local laws, regulations, and agency jurisdiction and management guidance apply to cultural resources. Key cultural resources regulations that are most relevant to the proposed Project are summarized below.

1.5.1 Federal

National Environmental Policy Act [42 U.S.C. Section 4321 et seq.]

NEPA requires the consideration of potential environmental impacts, including potential impacts to cultural resources, in the evaluation of any proposed federal agency action. This includes consideration of unique characteristics of the geographic area, such as proximity to cultural resources and the degree to which the action may adversely affect buildings, structures, districts, sites, or objects listed in, or eligible for listing, in the National Register of Historic Places (NRHP).

The NEPA regulations also require that to the fullest extent possible, agencies prepare draft environmental impact statements concurrently with, and integrated with, environmental impact analyses and related surveys and studies required by the National Historic Preservation Act (NHPA), which under Section 106 requires federal agencies to consider the impacts of their actions on historic properties.

National Historic Preservation Act (NHPA) [16 U.S.C. Section 470 et seq.]

The NHPA establishes the federal government policy on historic preservation and the programs – including the NRHP – through which this policy is implemented. Under the NHPA, significant cultural resources, referred to as historic properties, include any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the NRHP. Historic properties also include resources determined to be National Historic Landmarks (NHL). National Historic Landmarks are nationally significant historic places designated by the Secretary of the Interior (SOI) because they possess exceptional value or quality in illustrating or interpreting United States heritage. A property is considered historically significant if it meets one of the NRHP criteria and retains sufficient historic integrity to convey its significance. This act also established the Advisory Council on Historic Preservation (ACHP), an independent agency responsible for implementing Section 106 of NHPA by developing procedures to protect cultural resources included in, or eligible for inclusion in, the NRHP. Regulations are published in 36 CFR Part 60 and 63, and 36 CFR Part 800.

36 CFR Part 800, Implementing Regulations, Section 106 National Historic Preservation Act

Section 106 requires that effects on historic properties be taken into consideration in any federal undertaking. The process contains five steps: (1) initiating Section 106 process; (2) identifying historic properties; (3) assessing adverse effects; (4) resolving adverse effects, and (5) implementing stipulations in an agreement document.

Section 106 affords the ACHP and the State Historic Preservation Officer (SHPO) a reasonable opportunity to comment on any undertaking that would adversely affect historic properties eligible for NRHP listing. State Historic Preservation Officers administer the national historic preservation program at the State level, review National Register of Historic Places nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with federal agencies during Section 106 review. Section 101(d)(6)(A) of the NHPA allows properties of traditional religious and cultural importance to a Native American tribe to be determined eligible for NRHP inclusion.

Historic properties are defined as prehistoric and historic sites, buildings, structures, districts, and objects included in, or eligible for inclusion in the NRHP, as well as artifacts, records, and remains related to such properties (NHPA Section 301[5]). Under 36 CFR Section Part 800.3, Section 106 of the NHPA requires federal agencies to consult with the SHPO in a manner appropriate to the agency planning process for the undertaking and to the nature of the undertaking and its effects to historic properties. As part of the Section 106 process, agency officials apply the NRHP eligibility criterion to a potential historic property. Under 36 CFR Section Part 60.4, historic properties may be eligible for nomination to the NRHP if they "… possess integrity of location, design, setting, materials, workmanship, feeling and association…" and if they meet at least one of the following criteria:

- Are associated with events that have made a significant contribution to the broad patterns of our history;
- Are associated with the lives of persons significant in our past;
- Embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- Have yielded, or may be likely to yield, information important in prehistory or history

An undertaking is considered to have an adverse effect to a historic property if the undertaking may alter, directly or indirectly, characteristics of a historic property that may qualify the property for inclusion in the NRHP in a manner that would diminish its aspects of historic integrity (36 CFR Section Part 800.5).

Traditional Cultural Properties and Resources (TCPs) [National Register Bulletin 38]

Traditional Cultural Properties and Resources (TCPs) are places associated with the cultural practices or beliefs of a living community that are rooted in that community's history. These play an important role in maintaining the community's cultural identity.

Examples of TCPs for Native American communities include locations associated with the traditional beliefs of a Native American group about its origins, its cultural history, or the nature of the world or locations where Native American religious practitioners have historically gone, and are known or thought to go today, to perform ceremonial activities in accordance with

traditional cultural rules of practice. Examples of TCPs for the larger community include, but are not limited to,

- Any place where people practice a ritual activity or festival;
- Any place where something happened that is of significance to a group or community and is referred to in stories; or
- Any place that is a vital and beloved part of the community and that may give the community a special identity or defining character.

Archaeological and Historic Preservation Act [16 U.S.C. Sections 469 to 469(c)-2]

This act provides for preserving significant historic or archaeological data that may otherwise be irreparably lost or destroyed by construction of a project by a federal agency or under federally-licensed activity or program. This includes relics and specimens.

1.5.2 State

California Environmental Quality Act (CEQA)

CEQA Guidelines Section 15064.5 provides specific guidance for determining the significance of impacts on historic and unique archaeological resources. Under CEQA, these resources are called historical resources whether they are of historic or prehistoric age. Historical resources are listed, or eligible for listing, in the California Register of Historical Resources (CRHR), or those listed in the historical register of a local jurisdiction (county or city). NRHP historic properties located in California are considered historical resources for the purposes of CEQA and are also listed in the CRHR. The CRHR criteria for listing such resources are based on, and are very similar to, the NRHP criteria. CEQA (Public Resources Code) Section 21084.1 requires a finding of substantial adverse changes to historical resources and defines the term "historical resources." CEQA (Public Resources Code) Section 21083.2 and CEQA Guidelines Section 15064.5(c) provide further definitions and guidance for archaeological sites and their treatment.

Section 15064.5 also prescribes a process and procedures for addressing the existence of, or probable likelihood, of Native American human remains, as well as the accidental discovery of any human remains within the proposed project. This includes consultations with appropriate Native Americans.

Generally, under CEQA, a historical resource (these include historic architecture and historic and prehistoric archaeological resources) is considered significant if it meets the criteria for listing on the CRHR.

These criteria are set forth in Section 15064.5, and are defined as any resource that:

- "…is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage; or
- is associated with lives of persons important in our past; or

- embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possesses high artistic values; or
- has yielded, or may be likely to yield, information important in prehistory or history."

CEQA Section 15064.5 also assigns special importance to human remains and specifies procedures to be used when Native American remains are discovered. These procedures are detailed under PRC 5097.98.

Impacts to "unique archaeological resources" are also considered under CEQA, as described under PRC 21083.2. A unique archaeological resource implies an archaeological artifact, object, or site about which it can be clearly demonstrated that - without merely adding to the current body of knowledge - there is a high probability that it meets one of the following criteria:

- "…the archaeological artifact, object, or site contains information needed to answer important scientific questions and there is a demonstrable public interest in that information; or
- the archaeological artifact, object, or site has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
- the archaeological artifact, object, or site is directly associated with a scientifically-recognized important prehistoric or historic event or person."

A non-unique archaeological resource indicates an archaeological artifact, object, or site that does not meet the above criteria. Impacts to non-unique archaeological resources and resources that do not qualify for listing on the CRHR receive no further consideration under CEQA.

In many cases, determination of a resource's eligibility to the CRHR (or its uniqueness) can be made only through extensive research. As such, the best alternative to preserve historical resources is the "No Action" or "No Project" alternative. However, because this alternative is not always feasible, any project should consider alternatives or mitigation measures to lessen the effects to these resources. Where possible, to the maximum extent possible, impacts to resources should be avoided. If, as the project proceeds, it proves impossible to avoid cultural resources, formal eligibility evaluation will be undertaken. If the resource meets the criteria of eligibility to the CRHR, it will be formally addressed under CEQA Sections 15064.5 and 15126.4.

Under CEQA, a project potentially would have significant impacts if it would cause substantial adverse change in the significance of a historical resource (i.e., a cultural resource eligible for CRHR, or archaeological resource defined as a unique archaeological resource which does not meet CRHR criteria), or would disturb human remains.

In considering impact significance under CEQA, the significance of the resource itself must first be determined. At the State level, consideration of significance as an "important archaeological resource" is measured by cultural resource provisions considered under CEQA Sections 15064.5 and 15126.4, and the draft criteria regarding resource eligibility to the CRHR.

California Native American Graves Protection and Repatriation Act (California Health & Safety Code Section 8010 et seq.)

The California Native American Graves Protection and Repatriation Act establishes a State repatriation policy consistent with, and facilitates implementation of, the federal Native American Graves Protection and Repatriation Act. The act strives to ensure that all California Native American human remains and cultural items are treated with dignity and respect, and asserts intent for the State to provide mechanisms for aiding California Native American tribes, including non-federally recognized tribes.

1.5.3 Regional

The Southern California Association of Governments (SCAG) 2012-2035 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS) is used for identifying the transportation priorities of the Southern California region. SCAG RTP policy pertaining to cultural resources within the SCAG region is to encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites and to use historical resource inventories in the planning process.

The County of Orange Municipal Code includes Sec. 2-5-27 for the protection of natural, cultural, structural, and archaeological resources. This code indicates that no person shall possess, destroy, injure, deface, remove, dig, or disturb from its natural state any fossilized or non-fossilized paleontological specimens, cultural or archaeological resources, or the parts thereof in any park, beach or recreational facility. No further municipal codes were available regarding the regulation.

1.5.4 Local

The City of Santa Ana Municipal Code includes Chapter 30 – Places of Historical and Architectural Significance – which provides the definition of significant places and the regulations governing the alteration or demolition of historically and architecturally significant places.

The criterion for designation includes:

1. Buildings, structures or objects with distinguishing characteristics of an architectural style or period, that exemplify a particular architectural style or design features;
2. Works of notable architects, builders, or designers whose style influenced architectural development;
3. Rare buildings, structures, or objects or original designs;
4. Buildings, structures, objects or sites of historical significance which include places:
   - Where important events occurred;
   - Associated with famous people, original settlers, renowned organizations and businesses;
   - Which were originally present when the city was founded; or
   - That served as important centers for political, social, economic, or cultural activity.

5. Sites of archaeological importance;
6. Buildings or structures that were connected with a business or use which was once common, but is now rare.

In addition, Chapter 2, Section 5 of the Santa Ana Municipal Code mandates the formation of a historical resources commission to consider matters with relation to Chapter 30.

The City of Garden Grove Municipal Code and General Plan do not specifically address cultural or archaeological resources.

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Chapter 2 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.

2.1 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 foul-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 2-1** and **2-2** provide the Regional Location and Study Area maps, respectively

2.2 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/17th 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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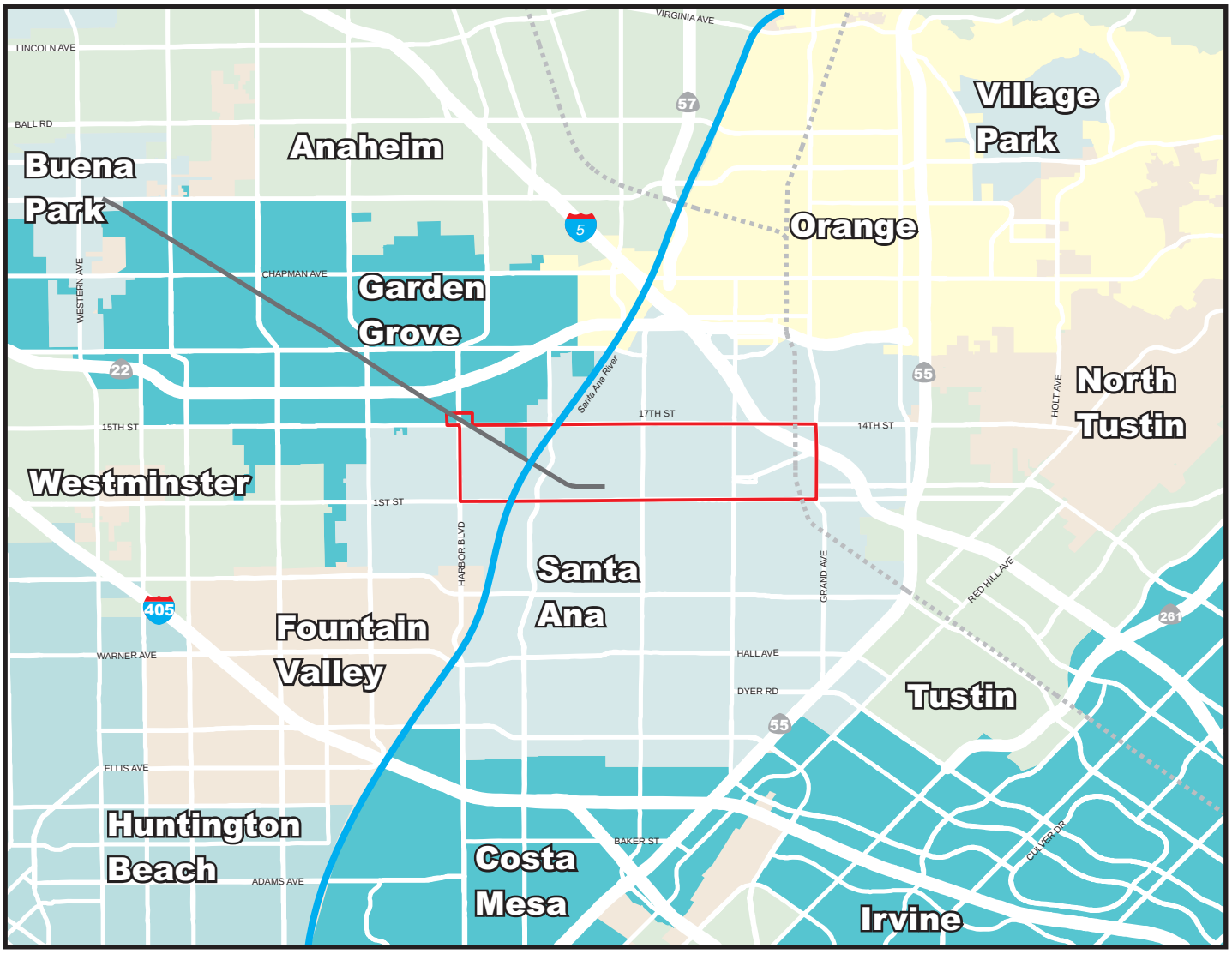
Location Map



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.

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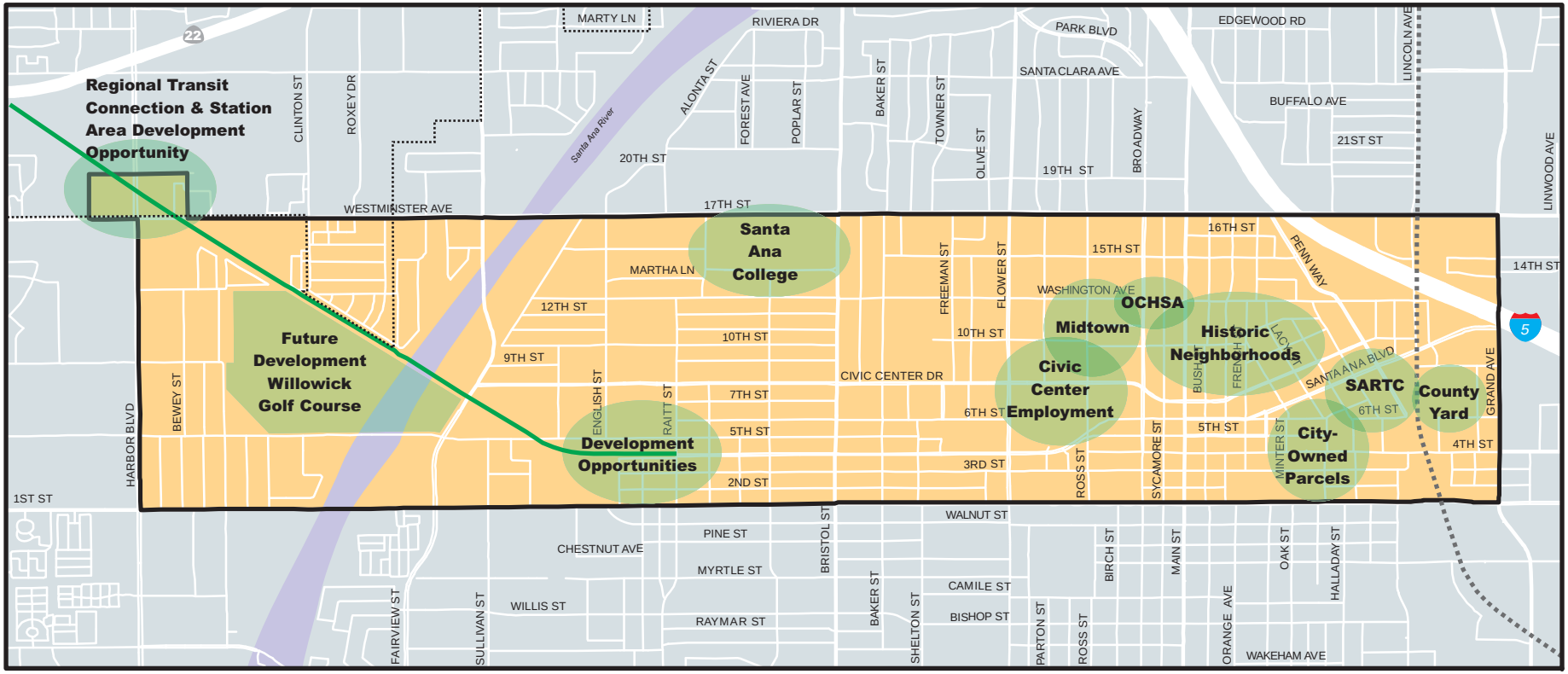
Study Area



LEGEND:

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

NORTH

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.

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

2.3 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 1st 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 17th 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 2-3 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 6th 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

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.

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2.4 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 4th 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 2-1** 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 2-4** provides a conceptual illustration of the alignment for Streetcar Alternative 1 relative to the existing street network within the Study Area.

2.4.1 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 4th Street. For the eastbound transition from Santa Ana Boulevard to 4th Street, a direct route from Santa Ana Boulevard along a public easement on the southern edge of Sasscer Park to 4th Street has been identified in **Figure 2-5**.

2.5 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 5th 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 2-2** provides a summary description of the key physical and operational attributes of Streetcar Alternative 2 (PE ROW with Santa Ana Boulevard and 5th Street/Civic Center Drive Couplet). This table also includes station locations for comparison to station locations for Streetcar Alternative 1 shown in Table 2-1, above. **Figure 2-6** provides a conceptual illustration of the alignment for Streetcar Alternative 2 relative to the existing street network within the Study Area.

2.5.1 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 are along Civic Center Drive. Streetcar Alternative 2 would acquire additional ROW (**Figure 2-7**) in order not to preclude the westbound bike lane.

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TABLE 2-1: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 1

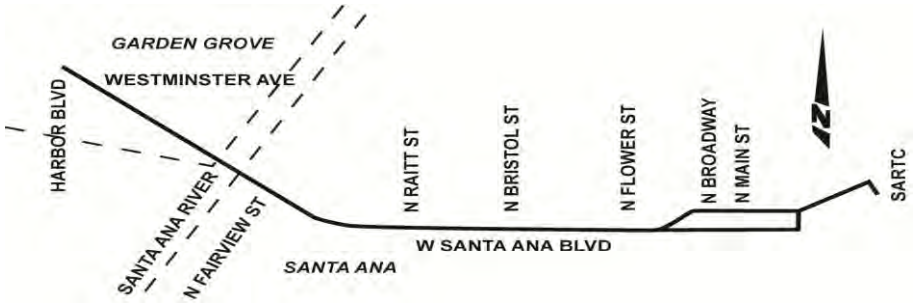
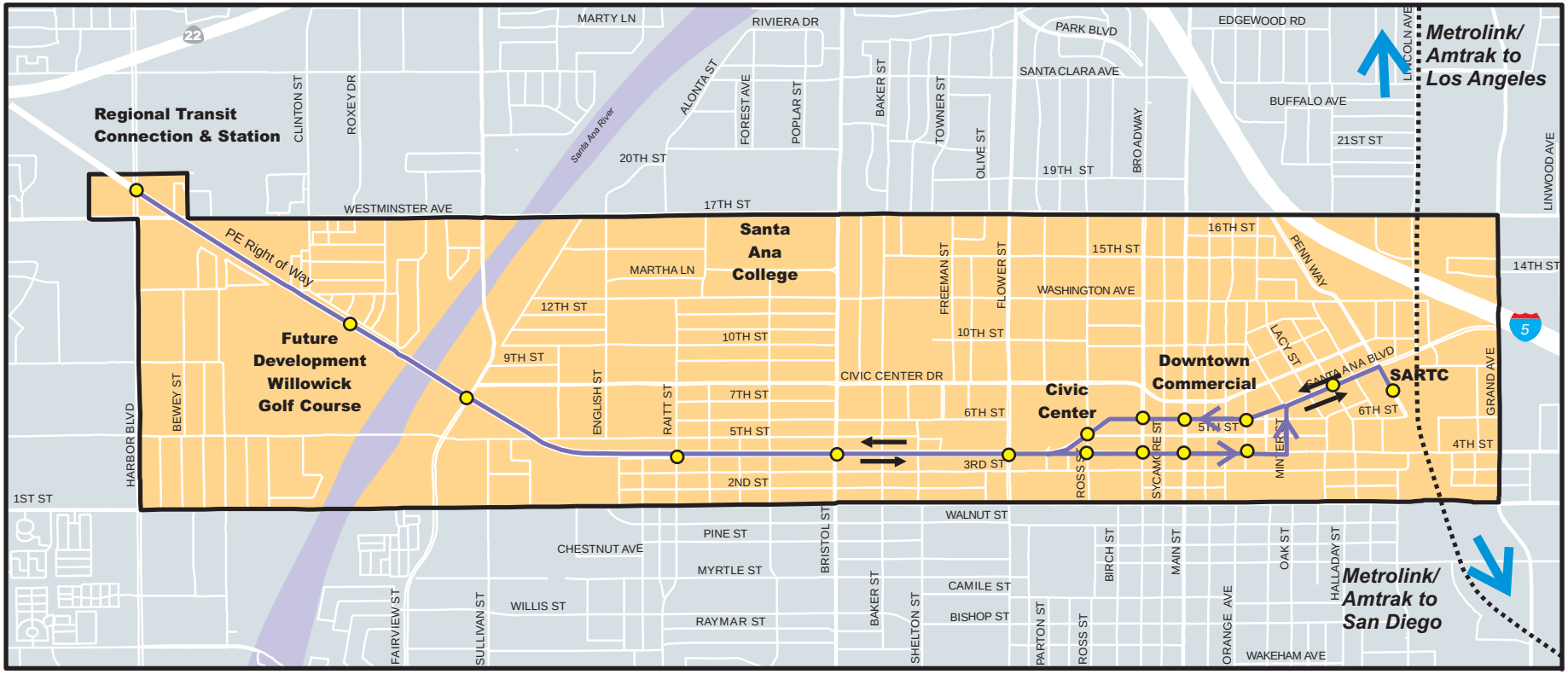
Key Attributes	Descriptions	
Transmit Mode	Streetcar	
Termini	Western Terminus: Harbor Blvd. Eastern Terminus: SARTC	
Alignment Description	<u>Routing by Segment:</u> • PE ROW, from Harbor Blvd. to Raitt St.: streetcars operate at-grade, bi-directionally, in exclusive ROW. • Santa Ana Blvd., from Raitt St. to Ross St.: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic. • 4th 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. • Santa Ana Blvd., from Mortimer St. to SARTC: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic. 	
Length of Alignment	4.1 miles (Harbor Blvd. to SARTC)	
Stations (12 Stations)	<u>Station Locations:</u> 1. Harbor Blvd. and Westminster Ave. 2. Willowick 3. Fairview St. and PE ROW 4. Raitt St. and Santa Ana Blvd. 5. Bristol St. and Santa Ana Blvd. 6. Flower St. and Santa Ana Blvd.	
	Couplet Section (Eastbound) 7E. Sasscer Park 8E. Broadway and 4th St. 9E. Main St. and 4th St. 10E. French St. and 4th St.	*Couplet Section (Westbound)* 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.
	11. Lacy St. and Santa Ana Blvd. 12. SARTC	

TABLE 2-1: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 1	
Key Attributes	**Descriptions**
Design Options Carried Forward	Santa Ana River Crossing: • Adjacent Single Track Bridge Option
	4th Street Parking Scenarios: • Scenario A: South side parallel • Scenario B: South side removal • Scenario C: South side and north side removal
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: • Classic Modern Streetcar (e.g., Portland, Oregon) • CPUC Compliant Streetcar (e.g., San Diego, California)
Power Source	Electric, Overhead Contact System, Traction Power Substations (TPSS) TPSS Locations: a. Northwest of Harbor Boulevard and Westminster Avenue b. Along PE ROW, west of Susan Street c. Along PE ROW, east of Santa Ana River d. North on Santa Ana Boulevard. East of Bristol Street e. North of 5th Street, east of Main Street
Operations and Maintenance Facility Sites	Two Candidate Sites: • Site A: South of SARTC, bordered by 4th St., 6th St., Poinsettia St., and Metrolink tracks. • Site B: West of Raitt St., between the PE ROW and 5th Street
Major Bicycle and Pedestrian Features	• Sidewalk and pedestrian improvements in the vicinity of proposed station platforms. • 4th St.: In conjunction with on-street parking modifications, widen sidewalks on 4th St. between Ross St. and French St.: – Scenario A: On south side by 8 ft. for a total width of 20 ft. – Scenario B: On south side by 16 ft. for a total width of 28 ft. – Scenario C: On both sides by 16 ft. for a total width of 28 ft.

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

Figure 2-4

Streetcar Alternative 1 Alignment



LEGEND:

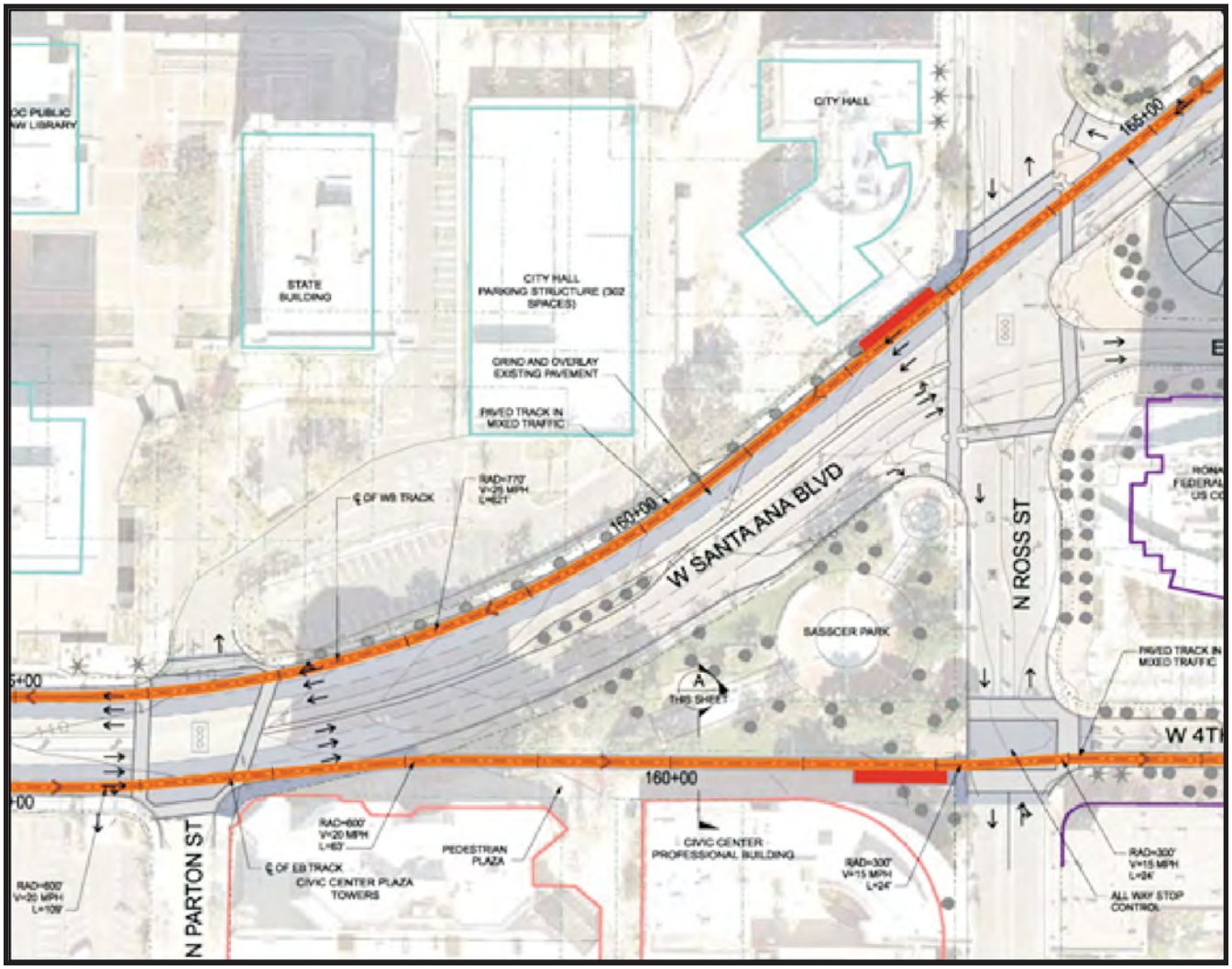
- Study Area
- Proposed Stop
- Streetcar Alternative 1

0 1500 3000 FEET

NORTH

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 2-2: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 2

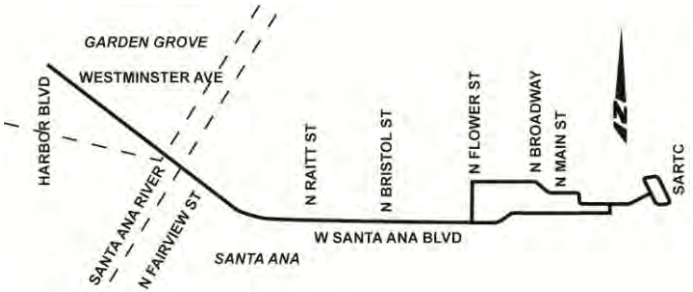
Key Attributes	Descriptions
Transit Mode	Streetcar
Termini	Western Terminus: Harbor Blvd. Eastern Terminus: SARTC
Alignment Description	Routing by Segment: • PE ROW, from Harbor Blvd. to Raitt St.: streetcars operate at-grade, bi-directionally, in exclusive ROW. • Santa Ana Blvd., from Raitt St. to Flower St.: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic. • Santa Ana Blvd./5th 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. • 6th St./Brown St., from Minter St. to Poinsettia St.: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic. • Poinsettia St./Santa Ana Blvd./Santiago St./6th St. (SARTC Loop): streetcars operate in a one-way loop, in the street, at-grade, along with mixed-flow traffic. 
Length of Alignment	4.5 miles (Harbor Boulevard to SARTC)
Stations(13 Stations)	Station Locations: 1. Harbor Blvd. and Westminster Ave. 2. Willowick 3. Fairview St. and PE ROW 4. Raitt St. and Santa Ana Blvd. 5. Bristol St. and Santa Ana Blvd.
	Couplet Section(Eastbound) 6E. Flower St. and Santa Ana Blvd. 7E. ---------- 8E. Ross St. and Santa Ana Blvd. 9E. Broadway and 5th St. 10E. Main St. and 5th St. 11E. French St. and 5th St.
	Couplet Section(Westbound) 6W. Flower St. and 6th 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.
	12. Brown St. and Lacy St.

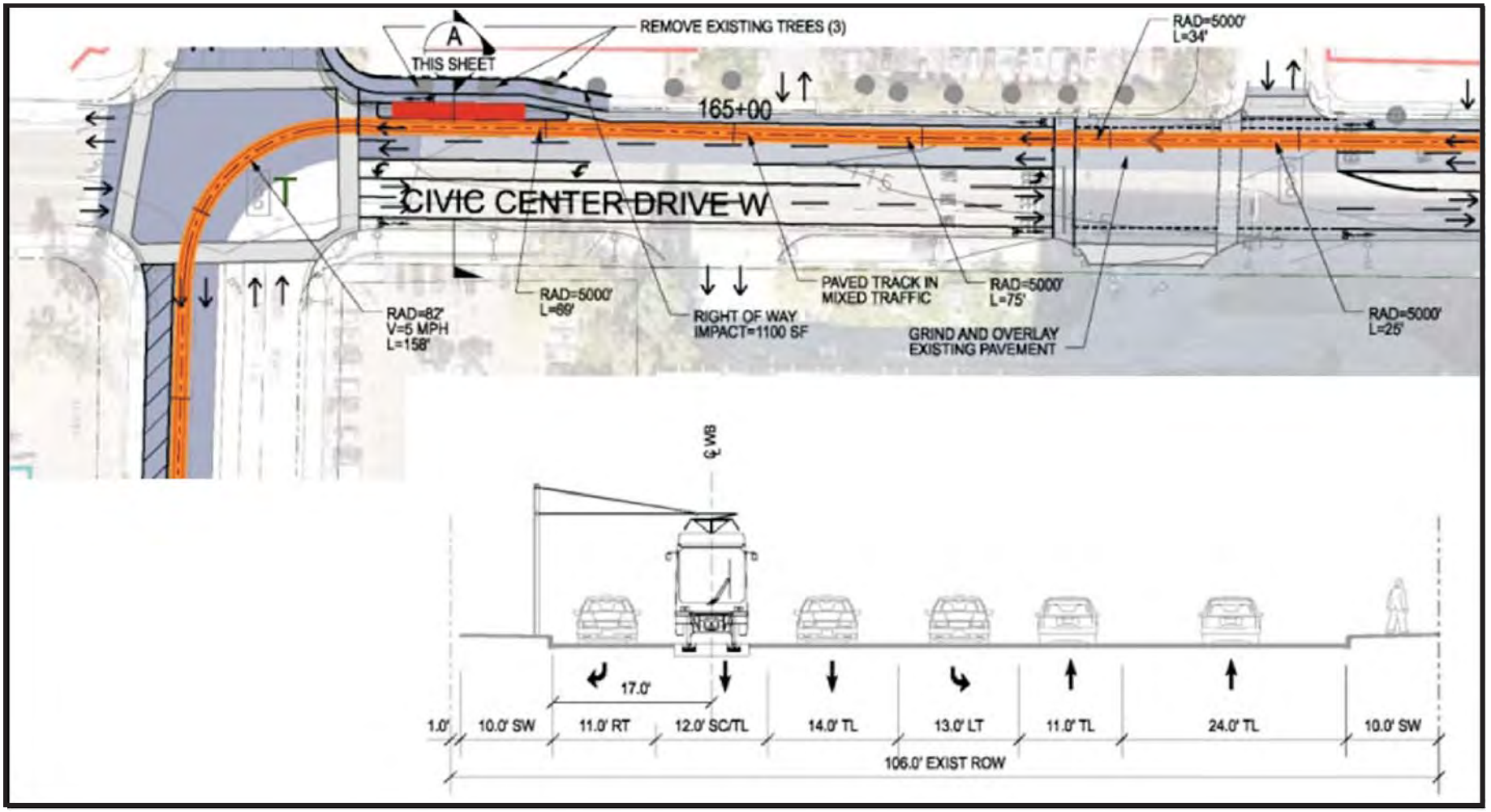
TABLE 2-2: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR ALTERNATIVE 2	
Key Attributes	**Descriptions**
	13. SARTC
Design Options Carried Forward	Santa Ana River Crossing: Adjacent Single Track Bridge
Headways	Peak: 10 minutes (6:00 a.m. to 6:00 p.m.) Off-Peak: 15 minutes (after 6:00 p.m.)
Hours 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: • Classic Modern Streetcar (e.g., Portland, Oregon) • CPUC Compliant Streetcar (e.g., an Diego, California)
Power Source	Electric, Overhead Contact System, Traction Power Substations(TPSS) TPSS Locations: a. Northwest of Harbor Boulevard and Westminster Avenue b. Along PE ROW, west of Susan Street c. Along PE ROW, east of Santa Ana River d. North on Santa Ana Boulevard, east of Bristol Street e. North of 5th Street, east of Main Street
Operations and Maintenance Facility Sites	Two Candidate Sites: • Site A: South of SARTC, bordered by 4th St., 6th St., Poinsettia St., and the Metrolink tracks. • Site B: West of Raitt St., between the PE ROW and 5th St.
Major Bicycle and Pedestrian Features	• Sidewalk and pedestrian improvements in the vicinity of proposed station platforms. • 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.

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

Streetcar Alternative 2 Alignment

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.

2.6 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 4th Street Couplet). IOS-1 follows the same alignment as Streetcar Alternative 1, but terminates at Raitt Station rather than extending to Harbor Station (**Figures 2-8** through **2-10**). 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 2-3**).

IOS-2 (Santa Ana Boulevard/5th 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 2-8** through **2-10**). 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 2-3**).

2.7 Key Attributes

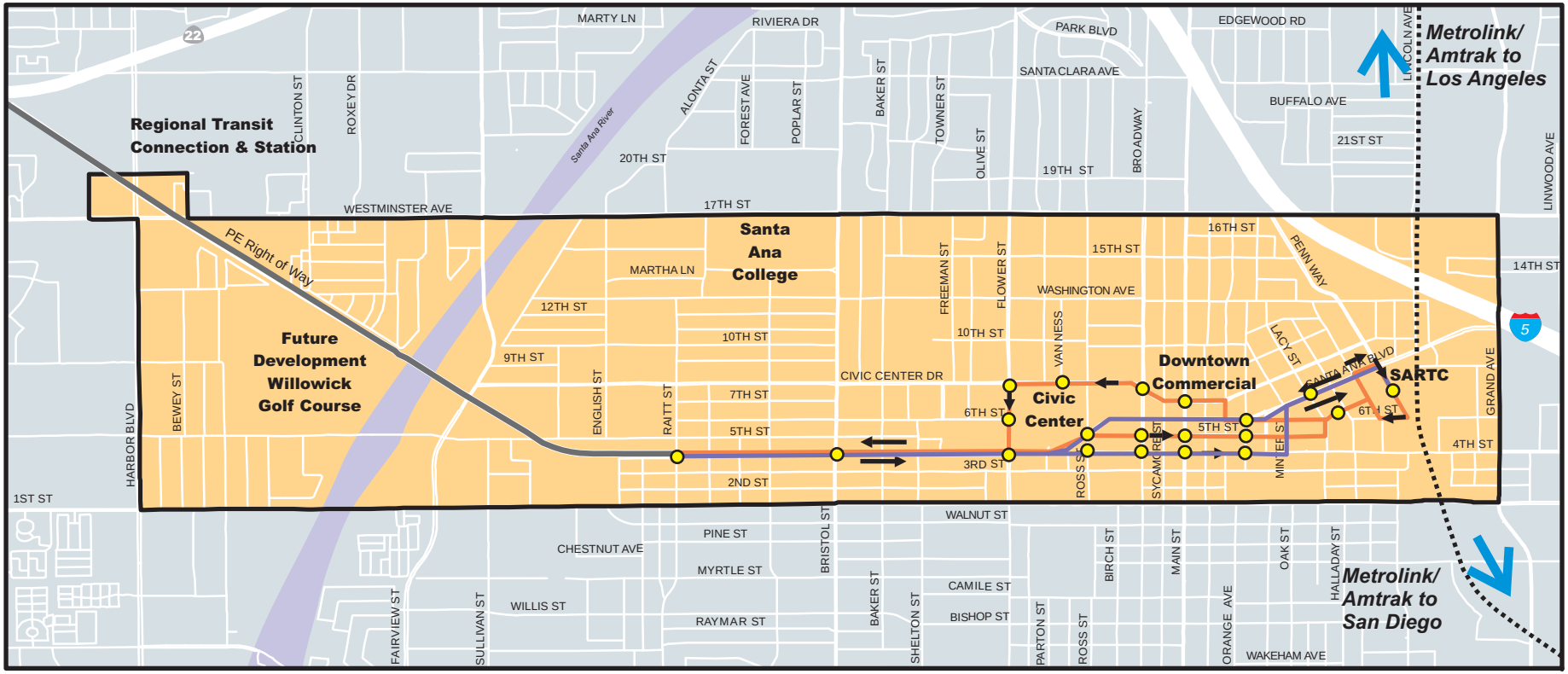
2.7.1 Western Terminus Elevated Crossing

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 2-11**.

2.7.2 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

IOS-1 and IOS-2 Alignments



LEGEND:

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

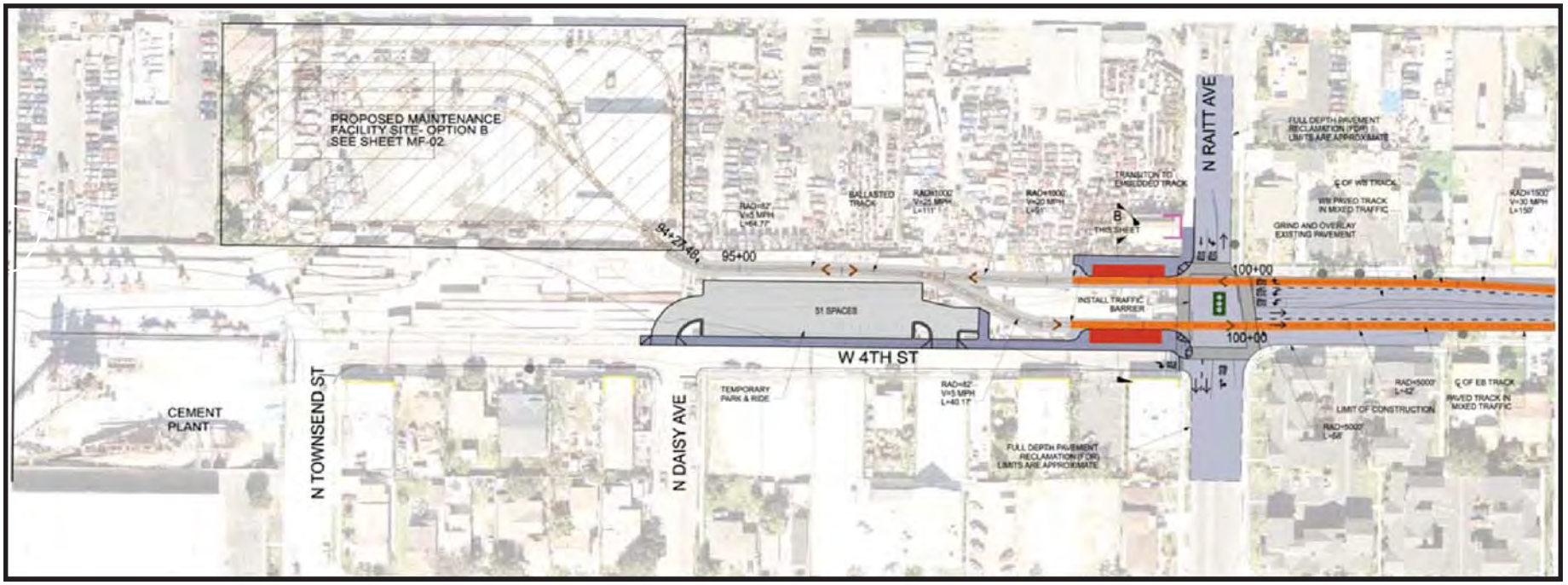
0 1500 3000 FEET

NORTH

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.

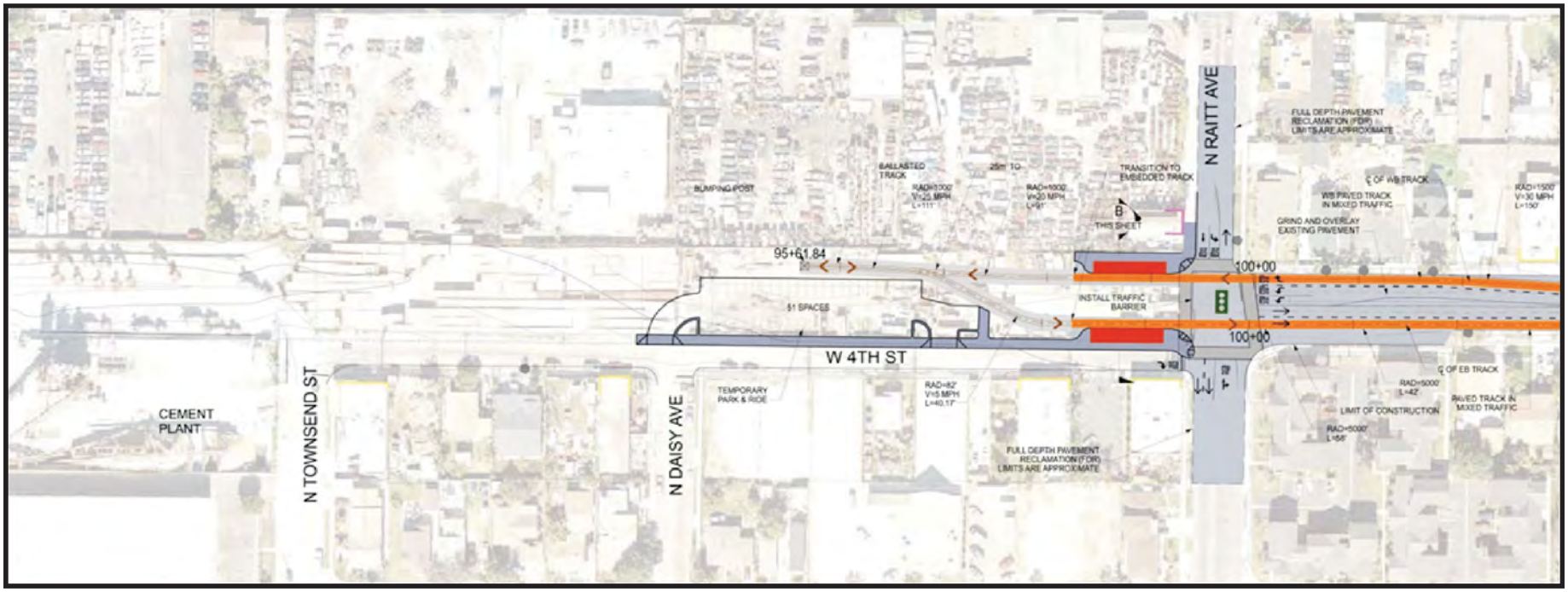
Figure 2-9

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

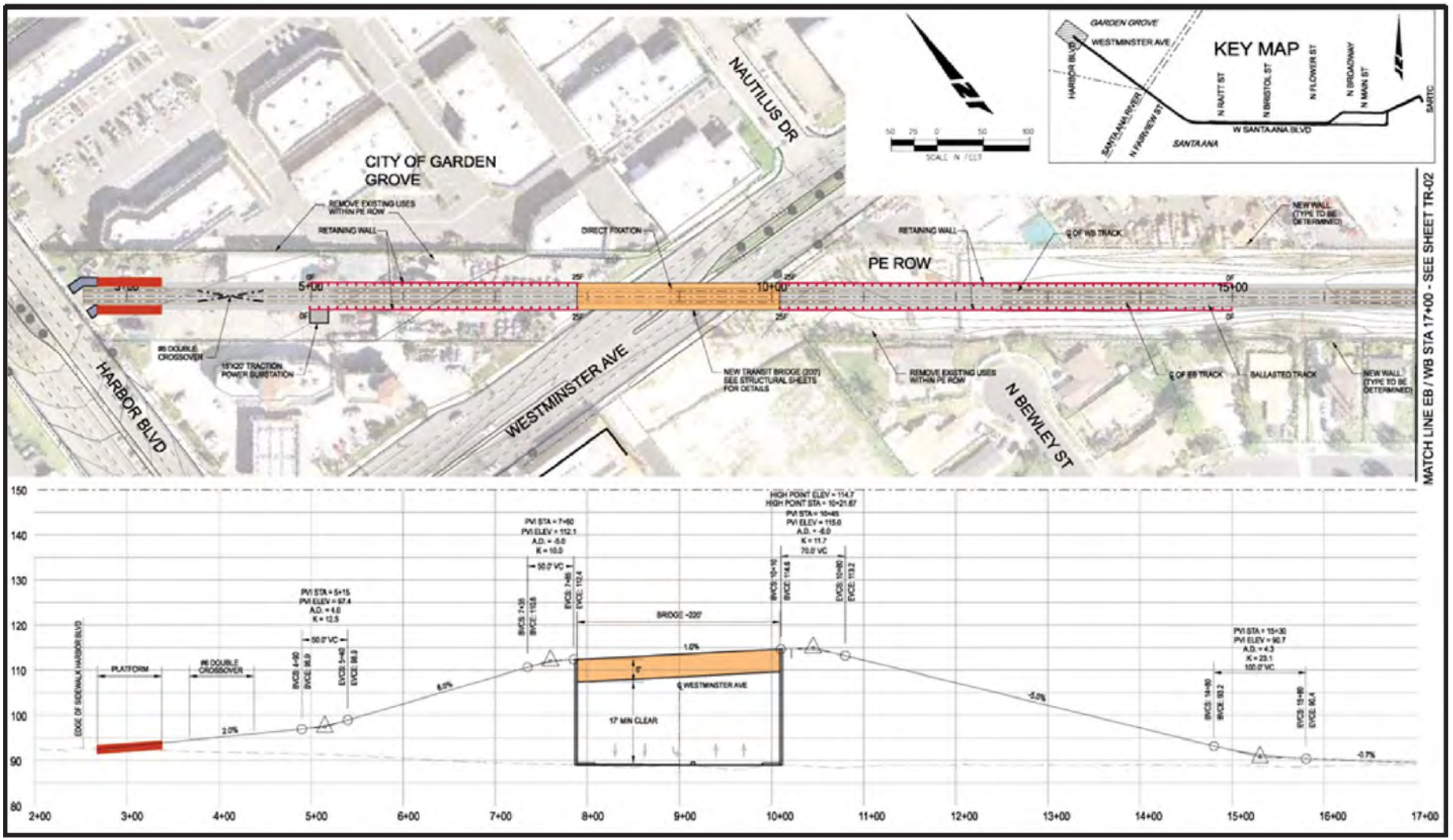


Source: Cordoba Corporation, *Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study,* July 11, 2012.

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



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



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

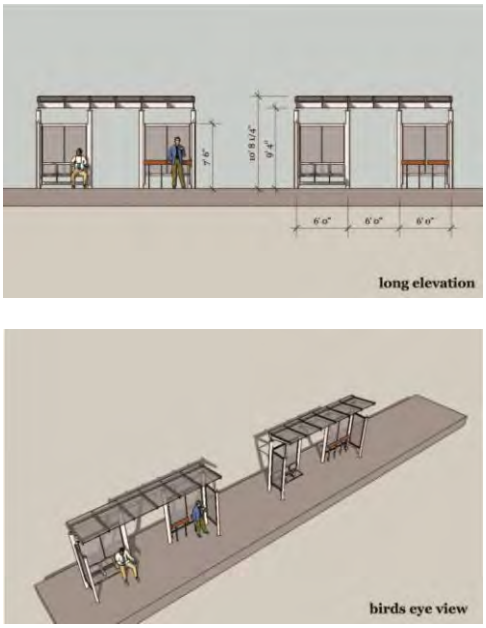
TABLE 2-3: KEY PHYSICAL AND OPERATIONAL ATTRIBUTES OF STREETCAR IOS-1 AND IOS-2

Key Attributes	IOS-1	IOS-2
Termini	Western Terminus: Raitt St. Eastern Terminus: SARTC	
Alignment Description	Routing by Segment: • Santa Ana Blvd., from Raitt St. to Ross St.: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic. • 4th 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. • Santa Ana Blvd., from Mortimer St. to SARTC: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic.	Routing by Segment: • Santa Ana Blvd., from Raitt St. to Flower St.: streetcars operate in the street, at grade, bi-directionally, along with mixed-flow traffic. • Santa Ana Blvd./5th 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. • 6th St./Brown Street, from Minter St. to Poinsettia St.: streetcars operate in the street, at-grade, bi-directionally, along with mixed-flow traffic. • Poinsettia St./Santa Ana Blvd./Santiago St./6th St. (SARTC Loop): streetcars operate in a one-way loop, in the street, at-grade, along with mixed-flow traffic.
Length of Alignment	2.2 miles (Raitt St. to SARTC)	2.6 miles (Raitt St. to SARTC)
Stations	Station Locations: 4. Raitt St. and Santa Ana Blvd. 5. Bristol St. and Santa Ana Blvd. 6. Flower St. and Santa Ana Blvd.	Station Locations: 4. Raitt St. and Santa Ana Blvd. 5. Bristol St. and Santa Ana Blvd.
	Couplet Section (Eastbound) 7E. Sasscer Park 8E. Broadway and 4th St. 9E. Main St. and 4th St. 10E. French St. and 4th St.	*Couplet Section (Westbound)* 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.	*Couplet Section (Eastbound)* 6E. Flower St. and Santa Ana Blvd. 7E. ---------- 8E. Ross St. and Santa Ana Blvd. 9E. Broadway and 5th St. 10E. Main St. and 5th St. 11E. French St. and 5th St.	*Couplet Section (Westbound)* 6W. Flower St. and 6th 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 5th Street, east of Main	
Operations and Maintenance Facility Sites	Two Candidate Sites: • Site A: South of SARTC, bordered by 4th St., 6th St., Poinsettia St. and Metrolink tracks. • Site B: West of Raitt St., between the PE ROW and 5th St.	

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

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 6th 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 6th 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 2-12**.

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.

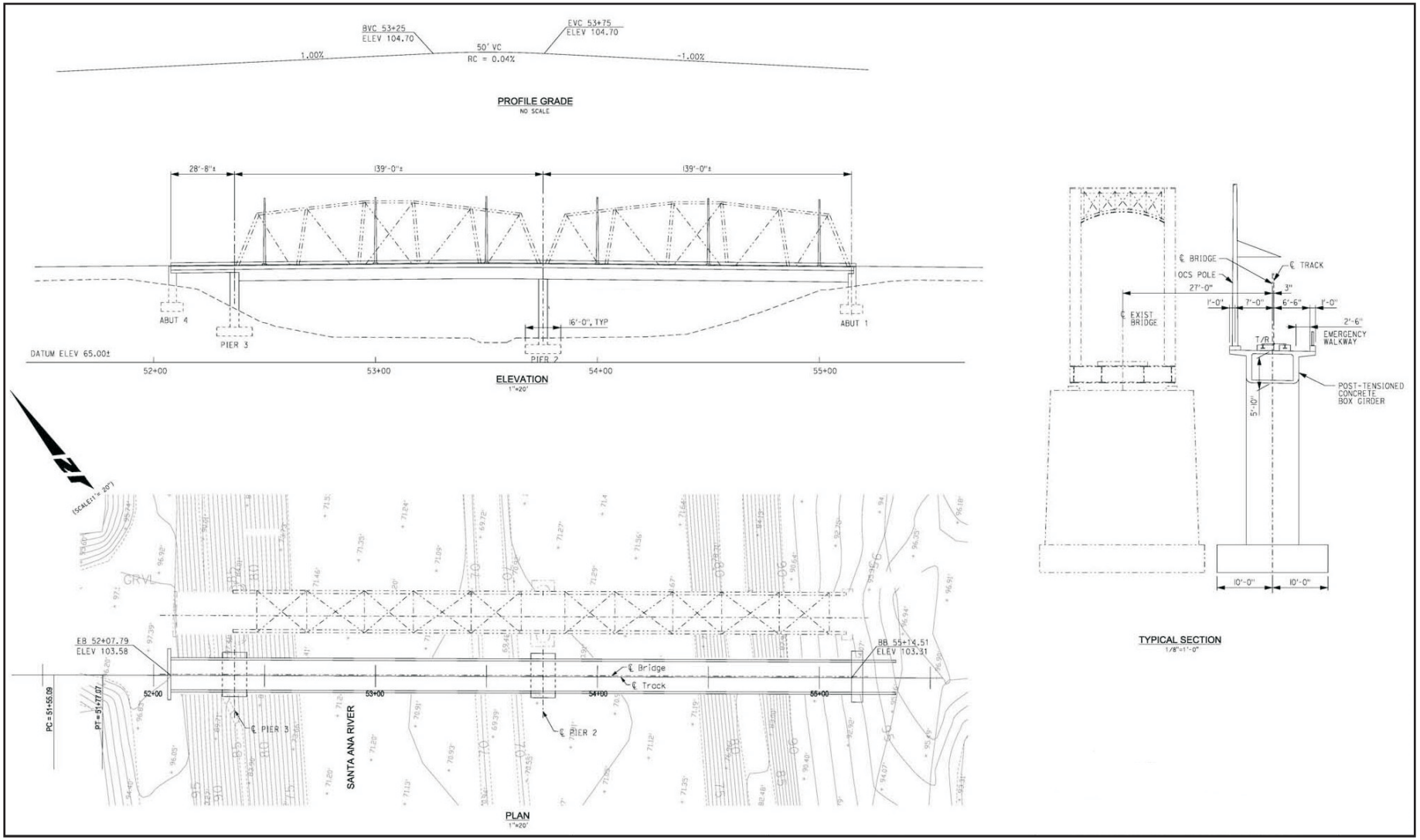
2.8 Design Options

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:

2.8.1 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.

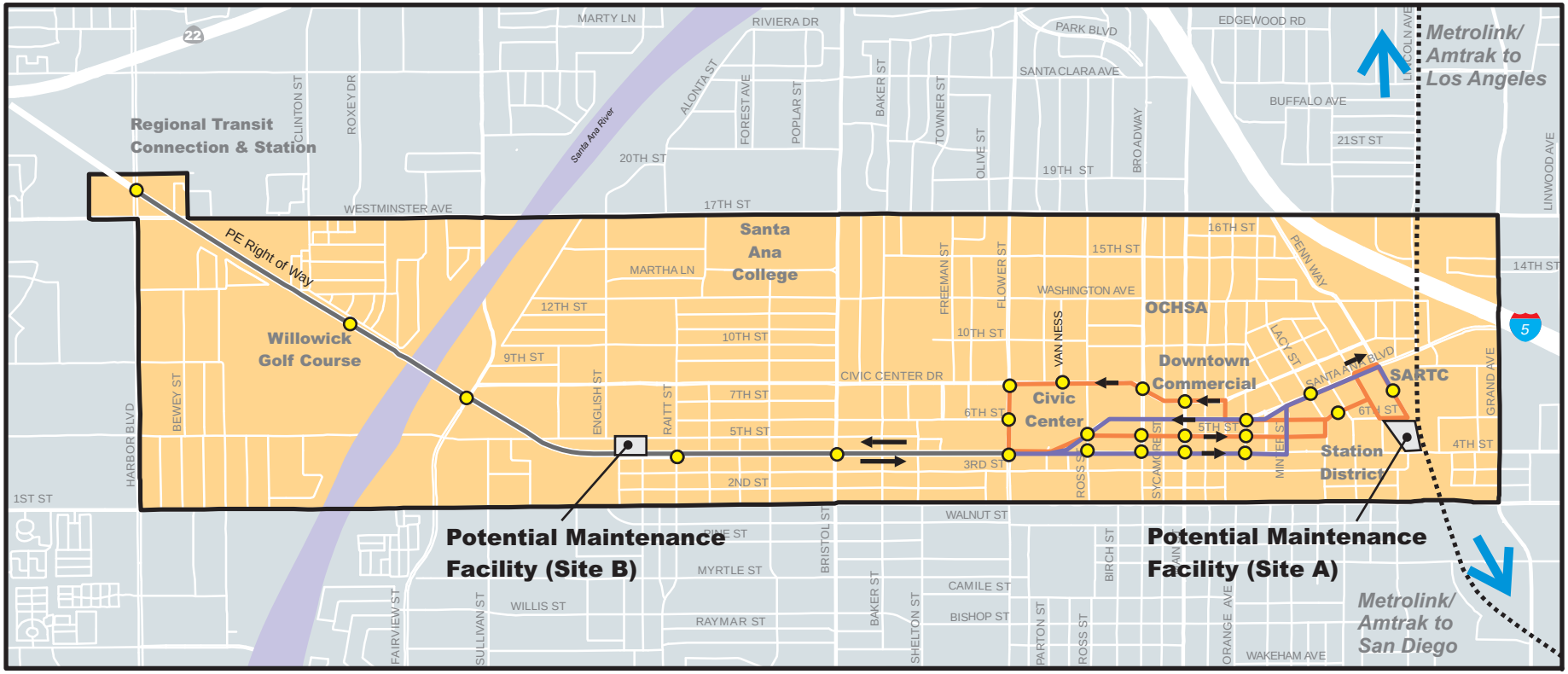
The site for the O & M Facility would need to accommodate a building that houses both maintenance and administrative functions; provides for off-street employee parking; and provides for various functions such as outside storage of system components, vehicle washing, and local requirements for landscaping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



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

Figure 2-13

Candidate Sites of Operations and Maintenance Facilities



LEGEND:

- Study Area
- Streetcar Alternatives 1 and 2
- Streetcar Alternative 1
- Streetcar Alternative 2
- Proposed Stop
- Potential Maintenance Facility Site

0 1500 3000 FEET

NORTH

Source: Cordoba Corporation, Draft Conceptual Design Technical Report, March 2011, updated by Terry A. Hayes Associates Inc. August 2012.

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 6th Street to the north, 4th 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 2-14** shows the proposed location of Site A and **Figure 2-15** 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 5th 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 2-16** shows the proposed location of Site B and **Figure 2-17** 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 5th Street.

2.8.2 Fourth Street Parking Scenarios

The Streetcar Alternative 1 alignment would utilize 4th Street between Ross Street and Mortimer Street in the westbound direction. From east of Ross Street to French Street, 4th 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 4th Street as described below and shown on **Figure 2-18**.

Scenario A: Convert the diagonal parking along the south side of 4th 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 4th 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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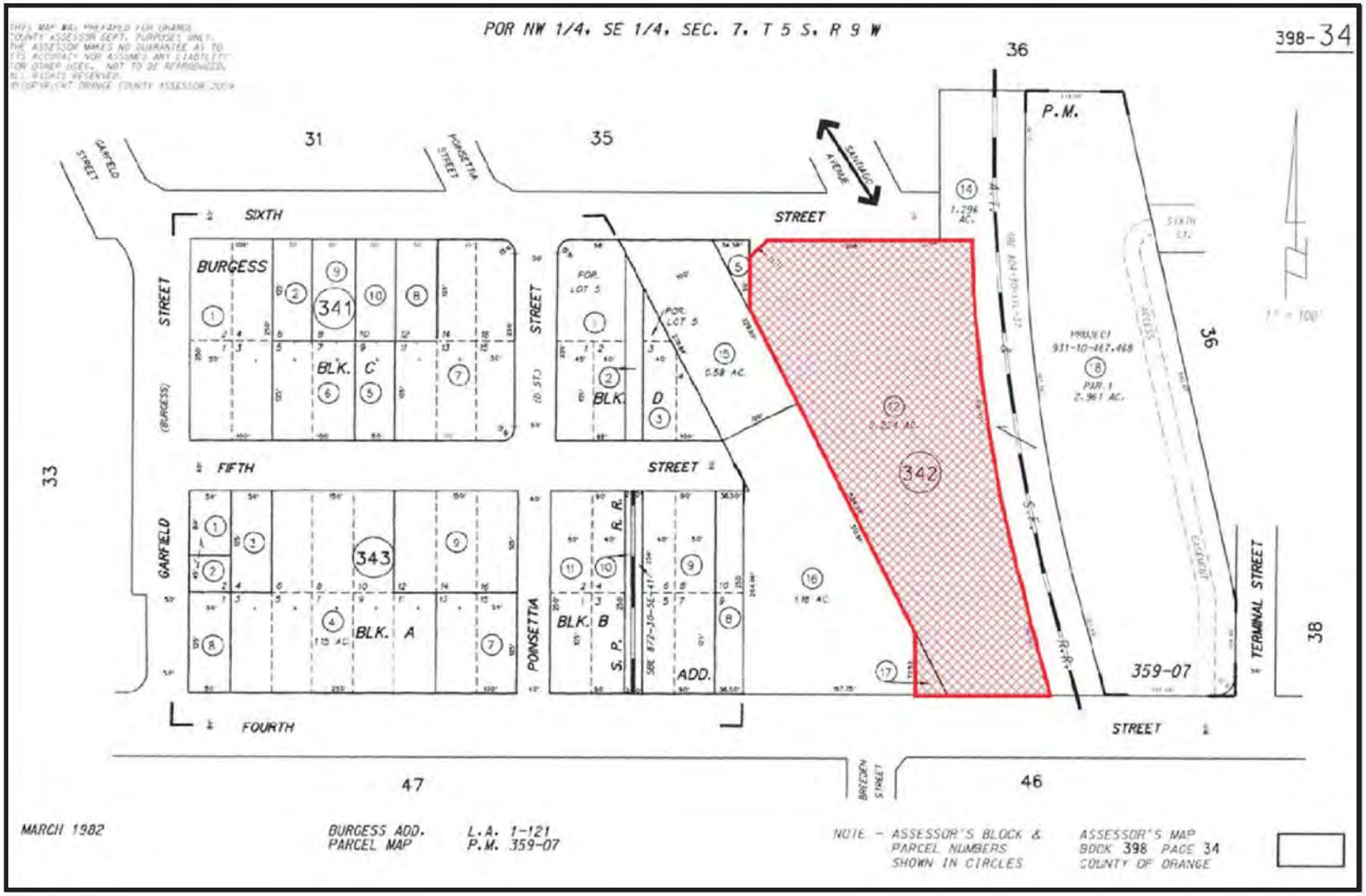
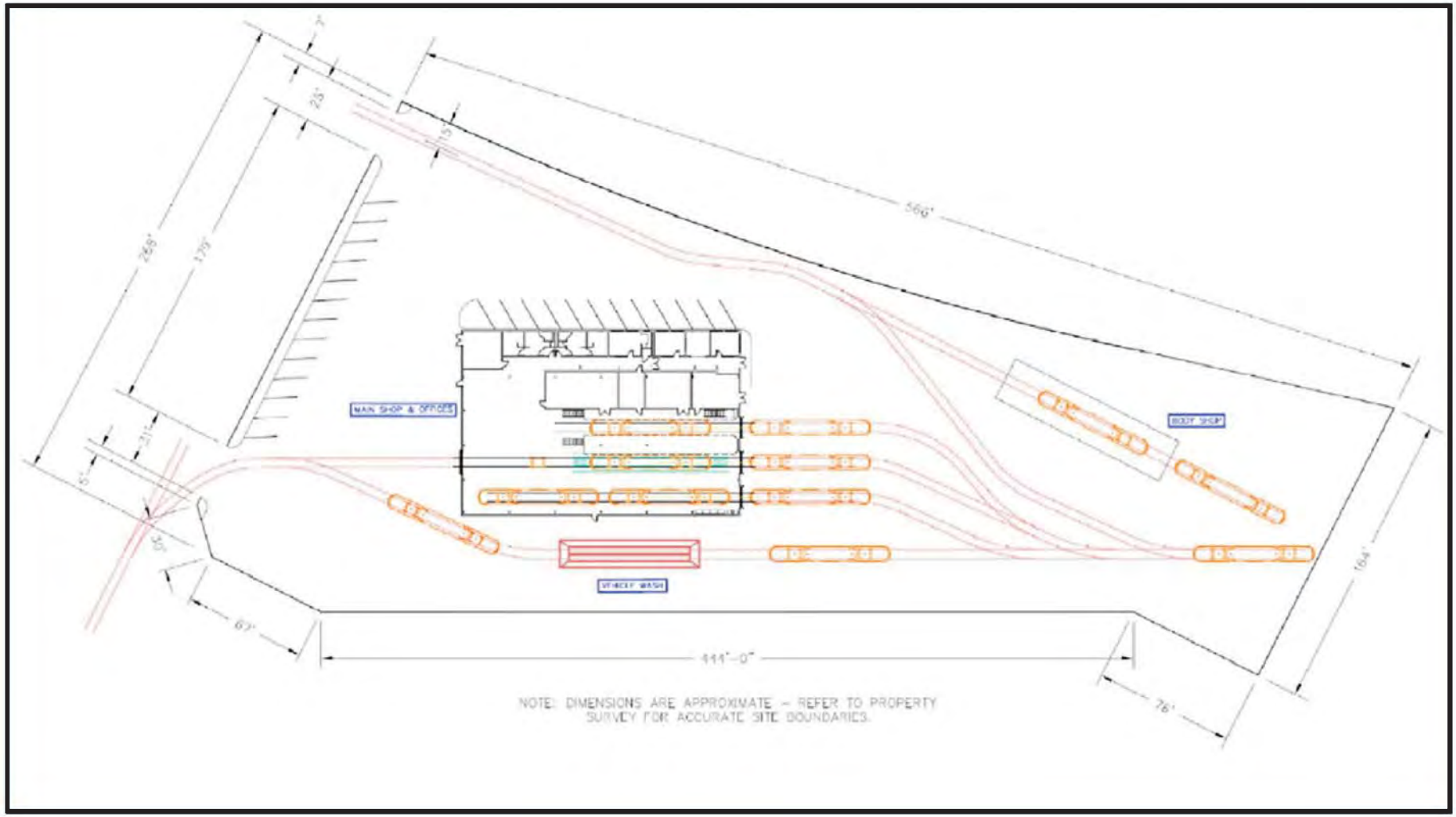
Operations and Maintenance Facility Site A - Location and Configuration



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 A - Conceptual Layout

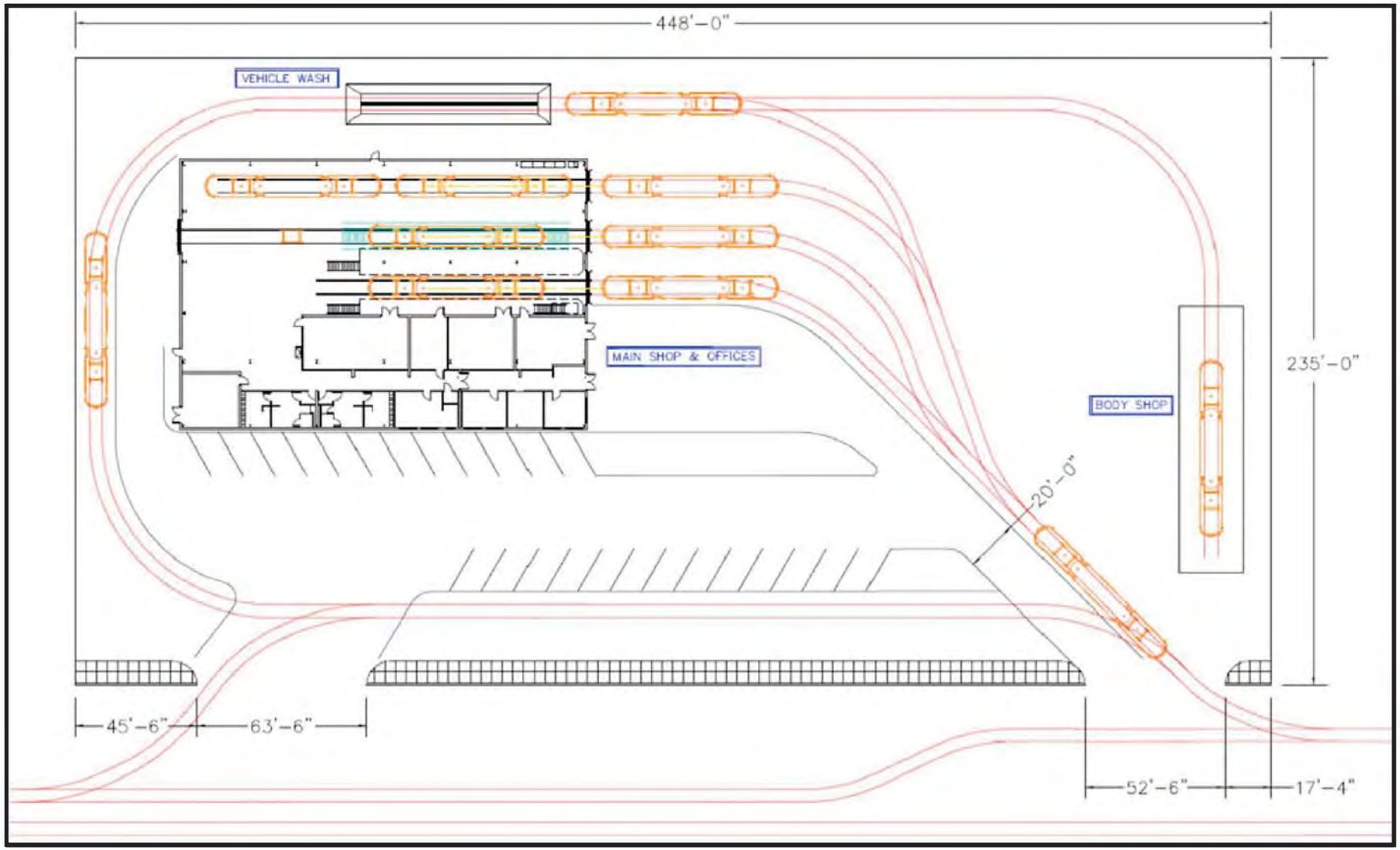


Source: Cordoba Corporation, *Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study,* July 11, 2012.

Operations and Maintenance Facility Site B - Location and Configuration

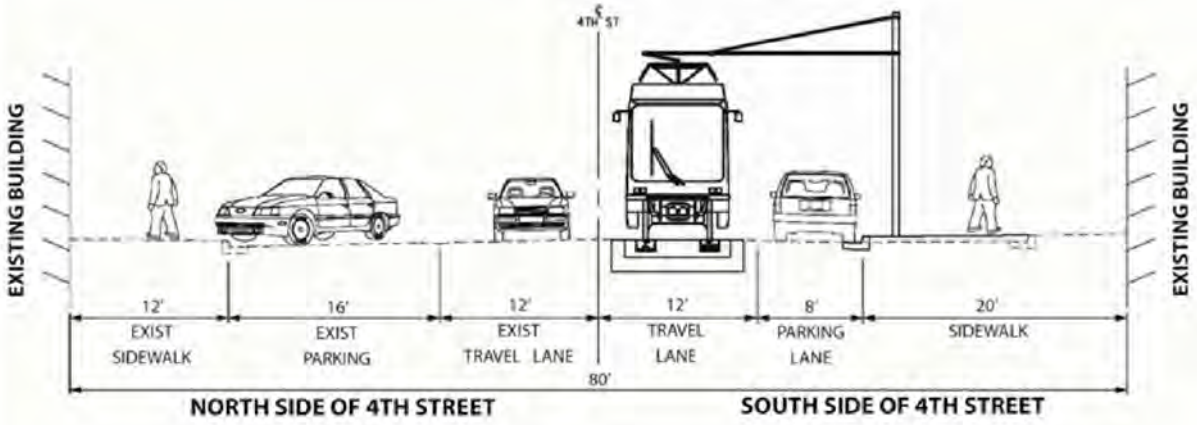
Source: Cordoba Corporation, *Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study,* July 11, 2012.

Operations and Maintenance Facility Site B - Concept Layout

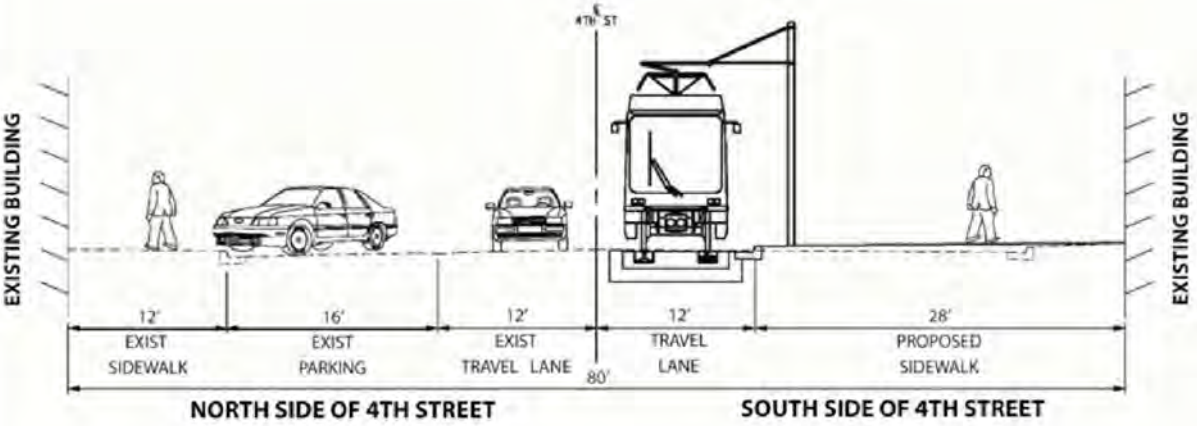


Source: Cordoba Corporation, *Draft Alternatives Analysis Report for the Santa Ana-Garden Grove Fixed Guideway Corridor Study,* July 11, 2012.

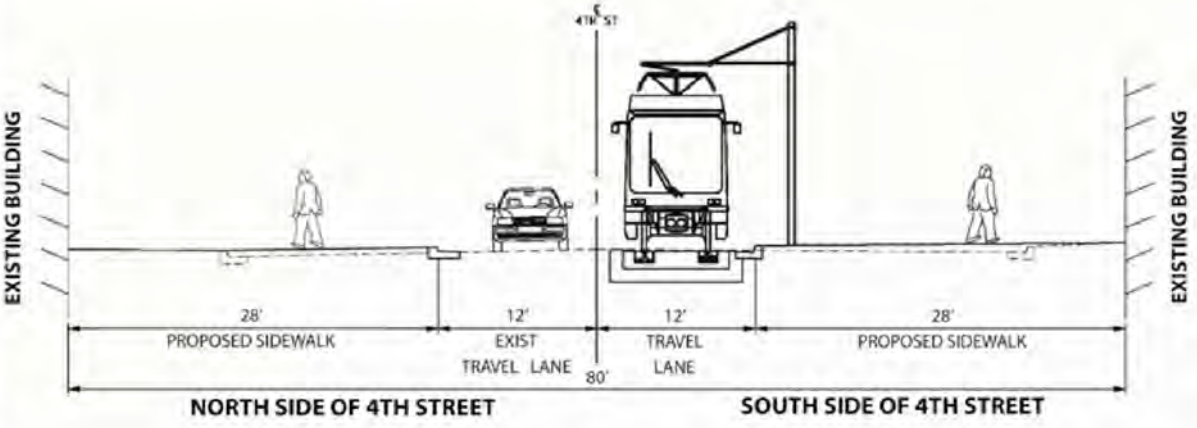
4th Street Parking Scenarios



4th Street Parking Scenario A: Convert Parking along South Side to Parallel and Widen Sidewalks to 20 Feet



4th Street Parking Scenario B: Remove Parking along South Side to and Widen Sidewalks to 28 Feet



4th Street Parking Scenario C: Remove Parking along South Side and North Side and Widen Sidewalks to 28 Feet

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

Scenario C: Remove the diagonal parking along both sides of 4th 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.

2.9 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 6th 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 2-4** depicts a typical construction activities sequencing for an LRT project of similar scope and complexity.

TABLE 2-4: TYPICAL CONSTRUCTION SEQUENCE AND AVERAGE CONSTRUCTION TIME

Activity/a/	Tasks	Average Time Required (months)
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.

Chapter 3 Research Methods

3.1 Archaeological and Architectural History Research Methods

In order to establish an evaluative historic context and as preparation for the field investigations, background research was conducted at numerous repositories and through a range of primary and secondary sources. Overall, the research provided insight into the historic contexts and themes of the records search area, specific information concerning the properties within the APE (e.g., date of construction, architect/builder, and historic landownership), and an inventory of previously recorded cultural resources.

Investigators conducted general research regarding the historic context for the APE and its environs with/at the: San Diego Public Library; Santa Ana Public Library; Santa Ana Historic Preservation Society; City of Santa Ana; City of Garden Grove; Orange County Tax Assessor; Electric Railway Historical Association of Southern California; FTA; Caltrans, and numerous online resources (e.g., Calisphere – A World of Digital Resources, California Historic Topographic Map Collection, Online Archive of California, ProQuest for Los Angeles Times articles). In addition, researchers obtained historic-period topographic maps, Sanborn Fire Insurance Maps, and aerial photographs from various repositories. The research provided insight into the historic contexts and themes of the area and specific information concerning the potential cultural resources within the APE (*e.g.,* date of construction, historic landownership). As part of the proposed project, and research conducted herein, contacts were made with knowledgeable individuals, interested parties, and organizations. Specifically, the following contacts were made:

- Santa Ana Historical Preservation Society (June 6, 2011). Contacted the society via email regarding the presence of cultural resources within or near the APE. **No response received**.
- Santa Ana Public Library History Room (June 22, 2011). Contacted the society via email regarding the presence of cultural resources within or near the APE. **No response received.**
- Orange County Historical Society (June 6, 2011). Contacted the society via email regarding the presence of cultural resources within or near the APE. **On August 2, 2011, Mr. Don Dobmeir provided information regarding cultural resources within or near the APE. Information from Mr. Dobmeir's response is included below and in Exhibit A-3.**
- Garden Grove Historical Society (June 6, 2011). Contacted the society via regular mail regarding the presence of cultural resources within or near the APE. **The letter was returned as undeliverable.**
- Hally Soboleske, City of Santa Ana (June and July 2011). Contacted the City via phone and email to request information such as construction dates for parcels within the APE, National Register of Historic Places District Nomination Forms, and Santa Ana Register of Historic Places information on file at the City. **Ms. Soboleske provided the requested information.**

Copies of correspondence with the above contacts and copies of relevant historic research, including maps and images, are included in Exhibits A-3 and A-6.

On August 2, 2011, Mr. Dobmeir, a member of the Orange County Historical Commission, responded to the request for information with a letter, contact information for himself, information on properties in the City of Santa Ana, and an excerpted chapter entitled "Railroads", from A Hundred Years of Yesterdays: A Centennial History of the People of Orange County and Their Communities (See Exhibit A-3). In his letter, Mr. Dobmeir identified: the historic location of the Pacific Electric Depot on Garden Grove Boulevard (no longer standing); the Old Orange County Courthouse (which now houses the offices of the Orange County Historical Commission); Howe-Waffle House and Carriage House; Smith-Tuthill Funeral Parlors; Spurgeon Block, Young Men's Christian Association-Santa Ana-Tustin Chapter; and Episcopal Church of the Messiah. Mr. Dobmeir also included several questions regarding the engineering and design of the proposed project; however, the questions did not relate to cultural resources.

Per the request of the City of Santa Ana Planning Department, Ms. Hally Soboleske, City of Santa Ana Associate Planner, on September 8, 2011, redistributed the letters originally sent on June 6, 2011, to the Santa Ana Historical Preservation Society, Santa Ana Public Library History Room, Orange County Historical Society, and Garden Grove Historical Society. To date, no responses have been received by Ms. Soboleske from these organizations.

3.1.1 Records Search

On June 6, 2011, a records search was completed at the SCCIC at California State University, Fullerton, through the California Historical Resources Information System (CHRIS) cultural resources database for relevant previously recorded cultural resources and previous investigations completed for the APE and a quarter-mile search radius (i.e., half-mile record search area). Information reviewed included location maps for previously recorded trinomial and primary prehistoric and historic sites and isolates, site record forms and updates for cultural resources previously identified, previous investigation boundaries and National Archaeological Database (NADB) citations for associated reports, historic maps, and historic addresses. Also reviewed were the properties listed on/as the California Points of Historical Interest (CPHI), California Historical Landmarks (CHL), California Historical Resources Inventory, local registries, CRHR, and NRHP. Copies of maps depicting previously recorded sites and surveys, and the NADB citations for technical reports for investigations within the half-mile record search area are included in Exhibit A-3. Copies of historic maps and images are included in Exhibit A-6.

3.1.2 Previously Conducted Cultural Resources Investigations

The SCCIC records search identified 66 previously conducted investigations within the quarter-mile search radius of the APE. Of these 66 investigations, 23 are within the APE. **Table 3-1** provides details of the previously conducted investigations provided by the SCCIC in June 2011.

Table 3-1. Previously Conducted Investigations Within a Quarter-Mile of APE

NADB No.	Report Name	Author	Year	Within APE
OR-00245	MISSING NADB Citation	-	-	No
OR-00451	MISSING NADB Citation	-	-	No
OR-00477	Archaeological Records Search and Field Survey of the Proposed Baywood Townhomes Development Site, City of Laguna Beach, California	Theo N. Mabry	1980	No
OR-00660	Preliminary Report on Archaeological Monitoring at the Orange County Transit District, Santa Ana Transit Terminal Site, Santa Ana, California	James P. Brock	1983	Yes
OR-00665	Historical Archaeology at the Orange County Transit District Terminal Site, Santa Ana	James P. Brock	1983	Yes
OR-00789	Historic Property Survey Report: Bristol Street Between First Street and Warner Avenue, City of Santa Ana, Orange County, California	Ronald M. Bissell and Rodney E. Raschke	1985	No
OR-00797	Excavations in Early Santa Ana: The OCTD Terminal Site [CA-ORA-1031h]	James P. Brock	1985	Yes
OR-00801	Phase II Archaeological Studies Prado Basin and the Lower Santa Ana River	Paul E. Langenwalter and James Brock	1985	Yes
OR-00846	Historic Properties Survey Report, Bristol Street Between First Street and Memory Lane, City of Santa Ana, Orange County	Ronald M. Bissell	1986	No
OR-00946	MISSING NADB Citation	-	-	Yes
OR-01230	Artifacts from the Old Orange County Courthouse	James P. Brock	1987	No
OR-01352	Results of Historical Research and Recommendations for the Proposed Federal Building Site in Santa Ana, Orange County, California	Roger D. Mason and Jeanette A. McKenna	1993	Yes
OR-01552	Archaeological and Paleontological Monitoring of Preliminary Grading for Irvine Spectrum 5, Phase Ia.2, Irvine	Beth Padon	1997	Yes
OR-01829	Data Recovery at the Ronald Reagan Federal Building, US Courthouse Site, Santa Ana, California	Paul R. Hampson and Judith A. Rasson	1996	Yes
OR-01836	Cultural Resource Review for Groundwater Replenishment System Program EIR/TIER I/EIS, Orange County Water District and County Sanitation Districts of Orange County	Beth Padon	1998	No
OR-01946	Data Recovery at the Ronald Reagan Federal Building, US Courthouse Site, Santa Ana, California, Catalogue of Artifacts	Paul R. Hampson and Judith A. Rasson	1996	No
OR-01949	Cultural Resource Assessment for the City of Garden Grove	Beth Padon, Deborah McLean, and Ivan Strudwick	1995	No
OR-01954	Archaeological Archival Review and Survey of the Co 5 and Co 6 Flood Control Channels, Anaheim, Newport, and Seal Beach USGS 7.5' Quadrangles, Orange County, California	Beth Padon	1996	No
OR-01971	Historic Property Survey Report for the Proposed Widening of Bristol Street from Warner Avenue to Santiago Creek	Willdan Associates	1987	Yes

Table 3-1. Previously Conducted Investigations Within a Quarter-Mile of APE

NADB No.	Report Name	Author	Year	Within APE
OR-02000	Cultural Resource Assessment for Pacific Bell Mobile Services Facility, CM 296-01, County of Orange, California	Curt Duke	1999	No
OR-02010	Memorandum for Record, Subject: Cultural Resources Survey of the 7.78 Acre Staging Area for Reaches 3 and 4 of the Santa Ana River Project in the City of Santa Ana	Richard M. Perry	1993	No
OR-02024	Cultural Resource Assessment for Grand Avenue Widening Project, City of Santa Ana, Orange County	Beth Padon	1999	No
OR-02245	MISSING NADB Citation	-	-	No
OR-02246	Historical Resources Impact Assessment: Central Auto Body Works Building, 115 N. Sycamore Street, Santa Ana, California	Dana N. Slawson	2001	No
OR-02263	Results of Historical Research and Recommendations for the Proposed Federal Building Site in Santa Ana, Orange County, California	Roger D. Mason and Jeanette A. McKenna	1993	Yes
OR-02264	Research Plan and Scope of Work for the Ronald Reagan Federal Building, U.S. Courthouse Site, Santa Ana, California	Roberta S. Greenwood and John M. Foster	1994	Yes
OR-02265	Research Plan and Scope of Work for the Ronald Reagan Federal Building, U.S. Courthouse Site, Santa Ana, California	Roberta S. Greenwood and John M. Foster	1995	Yes
OR-02376	Review of Cultural Resource Assessment/Evaluation for Cingular Wireless Site SC-018-02, Orange County, California	Jeanette A. McKenna	2001	No
OR-02388	Monitor Report, Historical Resource at 1038 E. 4th Street, Santa Ana, California	Peter Messick	2001	No
OR-02446	Renovation and Tenant Improvements for the Santa Ana Old City Hall Building, Santa Ana, California	Steven Gaffney	2000	No
OR-02452	Draft Focused Environmental Impact Report for the Proposed Grand Avenue Widening SCH No. 1998051068	Christine Huard-Spencer	2002	No
OR-02466	Cultural Resource Assessment, Cingular Wireless Facility No. SC 055-02 Orange County, California	Curt Duke	2002	No
OR-02502	Cultural Resources Assessment for One Broadway Plaza Project, City of Santa Ana, Orange County	Beth Padon and Teresa Grimes	2002	No
OR-02504	Historic Resources Technical Report: The Phillips Block A-2 Project Site, Downtown Historic District Santa Ana, California	The Building Biographer	1993	Yes
OR-02505	Archaeological Resources at the Site of the Proposed Ronald Reagan Federal Building, Santa Ana, California	James P. Brock	1993	Yes
OR-02520	Historic Property Survey Report: Bristol Street Widening Project, 3rd Street to Pine Street, City of Santa Ana, Orange County, Caltrans District 12	Bruce Love	2001	No
OR-02521	Historic Property Survey Report: Bristol Street Widening Project, 3rd Street to Pine Street, City of Santa Ana, Orange County, California	Bruce Love	2001	No
OR-02581	MISSING NADB Citation	-	-	Yes
OR-02586	Data Recovery at the Ronald Reagan Federal Building,	Paul R. Hampson and	1996	No

Table 3-1. Previously Conducted Investigations Within a Quarter-Mile of APE

NADB No.	Report Name	Author	Year	Within APE
	U.S. Courthouse Site, Santa Ana, California	Judith A. Rasson		
OR-02701	MISSING NADB Citation	-	-	No
OR-02844	Cultural Resource Assessment, Cingular Wireless Facility No. SC 135-03, Santa Ana, Orange County, California	Caprice D. Harper	2003	Yes
OR-02891	Cultural Resources Records Search and Site Visit Results for Cingular Telecommunications Facility, Candidate SC-079-05 (ccl),13812 West Street, Garden Grove, Orange County, California	Wayne H. Bonner	2004	No
OR-02906	Records Search Results for Cingular Wireless, Site SM-186-001 (the Todd Pipe and Supply Site), Located at 13591 Harbor Blvd., Garden Grove, Orange County, California	Wayne H. Bonner	2002	No
OR-03019	Cultural Resource Records Search Results and Site Visit for T-Mobile Telecommunications, Facility Candidate LA02835 (California Custom Lift), 13812 West Street, Garden Grove, Orange County, California	Wayne H. Bonner	2006	No
OR-03074	Cultural Resources Records Search Results and Site Visit for T-Mobile, Candidate LA02909e, (Mel-o-dee Ice Cream), 2649 W. 1st Street, Santa Ana, Orange County, California	Wayne H. Bonner	2006	No
OR-03079	Historic Property Survey Report, Bristol Street Widening Project, 3rd Street to Pine Street, City of Santa Ana, Orange County, Caltrans District 12	Bruce Love and Bai Tang	2001	No
OR-03080	Historic Property Survey Report, Bristol Street Widening Project, 3rd Street to Pine Street, City of Santa Ana, Orange County, Caltrans District 12, EA 965100	Bruce Love and Bai Tang	2002	No
OR-03184	Results of a Cultural Resource Survey for Sprint Telecommunications Facility, Candidate Og60xc603b (Park Tower), 200 W. Santa Ana Boulevard, Santa Ana, Orange County, California	Wayne H. Bonner	2003	Yes
OR-03246	Archaeological and Historic Architecture Assessment, Former Santa Ana II Manufactured Gas Plant Site, City of Santa Ana, Orange County, California	Deborah K McLean and Judith Marvin	2002	No
OR-03247	Historical Resources Impact Evaluation, Courthouse Lofts Project, 322 W. 4th Street, Santa Ana, California	Dana N. Slawson	2005	Yes
OR-03248	Archaeological and Paleontological Monitoring of Grading for the Law Library Expansion and Remodel Project, Santa Ana, Orange County	Beth Padon	2004	Yes
OR-03281	Proposed Widening of Bristol Street from Warner Avenue to Memory Lane, in the City of Santa Ana, Final Environmental Impact Statement	John Blodgett	1990	Yes
OR-03303	Historical Resources Assessment, Quonset Hut, 625 N. Poinsettia Street, Santa Ana, California	Dana N. Slawson	2000	Yes
OR-03328	Direct APE Historic Architectural Assessment for Royal Street Communications, LLC, Candidate LA0625A (American Pacific Secured), 811 N. Broadway, Santa Ana, Orange County, California	Wayne H. Bonner and Kathleen A. Crawford	2006	No
OR-03371	Determination of Effect, State Route 22/West Orange	Michael Ritchie	2000	No

Table 3-1. Previously Conducted Investigations Within a Quarter-Mile of APE

NADB No.	Report Name	Author	Year	Within APE
	County Connection			
OR-03373	Cultural Resources Final Report of Monitoring and Findings for the Qwest Network Construction Project, State of California: Volumes I and II	Cindy Arrington and Nancy Sikes	2006	Yes
OR-03401	Cultural Resources Study of the W. 1st Street and S. Fairview Project, Royal Street Communications, LLC., Site No. LA2831A, 2715 W. 1st Street, Santa Ana, Orange County, California 92703	Dana E. Supernowicz	2007	No
OR-03597	Cultural Resources Assessment 601 and 611-613 E. Santa Ana Blvd., Santa Ana, CA	Casey Tibbet and Bill Bell	2008	No
OR-03776	Historic Property Survey Report for Harbor Boulevard Smart Street Improvements, City of Garden Grove, Orange County, California	Beth Padon	2000	No
OR-03818	Cultural Resources Study of the Sprint/Nextel Rooftop Project, Sprint Nextel Site No. CA6639C, 811 N. Broadway, Santa Ana, Orange County, California	Dana Supernowicz	2009	Yes
OR-03834	MISSING NADB Citation	-	-	No
OR-03837	A Historic Resource Evaluation Report for the Santa Ana Art Wall Project Located in an Unsectioned Portion of T.5S R.9W, City of Santa Ana, California	Christine Taniguchi and Michael Dice	2004	No
OR-03890	Historic Property Survey Report – Reduced Build Alternative Addendum	Dana Slauson	2000	No
OR-03915	Results of Archaeological Monitoring Report, San Juan Capistrano, CA	Maureen Lynch	2010	No
OR-03926	Cultural Resources Records Search and Site Visit Results for T-Mobile, USA Candidate LA33824-D (St. Joseph School), 730 N. Garfield Street, Santa Ana, Orange County, California	Wayne Bonner	2010	No
OR-08449	MISSING NADB Citation	-	-	No

3.1.3 Previously Recorded Cultural Resources

A review of the records at the SCCIC indicates that there are 79 previously recorded cultural resources within a quarter-mile search radius of the APE. Of the 79 previously recorded cultural resources, 24 are located within the APE. One resource within the APE was previously recorded as eligible for listing on the NRHP. Descriptions and evaluations of the previously recorded cultural resources are provided in **Table 3-2**.

Table 3-2. Previously Recorded Cultural Resources Within a Quarter-Mile of APE

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
1030	Vacant lot that formerly comprised an entire city block. Structures on property known to exist as far back as 1870's.	Not evaluated	1983 Brock	Tustin	Yes
1031	Triangular-shaped lot with terminal "capping" historical features dating to 1870's.	Not evaluated	1983 Brock	Tustin	Yes
1374	Historic paved road, first built in 1876, converted to a parking lot in 1981.	Not evaluated	1994 Alexandrowicz and Knell	Tustin	Yes
1375	A historic residential property with occupancy from late 19th century to mid-20th century.	Not evaluated	1994 Alexandrowicz and Knell	Tustin	Yes
1376	A historic residential property with occupancy from late 19th century to mid-20th century.	Not evaluated	1994 Alexandrowicz and Knell	Tustin	Yes
1377	A historic residential property with occupancy from late 19th century to mid-20th century, including Broadway Theatre built early 20th century.	Not evaluated	1994 Alexandrowicz and Knell	Tustin	Yes
1378	A historic residential property with occupancy from late 19th century to mid-20th century.	Not evaluated	1994 Alexandrowicz and Knell	Tustin	Yes
1379	A historic residential property with occupancy from late 19th century to mid-20th century.	Not evaluated	1994 Alexandrowicz and Knell	Tustin	Yes
1598	Warehouse building and parking lot with a diffuse surface scatter of discards.	Not evaluated	2001 Messick	Tustin	Yes
160798	"Wood House," a one and a half story, side-gabled cottage with construction dated to 1885.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160801	"Brown-Baker House," a two-story Colonial Revival house influenced by the Classic Box variant of the style. Construction dated to 1905.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160803	SCCIC Missing Site Record	-	-	-	No
160811	"Sutton House," a one-story Colonial Revival house with construction dated to 1900.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160814	"Claycomb House," a two-story Prairie Style house. Example of American Foursquare variant of the style. Construction dated to 1906.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2001 Heumann	Orange	No

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
160816	"Axelson House," a one-story, center-gabled, simplified Queen Anne style (Late Victorian). Construction dated to 1890.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160817	"Tubbs House," a two-story, hipped-roofed house. Represents a combination of Prairie School, Colonial Revival, and Shingled styles, most often referred to as "American Foursquare". Construction dated to 1904.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160818	"Hervey House," a one-story, Colonial Revival style house with construction dated to 1903.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2001 Heumann	Orange	No
160819	"Cochems House," a one-story, Colonial Revival style house. Construction dated to 1906.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160824	"Young Home," a one and a half story, Queen Anne style (Late Victorian) house. Construction dated to 1893.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160830	"Gleason-Carden House," a two and a half story Colonial Revival style house. Construction dated to 1903.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160833	"Morris House," a one-story Craftsman style bungalow house. Construction dated to 1922.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160836	"Beal's House," a two-story English Revival style house. Construction dated to 1925.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160838	"Kittle-Perkins House," a two-story Colonial Revival style house, with characteristics associated with the American Foursquare variant of the style. Construction dated to 1909.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160842	"Van-Wyck Home," a one and a half story Craftsman style bungalow house. Construction dated to 1911.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160843	"James Alexander House," a one-	Contributor to a district	2002 Heumann	Orange	No

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
	story Italianate Victorian cottage style house with a more recent Colonial Revival style porch attached in front. Construction dated to 1887.	of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	and Moruzzi		
160845	"Thee Home," a two-story Craftsman style house. Construction dated to 1914.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160847	"Sprague House," a one and a half story Craftsman bungalow style house. Construction dated to 1906.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160851	"Smith W. Home," a one and a half and two-story Craftsman bungalow style house. Construction dated to 1909.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160852	"Smith H. Home," a one-story Bungalow style house. Construction dated to 1919.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
160869	SCCIC Missing Site Record	-	-	-	No
160871	SCCIC Missing Site Record	-	-	-	No
160916	"Wanzlaff Home," a one-story Bungalow style house. Construction dated to 1922.	Contributor to a district of multiple resource properties listed in NR by the keeper. (NRHP Status code 1D)	2002 Heumann and Moruzzi	Orange	No
161037	A multiple structure resource including a one-story Craftsman style house, and a two-story garage/storage structure. The Craftsman residence's construction is dated between 1906-1920.	Found ineligible for NR, CR, or local designation through survey evaluation. (NRHP Status code 6Z)	2008 Tibbet	Orange	Yes
161847	"Pacific Electric Santa Ana River Bridge," a Pegram, Truss-style, steel-framed, industrial bridge. Construction dated to 1905.	Individual property determined eligible for NR by consensus through Section 106 process. Listed in the CR. (NRHP Status code 2S2)	1988 Clement 2001 Caesar	Orange	Yes
161973	"George L. Wright House," a two-story Craftsman style house. Construction dated to 1913.	Listed in the NR for local significance (NRHP Status code 1S)	1979 Santa Ana Historic Survey 1981 Chappell	Orange	No

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
176647	A small one-story, mid-20th century commercial style structure currently (as of last survey) occupied by "Taqueria Tapatia." Construction dated to mid-20th century.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No
176648	A small one-story Minimal Traditional style house. Construction dated to 1954.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No
176649	A small one-story mid-20th century commercial style structure currently (as of last survey) occupied by a dental office. Construction dated to 1955.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No
176650	A small one-story house with no discernable stylistic attributes. Construction is estimated to date to 1920's.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	1986 Bissell 2001 Tang	Newport Beach	No
176652	A small one-story California Bungalow style (sub-type of Craftsman Bungalow) house. Construction estimated ca. 1913.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	1986 Bissell 2001 Tang	Newport Beach	No
176653	A small one-story, dual use, (commercial and residential) house. Construction dated to circa 1924.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	1986 Bissell 2001 Tang	Newport Beach	No
176657	A small one-story, altered, California Bungalow style house. Construction dated to 1921.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No
176658	A small one-story duplex with no discernable stylistic attributes. Construction is dated to 1956.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No
176659	A small one-story, altered, California Bungalow style house. Construction dated to 1913.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
176660	A small one-story Minimal Traditional style house. Construction dated to 1954.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or local listing. (NRHP Status code 6Y)	2001 Tang	Newport Beach	No
176663	A 14.7 mile segment of Burlington Northern Santa Fe (formerly Atchison, Topeka and Santa Fe) Railway. Initial construction dates to 1885-1888; however, after more than 100 years of continuous operation, most of the historic features have been replaced with modern constituents.	Found ineligible for NR, CR, or Local designation through survey evaluation. (NRHP Status code 6Z)	2002 Tang and Ballester	Los Angeles South Gate Whittier La Habra Anaheim	Yes
176801	Two buildings on one parcel (Buildings 1 and 2). Building 1 is modern style and construction is estimated to have occurred between 1945 and 1947. Building 2 is a Spanish Revival style and is estimated construction dated to 1920's.	Found ineligible for NR, CR, or Local designation through survey evaluation. (NRHP Status code 6Z)	2004 Taniguchi	Orange	No
176802	A complex of seven buildings, six were constructed for the County of Orange for their Highway Dept. (later the Road Dept.). The remaining building was built for the County Agricultural Dept. The buildings are estimated to have been constructed in the 1920's.	Found ineligible for NR, CR, or Local designation through survey evaluation. (NRHP Status code 6Z)	2004 Taniguchi	Orange	No
176809	An all-steel structure of the type most commonly referred to as Quonset Hut style. Construction is dated to 1947.	Appears to be eligible for local listing or designation through survey evaluation.	2000 Slawson	Orange	Yes
176911	A one-story square building of indiscernible style. Significant alterations since an unknown construction date. The most recent alteration is dated to 1957.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176912	A one-story Ranch style house of unknown antiquity.	Recommended as appearing ineligible	2000 McElroy	Anaheim	Yes
176913	A one-story Traditional style house of unknown antiquity.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176914	A one-story Ranch style house of unknown antiquity.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176915	A one-story Ranch style house of unknown antiquity.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
176916	A one-story converted motel office building. Attached to following resource, 176917, below. Currently (as of last survey) operating as a barber shop. Construction dates are unavailable.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176917	A one-story rectangular motel building with ten rooms. Assocated with resource 176916. Construction dates are unavailable.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176918	A one-story commercial building composed of two Quonset Hut style structures and a single flat façade. Currently (as of last survey) operating as an auto maintenance shop. Construction dates are unknown at this juncture.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176919	A small one-story building of unknown stylistic affiliation. Currently (as of last survey) operating as an office for a used car lot. Related to 176920 below. Construction dates are unavailable.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176920	A one-story building of unknown stylistic affiliation. Related to resource 176919 above. Construction dates are unavailable.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176921	A one-story early Ranch style house. Construction dates to 1941.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
1769222	A one-story Modern style commercial building. Currently (as of last survey) operating as a lawnmower sales/shop.	Recommended as appearing ineligible	2000 McElroy	Anaheim	No
176992	A one-story mid-20th century commercial building with very little alterations from original construction that is dated to 1947. Currently (as of last survey) and historically operating as "Bristol Drug Co."	Not evaluated	1986 Bissell	Newport Beach	Yes
176993	A small one-story house construction dated to 1923. The columned porch is the most noticeable architectural feature.	Not evaluated	1986 Bissell	Newport Beach	No
176994	A small one-story Mission revival style house. Construction dated to 1923.	Not evaluated	1986 Bissell	Newport Beach	No

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
176995	"Heinz House," a one-story Workman's Cottage style house. Construction date unknown, but moved to present location in 1948.	Not evaluated	1986 Bissell	Newport Beach	No
177013	A multiple structure property including a one-story residence and an apartment above the garage located behind the house. Construction date unknown.	Found ineligible for NR, CR, or Local designation through survey evaluation. (NRHP Status code 6Z)	1999 Grimes	Orange	No
177017	A one-story residence containing three separate apartments. Construction date unknown.	Found ineligible for NR, CR, or Local designation through survey evaluation. (NRHP Status code 6Z)	2001 Grimes	Orange	No
177027	A one-story Craftsman Bungalow style house. Construction dates to 1925.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177028	A multiple structure property containing three buildings. Two are commercial buildings ("Sarinana's Market" and "Sarinana's Tamale Factory"). The 3rd building is a one and a half story Queen Anne Cottage- style house. The residence was constructed in 1907, while the commercial buildings were built in 1938.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177029	A small one-story Craftsman Bungalow style house. Construction dated to 1920.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177030	A small one-story Modernistic style commercial building. "Carnitas Uruapan," still in operation as restaurant. Construction is dated to 1939.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177031	A large two-story industrial Vernacular style commercial building. Currently "Automotive Core Supplier Co.", historically "Hales-Hill Feed Warehouse." Construction dated to 1926.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177032	A multiple structure property consisting of six small one-story Vernacular style houses. Construction dates are 1925, 1936, 1938, 1945, and 1948.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes

Resource Identifier	Description	Significance	Date Recorded and Recorder/ Evaluator	Quadrangle	Within APE
177033	A multiple structure property including two Wood Industrial Vernacular style warehouses. Currently operating as "Foreign Wrecks West," historically operated as "Hayward Lumber and Investment Company." Construction is estimated to be around 1930.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177034	A small one-story Brick Commercial or Industrial Vernacular style building. Construction dated to 1922.	Recommended as appearing ineligible	1999 Slawson and Smith	Newport Beach	Yes
177036	A multiple structure property including the original Orange County Register newspaper, a Brutalist style building, built in 1956. Also contains a newer five-story industrial complex building, constructed in 1984.	Recommended as appearing ineligible	2010 Johnson	Orange	No
177651	SCCIC Missing Site Form	-	-	-	No
179851	A large one-story Modern/Eclectic style commercial retail building. Construction estimated to 1950's.	Determined ineligible for NR by consensus through Section 106 process-Not evaluated for CR or Local listing. (NRHP Status code 6Y2)	2007 Supernowicz	Newport Beach	No
179882	A large one-story, one-part commercial style commercial building. Construction is estimated between 1906 and 1924.	Found ineligible for NR, CR, or Local designation through survey evaluation. (NRHP Status code 6Z)	2008 Tibbet	Orange	Yes

3.1.4 Supplementary Research

Research to supplement the SCCIC results resulted in the identification of additional historic-period properties within the APE and near the APE. This supplementary research included a review of the Historic Property Data File, California Points of Historical Interest (CPHI), California Historical Landmarks (CHL), CRHR and NRHP databases and listings. **Table 3-3** includes 28 historic-period properties identified within the APE or near the APE, based on supplementary research. Five of the 28 historic-period properties are located within the APE and are historically significant. Four of the five properties located within the APE are listed on the NRHP and one is listed as a CPHI. Unless provided by the SCCIC, these historic-period properties were not mapped on the records search maps included in Exhibit A-3, due to insufficient locational data and information.

Table 3-3. Additional Historic-Period Properties Within or Near the APE

Resource Identifier	Resource Name	Resource Location	Registration (Date)	Within APE
30-158680	The Plaza	Chapman Ave. and Glassell St.	NR 78000729 (12/20/1978)	No
30-158935	St. John's Lutheran Church	185 S. Center St.	NR 91001520 (10/16/1991)	No
30-159124	Culver C.Z. House	205 E. Palmyra Ave.	NR 86000458 (3/201986)	No
30-159820	Ainsworth, Lewis House	414 E. Chapman Ave.	NR 81000163 (3/13/1981)	No
30-159886	Orange Intermediate School, Central Grammar School	370 N. Glassell St.	NR 93000282 (4/13/1993)	No
30-160313	Smith-Tuthill Funeral Parlors	518 N. Broadway	NR 78000732 (5/19/1978)	No
30-160320	Yost Theater - Ritz Hotel	301-307 N. Spurgeon	NR 86000107 (1/23/1986)	No
30-160336	Rankin Builidng	117 W. 4th St.	NR 83001220 (2/24/1983)	No
30-160351	Spurgeon Block	206 W. 4th St.	NR 79000516 (8/31/1979), CPHI P487 (10/29/1976)	No
30-160372	Santora Building	207 N. Broadway	NR 82000976 (12/27/1982), CPHI P484	No
30-160394	Builders Exchange	202-208 N. Main St.	NR 82002223 (4/29/1982)	No
30-160395	Odd Fellows Hall	309-311 N. Main St.	NR 83001218 (8/18/1983)	No
30-160397	Walker's Orange County Theater	308 N. Main St.	NR 82002224 (2/19/1982)	No
30-160398	Southern Counties Gas Co.	207 W. 2nd St.	NR 83001223 (7/28/1983)	No
30-160401	Orange County's Original Courthouse	211 W. Santa Ana Blvd.	NR 77000321 (8/29/1977), CHL 837 (11/3/1969)	Yes
30-160412	U.S. Post Office – Spurgeon Station	605 Bush St.	NR 85000134 (1/11/1985)	No
30-160415	Downtown Santa Ana Historic District	Roughly bounded by Civic Center Dr., First, Ross, and Spurgeon Streets	NR 84000438 (12/19/1984)	Yes
30-160790	French Park Historic District	Roughly bounded by N. Bush, E. Washington, N. Garfield, and Civic Center Dr.	NR 990000551 (5/12/1999)	No
30-161629	Harmon McNeil House	322 E. Chestnut St.	NR 85002764 (5/19/1978)	No
30-161701	Minter, George W. House	322 W. 3rd St.	NR 80000830 (6/9/1980)	No
30-161703	Pacific Electric Sub-Station No. 14	802 E. 5th St.	NR 93001219 (9/22/1983)	No
30-161900	Santa Ana City Hall	217 N. Main St.	NR 82000975 (11/10/1982)	No
30-162282	Howe-Waffle House and Carriage House	702 Bush St. and 105 E. 7th St.	NR 77000320 (4/13/1977), CHPI P341 (9/13/1974)	Yes
30-176771	Ebell Society of Santa Ana Valley	625 N. French St.	NR 01000682 (7/2/2001)	No
N/A	Smith-Tuthill Funeral Parlors (a.k.a. Smith-Tuthill-Lamb Mortuary)	518 N. Broadway	NR 78000732 (5/19/1978)	No
N/A	Young Men's Christian Association (YMCA) – Santa Ana-Tustin Chapter	203 and 205 W. Civic Center Dr.	NR 93000237 (3/25/1993)	Yes
N/A	Birch Park	210 N. Birch St.	CPHI P524 (12/6/1978)	No
N/A	Episcopal Church of the Messiah	614 N. Bush St.	CHPI P515 (12/1/1977)	Yes

The Santa Ana Register of Historic Properties (SARHP) was also reviewed. In total, 61 SARHP properties were identified as being located within the APE or near the APE. Of the 61 resources, 44 are located within the APE. **Table 3-4** below includes information on the SARHP properties. Unless provided by the SCCIC, these sites were not mapped on the records search maps included in Exhibit A-3, due to insufficient locational data and information. The City of Santa Ana did not have a master map or spatial database with these properties. However, on August 29, 2011, Ms. Karen Haluza, City of Santa Ana Planning Manager, completed a review of the SARHP and indicated there were no property acquisitions planned for properties listed on the SARHP.

Table 3-4. SARHP Properties Within or Near the APE

SARHP No.	Resource Name	Address/Location	Within APE
1	Orange County Courthouse	211 W. Santa Ana Blvd.	Yes
2	Howe-Waffle House and Carriage House; Howe-Waffle House; Dr. Howe-Waffle House	120 E. Civic Center Dr.	Yes
5	Masonic Temple	501 N. Sycamore St.	No
6	Young Men's Christian Association--Santa Ana-Tustin Chapter; YMCA	203 and 205 W. Civic Center Dr., Santa Ana CA	Yes
11	Phillips Block Building	301-309 W. 4th St.	Yes
14	United Presbyterian Church	113 E. Santa Ana Blvd.	No
20	Spurgeon Building	202, 204, 206, 208, 210, and 212 W. 4th St.	Yes
26	Thomas House	621 N. Spurgeon St.	Yes
27	Winslow-Laurence House	712 N. Bush St.	No
29	Whitson-Powelson House	501 E. 5th St.	Yes
30	Hotel Finley (400-412 E. 4th St.)	400 E. 4th St.	Yes
42	Ebell Club	625 N. French St.	No
86	Shelton-Garnsey House (1108 and 1108½ W. 5th St.)	1108 W. 5th St.	No
87	Busy Bee Market	1002 W. 3rd St.	No
94	Martin House	1035 W. 3rd St.	No
140	Clausen Block	408 W. 4th St.	Yes
144	Crabtree Saloon	219 W. 4th St.	Yes
145	Smith-Tuthill Funeral Parlors (a.k.a. Smith-Tuthill-Lamb Mortuary)	518 N. Broadway	No
152	The Elwood	214, 216, and 218 W. 4th St.	Yes
153	Fashion Saloon	221 and 223 W. 4th St.	Yes
155	Gilbert Dry Goods	110 W. 4th St.	Yes
160	Hawley's Sporting Goods	213, 215, and 217 W. 4th St.	Yes
164	Hill and Cardin Company	112 W. 4th St.	Yes
166	Horton's Furniture Building	517 and 519 N. Main St.	Yes
173	Knights of Pythias Hall	300 W. 5th St.	No
174	Lawrence Building	404 and 406 W. 4th St.	Yes
175	J.J. Wilson's Shoeshine Parlor; Beem Building	407, 409, and 411 N. Broadway	Yes

SARHP No.	Resource Name	Address/Location	Within APE
178	McFadden Public Market	515 N. Main St.	Yes
179	Old Company L Armory/ Mills & Edwards Feed Store	400 and 402 W. 4th St.	Yes
182	Moore Building	222 W. 4th St.	Yes
185	Old Woolworth Building	109 W. 4th St.	No
186	Orange County Savings and Trust Building	116 W. 4th St.	Yes
187	Otis Building	101 W. 4th St.	Yes
189	Parson Apartments	414 W. 4th St.	Yes
190	Parson Apartments Annex	412 W. 4th St.	Yes
191	Ramona Building	118 and 120 W. 5th St.	Yes
192	Rankin Department Store	117 W. 4th St.	Yes
194	Rohrs Building	415 N. Sycamore St.	No
197	Santa Ana Hardware Company Building	108 W. 4th St.	Yes
198	Semi-Tropic #2	209 and 211 W. 4th St.	Yes
218	West End Theatre	324 A and B W. 4th St.	Yes
232	Orange County Courthouse	30 Civic Center Plaza	No
234	First National Bank Building	102 and 106 W. 4th St.	Yes
235	Commercial Building	309 W. 3rd St.	No
236	Tinkers Jewelry	113 W. 4th St.	Yes
237	Bon Ton Bakery	310 W. 4th St.	Yes
238	Dragon Confectionery	104 and 106 E. 4th St.	Yes
239	Brunner Building/ Old City Jail	116 E. 4th St.	Yes
243	Semi-Tropic Hotel	312, 314, and 316 W. 4th St.	Yes
244	Gilmaker Block	302, 304, 306, and 308 W. 4th St.	Yes
245	Dibble Building	102 E. 4th St.	Yes
246	Shaffer-Wakeham Building	108, 110, and 112 E. 4th St.	Yes
247	Kryhl Building	118 E. 4th St.	Yes
250	Carey Smith Building	315 N. Main St.	No
251	EPISCOPAL CHURCH OF THE MESSIAH	614 N. Bush St.	Yes
254	Semi-Tropic #1	312, 314, and 316 E. 4th St.	Yes
255	Musselman Block	318 and 320 E. 4th St.	Yes
256	Hervey-Finley Block	202, 204, 206, 208, and 210 E. 4th St.	Yes
263	Cochems House	720 N. French St.	No
293	Fox House	713 N. Spurgeon St.	No
355	Pacific Electric Substation #1	475 N. Lacy St.	No

3.1.5 Historic Districts

As a result of the above records searches, two existing NRHP-listed historic districts have been identified within the APE. These historic districts are primarily geographic historic districts, and consist of a finite group of resources related to one another in a clearly distinguishable manner,

and within a geographically definable area which have related character, architectural styles, interrelationships, physical proximity, and association.

The following provides a brief discussion of the historic districts located within the APE:

- Downtown Santa Ana Historic District: The district was designated in 1983, updated in 1984 (NR 84000438), and has a period of significance from 1877 through 1934. According to the NRHP nomination form, the district originally encompassed 99 contributing buildings, with a northern portion of the district associated with government/institutional property types, and the southern portion of the district associated with retail and commercial uses. The boundaries of the historic district were described as Civic Center Drive, 1st Street, Ross Street, and Spurgeon Street.
- French Park Historic District: The district was designated in 1999 (NR 990000551), and has two different periods of significance: from 1877 through 1878, and from 1883 through 1945. According to the NRHP nomination form, the district originally encompassed 132 contributing resources (131 buildings, 1 site), and featured primarily residential and commercial property types. The district's boundaries were described as Civic Center Drive East, North Garfield Street, Wellington Street, North Lacy Street, Washington Street, Bush Street, and East 11th Street. There are no previously identified contributing resources to the French Park Historic District located within the APE.

The portions of the historic districts located within or near the APE are included in Exhibit A-2. Unless provided by the SCCIC, the contributing resources to each of the districts within the NRHP nomination forms were not mapped on the records search maps included in Exhibit A-3, due to insufficient locational data and information.

In addition to the two NRHP-listed historic districts, discussions with the City of Santa Ana indicated the City treats the Downtown Santa Ana Historic District and the French Park Historic District as a local specially zoned district, similar to a preservation overlay zone, for planning and preservation purposes. While the two NRHP-listed districts are not recognized as City of Santa Ana local historic districts, the City has design guidelines for these areas, and requires application of the Secretary of Interior Standards for Rehabilitation and Illustrated Guidelines for Rehabilitating Historic Buildings for any proposed project in those areas.

3.1.6 Historic Map Review

Historic topographic maps were reviewed at the South Central Coast Information Center and the California State University, Chico California Historical Topographic Map Collection (http://cricket.csuchico.edu/spcfotos/maps/topo_search.html) to identify the potential for historic resources to exist within the Study Area, and to aid in the development of the historic context.

Sanborn Fire Insurance Maps (1885 through 1969) were also reviewed. Overall, the purpose for obtaining the maps was to:

- Characterize the types of resources anticipated to be encountered during subsequent surveys, with special consideration given towards each of the station locations;
- Note the general distribution, location, and setting of properties located within the Study Area;
- Provide baseline data regarding justification of the APE delineation; and
- Facilitate the identification of original, historic-period, and/or character-defining features of the properties.

The results of the historic topographic and Sanborn map review are provided in Section 4.4. Copies of the historic maps are included in Exhibit A-6.

3.1.7 Parcel Data Review

Parcel data in GIS format for the APE environs was requested from the City of Santa Ana in July 2011. The data included Assessor Parcel Numbers (APN), addresses, limited ownership data, parcel boundaries, and Construction Dates for the APE environs.

The primary reasons for obtaining the parcel data as a part of the pre-field research included:

- Identification of properties constructed in or before 1961 within the APE; and
- Identification of predicted areas of sensitivity. Based on construction dates and historic patterns of planning, certain areas were identified prior to the field surveys which could have a concentration of historic-period properties.

Of note, parcel data were not available for most public properties (i.e., federally-, State-, or locally-owned) and some private properties. The parcel data received from the City of Santa Ana for the properties located within the APE are included in the APE maps included in Exhibit A-2.

3.1.8 Native American Contact

On June 6, 2011, a letter was sent to the Native American Heritage Commission (NAHC) requesting a records search of the Sacred Lands File maintained by the NAHC. On June 16, 2011, the NAHC provided a response letter indicating that the search was positive for Native American cultural resources within the Newport Beach USGS 7.5 Minute Series Quadrangle (more detailed USGS coordinates and information regarding the nature of the Native American cultural resources was not provided). The NAHC further provided a list of 15 Native American individuals or organizations to contact for obtaining more detailed information regarding the APE and cultural resources. Refer to Exhibit A-4 for a copy of the NAHC response letter.

A scoping letter and project map was submitted through email and United States domestic mail to these groups and/or individuals on July 7, 2010. To date no written responses have been received. In addition, phone calls to the Native American contacts were made on September 29, 2011. Anita Espinosa, Juaneño Band of Mission Indians, commented on September 29, 2011 that the area is considered sacred lands by the tribe and that she/tribe would like to be informed should archaeological remains be found. The tribe would also like to recommend that Native

American monitors be present during ground-disturbing activities. No additional responses have been received.

A summary and examples of the correspondence with the Native American contacts are included in Exhibit A-4.

3.1.9 Coordination with Local Historical Preservation Groups

Two public outreach meetings were conducted with the Santa Ana Historical Preservation Society on July 19, 2012 and September 20, 2012 to discuss the historic status of the Pacific Electric Santa Ana River Bridge and possible effects on the bridge by the proposed project. During the first meeting, the group stated that the bridge should be a National Register eligible resource and that it should be preserved rather than replaced with a replica bridge. Based on input from the community and the evaluation of the bridge as a National Register eligible resource, the alternative to replace the bridge was removed from consideration and additional alternatives were considered. A Bridge Evaluation Technical Memorandum was prepared that identified two potential alternatives (a single-track bridge adjacent to the south of the existing bridge and the relocation of the existing bridge 650 feet to the south, which could be repurposed as a separate project). These two alternatives were presented at the second meeting and the group voiced support for the option that left the bridge in its original location. Further analysis determined that the single-track alternative would result in the least environmental harm, and the relocation alternative was then eliminated from consideration, so that only the single-track bridge adjacent to the south of the existing historical bridge is evaluated as part of the proposed project.

Chapter 4 Historic Context

4.1 Physiography

With the exception of the PE ROW, which is primarily disturbed grass and dirt, the ground surface in the proposed project is overlain with asphalt, hardscape, landscaping, and existing buildings that date from the late nineteenth century to the present. The roadways have been paved and few areas of native soil and vegetation exist.

4.2 Prehistory

Native Americans occupied California for thousands of years prior to European contact and settlement. Archaeological work that has been completed within the State of California has shown that the lithic (stone) artifact assemblages associated with the Early Period in California are characterized by the presence of stemmed projectile points, and in some cases, 'fluted' and concave based points (Wallace, 1955, 1978, among others). Other Early Period lithic artifacts include cobble core and flake tools, a variety of bifaces, and expedient groundstone artifacts showing light-use wear (Moratto 1984). The following is a generally accepted prehistoric chronology of the region.

Paleondian Period (12,000 to 10,000 Before Present [B.P.])

Several terms have been used to classify the very early human occupations of the west, particularly in the Great Basin region. The term Paleo-Indian is used here to refer to the archaeological material associated with the "Fluted Point Tradition."

The consensus on the earliest known archaeological culture in North America is known as the Clovis Period. This period is characterized by a particular type of fluted projectile point.

Artifactual data is viewed as representing a Big Game Hunting Tradition exploiting Pleistocene megafauna. There is some data to suggest a Paleo-Indian presence in the region through some isolated Clovis Period projectile points, which have been found around Pleistocene lake margins in the Mojave Desert, in eastern San Diego County, and in Imperial County (Rondeau, Cassidy, and Jones 2007). These finds suggest early use of the region (hunting of megafauna), but an occupation of the area during this time has not been proven.

Holocene Chronology

The following periods are generally defined by diagnostic artifacts, primarily projectile points and atlatl dart points. The Holocene Era cultural history of the Study Area is outlined in the following chronology.

Lake Mojave Period (10,000 to 7,000 B.P.)

With the onset of the early Holocene around 10,000 years ago, significant warming and drying occurred in the environment, with hunter-gatherers adapting to the changing resource structure

along the coast and interior deserts of California. Lakes and streams within the interior desert regions gradually dried and shrank as compared with late Pleistocene times, resulting in the concurrent movement of people, often assigned to the Lake Mojave Tradition, from these once moist inland areas to the California coast, where more favorable conditions persisted (Byrd and Raab 2007). The Lake Mojave Tradition, which emphasized adaptations to lakes and marshes, gradually disappeared by 8,000 to 7,000 years ago as the environment warmed during the warm-dry Altithermal (Moratto 1984).

Leaf-shaped points like Lake Mojave projectile points and knives, crescents, and scrapers typically characterize the artifact assemblages found during this period, indicating a dependence on hunting various animals. Moratto (1984) concludes that Lake Mojave Tradition sites share certain characteristics. These include: (1) "…a tendency for sites to be located on or near the shores of former pluvial lakes and marshes or along old stream channels…"; (2) "…dependence on hunting various animals, fowling, collecting and gathering vegetal products…"; (3) "…an absence of ground stone artifacts such as milling stones, hence a presumed lack of hard seeds in the diet…"; (4) "…a developed flaked stone industry, marked especially by percussion flaked foliate (leaf shaped) knives or points, Silver Lake and Lake Mojave points, lanceolate bifaces, and points similar to the long stemmed variety from Lind Coulee (Hester 1973)…"; and (5) "a tool kit which commonly includes chipped stone crescents, large flake and core scrapers, choppers, scraper planes, hammerstones, several types of cores, drills, gravers, and diverse flakes."

Pinto Period (7,000 to 2,000 B.P.)

Pinto complex sites are fairly widespread compared with the other early cultural periods. The Pinto period is largely an extension of the preceding Lake Mojave period, with an emphasis on tool stones other than obsidian and cryptocrystalline silica (Sutton et al. 2007). A reduction in the variety of tool stone recovered from these sites suggests a decreased foraging range. Leaf-shaped Pinto points vary from large to small and were used as tips for thrusting spears. Pinto Period toolkits usually consist of knives, domed and elongated keeled scrapers, flake scrapers, drills, and engraving tools. A major difference between the Pinto and Mojave Period sites is the increased use of ground stone later in time. The presence of ground stone in early Pinto complex sites indicates that plant processing played an increased role in the subsistence economy as early as 7000 calibrated B.P. (Sutton et al. 2007). In fact, some evidence suggests that during the Pinto Period, sites were selected based on the availability of plant resources and water availability. Camps were likely occupied on a seasonal basis.

Gypsum Period (2,000 B.P to A.D. 200)

This period is characterized by the presence of Humboldt Concave Base, Elko Eared, or Elko Corner notched projectile points. The cultural assemblage includes leaf-shaped points, rectangular-based knives, flake scrapers, T-shaped drills, and occasionally large scraperplanes, choppers, and hammerstones. Use of milling stones and manos became fairly common during this period, and the mortar and pestle were introduced. Additional artifacts include shaftsmoothers; incised slate and sandstone tablets and pendants; fragments of drilled slate tubes; Haliotis rings, beads and ornaments of the "Middle Horizon," Olivella shell beads, and

bone awls. Haliotis rings and Olivella shell beads from the coast have been found at several sites in the Great Basin and as far away as the Owens Valley, indicating trade between coastal and inland peoples.

The beginning of the Gypsum Period coincides with the beginning of the Little Pluvial Climatic Period and continues into the Arid Period. Apparently, the moist conditions present at the beginning of the Gypsum Period allowed for more intensive occupation of the nearby Mojave Desert.

Rose Springs Period (A.D. 200 to A.D. 1100)

The diagnostic artifacts of the Rose Springs Period include Eastgate and Rose Springs projectile points, with stone knives, drills, and milling implements, commonly occurring in the western Mojave Desert (Sutton et al. 2007). The small size of the proposed projectile points suggests they were hafted on arrows. Milling stones continued to be used for processing vegetal materials. Rose Springs Period sites occur in many environmental settings, including washes, near springs, and sometimes lakeshores (Sutton et al. 2007). More intensive use of these areas and others is indicated by the remains of architectural features such as wickiups, pit houses, and other types of structures (Sutton et al. 2007). Along with an apparent rise in population, there was an apparent increase in the amount and extent of trading networks. Obsidian obtained from the distant Coso Volcanic Field is common in Rose Spring Period sites, and attests to the movement of this tool stone across space.

Late Prehistoric Period (A.D. 100 to Contact [1542])

The Late Prehistoric Period began in A.D. 100 and lasted until initial European contact in A.D. 1542. Spanish colonization began in earnest in A.D. 1769. The beginning of this period was marked by a decline in population (Sutton et al. 2007), probably as a result of the Medieval Climatic Anomaly, a warm period that lasted from A.D. 800 to 1300 (West et al. 2007). The Late Prehistoric Period is noteworthy because many ethnographic groups in the area have been documented archaeologically.

Material culture increased in complexity during this period, with an increase in the classes and types of artifacts produced. Large numbers and several types of small projectile points—particularly the Cottonwood and Desert side-notched varieties—reflect an elaboration of bow-and- arrow technology. Buffware and brown-ware ceramics were also introduced to the area during this time. Other items of material culture, some of them traded from the coast to the interior, include steatite containers, shell fishhooks, shell beads and other ornamental items, asphalt adhesive, perforated stones, and bone tools.

During the final centuries before European contact, the archaeological record reveals substantial increases in population. Some villages potentially contained as many as 1,500 individuals, and many were occupied throughout the year. This settlement strategy was influenced by improvements in food procurement, processing, and storage, as well as by an elaboration of

trading networks based on marriage alliances and ceremonial relationships that integrated people across spatial and linguistic divides.

4.3 Ethnography

The south coastal plain of California was occupied by a variety of Native American groups, and those within the proposed project limits at the time of Spanish contact would have consisted of the Gabrielino or Tongva people. The word Gabrielino came from the nearby Mission San Gabriel Archangel, which was established in 1771. The Gabrielino/Tongva occupied the entire Los Angeles Basin and several of the nearby off-shore islands and were considered to have been one of the most populous and wealthy tribes in the region prior to European contact (Bean and Smith 1978). They were surrounded by several neighboring groups, including the Chumash, Tataviam, Serrano, Cahuilla, Juaneño, and Luiseño (Bean and Smith 1978).

Numerous villages, consisting of some 50 to 100 individuals per village, comprised the Gabrielino/Tongva region at the time of contact. Some villages may have contained as many as 200 individuals. Villages may have numbered as many as 100 within their territory. Culture was similar to their surrounding neighbors, and consisted of kinship groups composed of several related families who owned hunting and gathering territories. Material culture reflected the needs of a hunting/gathering society and consisted of lithic items for hunting, milling implements including mano, metate, bedrock, and portable milling stones, basketry, and later in time, pottery vessels and tools made from a variety of lithics and animal bones. The Gabrielino are also known for their extensive use of steatite, a characteristic that is distinct from other surrounding tribes (Bean and Smith 1978; Kroeber 1925).

Economy was based on hunting and gathering. Family groups were semi-nomadic and would travel seasonally to harvest natural resources from different locales. No agriculture was practiced, although there is evidence of the pruning of tobacco plants to improve the plant and the burning of wild seed fields to improve the plant yields for the next year. It is generally accepted that many California Native American groups who were thought to engage in simple hunting and gathering, practiced a form of slash-and-burn horticulture, where the native plant environment was "tended to" in order to yield larger harvests.

Acorns were a major staple, as they were for most southern California tribes. Important sources of food included *Arctostaphylos* (Manzanita), *Coreopsis* (tickweed), *Juniperus* (juniper), *Lepidium* (peppergrass), *Lomatium* (wild celery and wild parsley), *Oryzopsis* (rice grass), *Perideridia* (Indian carrot), *Pinus* (pine, pinyon), *Quercus* (oak), *Salvia* (chia), *Stipa* (speargrass), and *yucca* (yucca). While the Gabrielino/Tongva relied heavily on the acorn as a foodstuff, the reliance on particular plants was dependent on nearby environments and seasonal variances. Animals hunted included deer, coyote, rabbits, squirrels, birds, and snakes, as well as fish and shellfish from the adjacent coast. The Gabrielino/Tongva were also known for their seaworthy canoes and heavy dependence on maritime industries (Bean and Smith 1978).

Individual dwellings consisted of temporary structures comprised of a circular domed structure made of willow frames and covered with tule thatching. Structures were made of juniper boughs

forming an oval shape and measuring approximately 12 by 10 feet in diameter and approximately five feet tall. In addition, earth-covered sweat houses were constructed next to water sources (Kroeber 1925).

The Gabrielino/Tongva population began a rapid decline with European contact due to the introduction of diseases, forced relocation to any of the four missions that were located within or adjacent to Gabrielino territory, and the general ill-treatment of the Native American population throughout California (Castillo 1978). By the early 1900s few Gabrielino/Tongva people survived and their material culture and social structure had, for the most part, been irretrievably lost (Bean and Smith 1978).

4.4 History

The portions of the following historic context relating to the Downtown Santa Ana Historic District and the Pacific Electric (Old Pacific Electric) Railroad and Santa Ana Bridge were extracted from recordation forms completed by Harold M. Thomas (1983) and Roger G. Hatheway (1983), respectively.

Spanish and Mexican Period

The City of Santa Ana sits on land claimed by Spanish missionaries in the late 18th century. This Spanish mission land was subsequently conferred to Jose Antonio Yorba by the King of Spain in 1810, at which point it was named Rancho Santiago de Santa Ana. The large land grant began at the Santa Ana River and extended eastward for more than 22 miles to the Santa Ana Mountains.

In 1821, Mexico won its independence from Spain, bringing Rancho Santiago de Santa Ana and the rest of Spanish California under Mexican governance. The newly-formed Mexican government sponsored the formation of pueblos, awarded large tracts of land to those integral to its independence movement, and secularized the old Spanish missions, opening the former mission lands up to public settlement. However, Rancho Santiago de Santa Ana remained a private holding throughout the Mexican period. The modern-day City of Garden Grove was originally part of the Las Bolsas Rancho granted by the Mexican Governor of Alta California, José Figueroa, to Maria Catarina Ruiz in 1834.

During the 1830s, contention over land rights between the Mexican nation and the neighboring United States began to arise. This rivalry further intensified in the 1840s, eventually resulting in the Mexican American War in 1846. The subsequent Treaty of Guadalupe Hidalgo, signed in 1848, brought an end to the war and transferred the lands of Alta, or Upper, California to the United States.

American Period

The year following the signing of the Treaty of Guadalupe Hidalgo, gold was discovered in northern California, drawing enormous numbers of migrants from the U.S. and the world at-large

into the territory, accelerating the development of the frontier land, and setting the stage for California's admittance into the Union in 1850.

The Treaty of Guadalupe Hidalgo dictated that the U.S. government honor all standing land grants in its newly-acquired holdings. Accordingly, Rancho Santiago de Santa Ana was patented to the Yorba family in 1853. One year later, the family sold the tract to José Andrés Sepúlveda who eventually lost it due to bankruptcy incurred while attempting to uphold his land claims in federal court. In the following decades, alternating spells of severe drought and heavy flooding brought great destruction to the livestock and crops that southern California residents had relied so largely upon for their livelihood. These climatic extremes led to the dissolution of the region's large ranchos. In their place, small settlements were formed to serve the agrarian-based economy centered on the Santa Ana River floodplain.

City of Santa Ana and Town of Garden Grove Founded

Developer William H. Spurgeon and his business partner Ward Bradford purchased a 74-acre parcel of the former Rancho Santiago de Santa Ana in 1869. The pair hired George Wright to lay out a 24-square block townsite which was plotted in late 1870. Spurgeon named his new town "Santa Ana" in honor of the original Spanish land grant (Marsh 1994). Boasting more than 2,000 residents, the City of Santa Ana was incorporated in 1886, and when Orange County was formed in 1889, Santa Ana was selected to be the county seat. This important role would help foster a period of dynamic growth for the blossoming city. Administrative activity increased, newcomers poured in, residential and commercial development surged, and public services began to expand and evolve as the 19th century came to a close. Before long, Santa Ana contained a county courthouse, public schools and a community library, as well as attaining access to both the Southern Pacific and Santa Fe Railroads. After the turn of the century, the introduction of automobiles, the rise of the oil industry, and the proliferation of utility networks combined to push Santa Ana further from its rural beginnings; however, the City's outskirts were still dominated by agricultural pursuits.

Whereas Santa Ana developed rapidly, Garden Grove, its neighbor to the west, had a far more deliberate early development. After Alta California was transferred from Mexico to the U.S., the Las Bolsas Rancho was split up and sold off into smaller parcels of land. One such stretch of 160 acres was bought by Alonzo Cook in 1874. Cook proceeded to found the town of Garden Grove on this holding, establishing a school district and opening a Methodist church the same year. When Orange County was formed fifteen years later, Garden Grove's population had only reached 200. This small town would remain a quiet rural crossroads until the turn of the 20th century.

It was during this period that the modern Downtown Santa Ana Historic District, which is partially within the APE, was first developed. Today, the Downtown Santa Ana Historic District includes approximately 99 buildings which remain from the early part of the 20th century when they served as the commercial core of Santa Ana and as the retail center of the larger Santa Ana region. The predominantly two-story business blocks with ground level retail uses and upper

story residential or office uses are complemented by a scattering of taller structures, the largest of which is six stories. The buildings date from the late 1870s to the post-earthquake reconstructions that took place in 1934. They include commercial buildings, churches, fraternal halls, and civic buildings, which remain as a collection of historically and architecturally significant structures that typify a complete small city urban environment as it would have existed in the first 3rd of the 20th century. The Santa Ana of the 1880s consisted of five brick business blocks along 4th Street straddling the intersection with Main Street. The design style, characterized by articulated cornices, Italianate window hoods, and large wood and iron storefronts, is no longer in evidence from the street due to the major earthquake suffered in 1933 and the procession of renovations and retrofits executed over the course of time (Thomas 1983).

Several efforts were made to establish a streetcar system in the vicinity of Santa Ana including the El Modena, Tustin and Orange lines; however, none of these efforts would prove to be a financial success. The boom of the eighties and the arrival of both the Santa Fe and the Southern Pacific railroads had served to make Santa Ana the most important transportation center in the county, but it was not until the arrival of the Pacific Electric Railway that the major systems were profitably interconnected (Hatheway 1983).

On November 6, 1905, the first Pacific Electric train arrived in Santa Ana as an extension of local train service in Orange County that had begun in 1904. The Pacific Electric Railway was the brainchild of Henry E. Huntington. Following the 1900 death of Collis Huntington, Henry's uncle (a member of the Big Four of the western railroading) for whom he had worked, Henry Huntington sold his Southern Pacific stock to E. H. Harriman, chairman of the Union Pacific, upon learning that he would not be named president of the Southern Pacific. Huntington immediately proceeded to build his Pacific Electric Railway, with the idea of making all of Southern California an interconnected system. His idea succeeded spectacularly, for by 1906 the Pacific Electric not only carried a large commuter population but was also the 3rd largest freight carrier in California. In 1910, the Southern Pacific Railroad purchased the Pacific Electric "red car" system from Huntington, continuing to operate the Orange County Santa Ana line until 1950, when it was abandoned (Hatheway 1983). The Santa Ana-Orange line, which is partially within the APE, began at the Southern Pacific Santa Ana Station, where it headed west along 4th Street before turning north on Main Street. Once in Orange, the line continued east onto a private roadway before reaching its terminus at the Pacific Electric Station at Lemon Street (Electrical Railway Historical Association of Southern California website, accessed 20 July 2011).

The Pegram-truss Pacific Electric Santa Ana River Bridge, which is within the APE, was built in 1905 over the Santa Ana River. Construction on the roadbed may have begun in 1904, but it is unlikely that the bridge itself was constructed more than a year prior to the inauguration of service over the line. The bridge served as the first and only Santa Ana River crossing of the Pacific Electric in this portion of the County until its abandonment in 1950 (Hatheway 1983).

1905 also brought the arrival of the Pacific Electric train to the town of Garden Grove. This development sparked a period of significant growth for the once lacking community. Soon after

the arrival of the railroad, telephone, gas, and electrical service also became available to downtown residents of Garden Grove, furthering the town's economic advancement. A period of agricultural prosperity followed, as residents cultivated oranges, walnuts, chili peppers, and later strawberries. Even in the face of two major disasters, specifically a flood in 1916 and an earthquake in 1933, Garden Grove continued to gradually develop and expand.

The end of the First World War brought new settlers into Orange County, as ambitious veterans sought out opportune locations to start and provide for their families. These newcomers triggered a county-wide construction boom that favored the planning and development of housing tracts outside of, but still within reach of, urban centers (Padon 2001). Craftsman bungalows were the favored style of architecture in the decade following World War I (WWI). Open, simple, and functional, Craftsman bungalows, also known as California bungalows, often featured extended front porches straddled by columns, large windows, exposed wooden structural elements, and low-pitched gabled roofs with broad eaves. This style, as part of the larger American Arts and Crafts movement, lent itself to numerous variations in size and detail while still holding firm to a universal philosophy of design (Padon 2001). Other styles, such as Spanish Colonial Revival, English Tudor, Mediterranean Revival, and American Colonial Revival were also commonplace throughout Santa Ana during this span of development. Early forms of Art Deco architecture, popular from 1910 to 1930, also began appearing beside their bungalow and revival-style counterparts (McAlester and McAlester 1984). The Art Deco school of design is best known for its inclusion of linear symmetry, stepped forms, and geometric curves in league with its use of aluminum, stainless steel, lacquer, chrome, inlaid wood, and an early form of plastic known as Bakelite as its primary building materials (McAlester and McAlester 1984).

The 1920s also brought exploding population growth in Orange County, and Santa Ana was the primary beneficiary. The entire Downtown Santa Ana Historic District south of 4th Street was constructed in the 1920s, mostly in the Spanish Colonial Revival style. However, many of these storefronts did not survive the 1933 earthquake, and appear today with Moderne style facades on the ground story. The business blocks that presently front Main Street north of 4th Street all date from the 1920s (Thomas 1983).

While residential development advanced in the 1920s and 1930s, commercial and agricultural enterprises also continued to flourish in the City of Santa Ana. Many small commercial buildings were built to serve the growing residential population during the post-WWI period, including restaurants, gas stations, offices, hotels, and theaters. However, a large portion of the City was still principally agricultural (Willdan Associates 1987). Citrus groves, poultry farms, bean fields, and truck farms continued to prosper and gain momentum as WW II approached (Padon 2001).

Post-World War II Suburbanization

During WWII and the immediate postwar period, the installation of military facilities adjacent to the City of Santa Ana brought on a renewed era of material and commercial expansion. Thousands of new jobs pumped dollars into the local economy, and new housing was required to meet the demands of the newest wave of immigration into the City (City of Santa Ana 2007).

When WWII came to a close, Santa Ana, like most cities in the western U.S., encountered a major population swell as veterans returned home, married, and began families. In response to these trends, developers began acquiring large portions of the agricultural lands surrounding downtown and laid them out in residential subdivisions. It was during this period that Garden Grove experienced its most explosive stretch of growth and development. Incorporated as a city in 1956, Garden Grove was the fastest growing city in the nation in the 1950s. In fact, by the date of its incorporation, its population exceeded 40,000, largely due to the mass influx of WWII veterans as seen across the county and region. Most of the homes and residential neighborhoods in the City of Garden Grove were initially developed in the 1950s and 1960s.

A series of other factors also lent to the hasty residential expansion of Santa Ana's outskirts. Government programs helped veterans and new families secure mortgages; the establishment of Santa Ana College in 1947 drew aspiring young students in noticeable numbers; and the construction of the Santa Ana Freeway in 1952 (Interstate 5) granted Los Angeles residents easy access to Santa Ana and also attracted industry into the region (Ames and McClelland 2002; Abbott 2007; Becker 2010).

The post-World War II (WWII) housing boom brought a significant change in the manner in which residential tracts were developed. Whereas in the early 20th century, developers had cleared the land, laid out streets and sidewalks, then sold the lots to individual buyers who constructed their own homes, developers in the post-WWII period sold the complete package– an improved lot with a mass-produced home (Abbott 2007). The process of building mass-producing homes was perfected by Arthur Levitt and Sons, a developer on the east coast, who started Levittown outside of New York City in 1947. By 1959, large-scale developers were responsible for 60% of the home building in the United States, in comparison to only 5% before the war (Abbott 2007).

The post-WWII suburbs near the western portion of the APE were often laid out on curvilinear streets with cul-de-sacs, a form that was dictated in the FHA guidelines for neighborhood planning. Initially, the homes built right after the war were simple structures, influenced by FHA 1940 guidelines for the Minimum House and Small House Program, which emphasized a flexible system of house design based on the "principles of expandability, standardization, and variability" (Ames and McClelland 2002). The homes were constructed to provide "a maximum accommodation within a minimum of means" (Ames and McClelland 2002). These "minimum" houses are usually labeled as the Minimal Traditional style (McAlester and McAlester 1984). The Minimal Traditional style, popular between circa 1935 and 1950, reflected traditional architectural forms and eclectic styles but generally displayed simpler and less extensive decorative architectural detailing than revival styles that came previously. Minimal Traditional houses are usually modest in scale with one level, and common decorative features include small, simple porches, and chimneys. The roofs are low pitch with shallow eaves. Pre-WWII examples usually have a detached garage whereas post-WWII examples may have a garage attached (Gottfried and Jennings 2009).

By the early 1950s, suburban housing near the APE began to reflect the growing affluence of the country's citizens and their preference for more space. The Ranch style house was the

dominant suburban house style from the 1950s through the 1960s. The suburban Ranch house was at first just a slightly altered Minimal Traditional residence with an asymmetrical façade and more of a horizontal emphasis. However, in the 1950s, Ranch style homes were built larger and in various configurations. The Ranch house was characterized by a horizontal emphasis with a low-pitch roof and combination of cladding materials such as a brick and clapboard. It featured double-hung windows with horizontal glazing bars or casement windows arranged in a band across the façade and other elevations and often picture windows in the living rooms. The Ranch commonly had a small terrace or patio in front or back, an interior or exterior brick chimney, and a side or off-center entrance flush with the façade plane (Gottfried and Jennings 2009; Ames and McClelland 2002).

Recent Development in Santa Ana and Garden Grove

During the 1960s through the late 1970s, master planned communities began to emerge in southern Orange County, residential neighborhoods continued to fill in the remaining undeveloped land in Cities of Santa Ana and Garden Grove. However, during this period developers shifted toward apartment construction in Santa Ana, a trend that continued through much of the 1980s. This new housing accommodated a wave of population growth, initially from families migrating from the greater Los Angeles area, and later, in the 1980s, from immigration from other countries. The same can be said for the City of Garden Grove, which saw a sharp increase in Asian immigration during the 1970s and 1980s. Specifically, large numbers of Vietnamese and Korean immigrants poured into the area. In recent decades, Santa Ana has experienced slower growth in housing, due in part to the lack of vacant land and built-out fabric from 1990 through 2007, but the City's population has actually increased by about 60,000, due to increased immigration from other countries, migration of families from other cities, and demographic trends reflective of the Southern California region (City of Santa Ana 2007).

Historic Map Review

The earliest topographic maps of the APE prepared by the USGS, specifically the 1901 Anaheim Quadrangle map, which includes approximately the western 3rd of the APE, and the 1902 (revised to 1946) Corona Quadrangle map, which includes the entire APE, show the City of Santa Ana as a planned but sparsely developed municipality. Streets are laid out, and a development cluster exists in the current downtown area, but it appears to be very small. These maps also suggest that development was focused around the Southern Pacific Railroad terminal within the City of Santa Ana. A 1935 topographic map of the Newport Beach Quadrangle, which focuses approximately on the central 3rd of the APE, shows many more homes and structures than can be seen just a few decades before, and a 1942 map of the Anaheim Quadrangle, which includes the northwestern section of the APE, further demonstrates the same trend, as it features the extension of major roadways in the region and an area of concentrated development east of the Santa Ana River. Topographic maps generated in 1964 and 1965 (Tustin, Newport Beach, Anaheim, and Orange Quadrangles) show major development in and around downtown Santa Ana as well as the suburban areas west of the Santa Ana River. Santa

Ana College and Honer Plaza and other shopping centers can be seen in the 1965 Anaheim Quadrangle map, which approximately highlights the western 3rd of the APE. The 1964 Orange Quadrangle map, which approximately covers the eastern 3rd of the APE, features urban parks, shopping centers, and a thoroughly developed downtown area, as does the 1965 Newport Beach Quadrangle map, which approximately covers the central 3rd of the APE. The 1965 Tustin Quadrangle map, which includes the northern section of the eastern 3rd of the APE, highlights the development of south Santa Ana. A 1974 topographic map of the Orange Quadrangle, which covers the southern section of the eastern 3rd of the APE, shows the City of Santa Ana as a fully developed urban center with dense suburban outskirts.

An examination of Sanborn Fire Insurance Maps demonstrates a similar chronological progression from sparse development to a fully-fledged metropolitan area. Sanborn maps composed between 1885 and 1888 highlight 4th Street, within the APE, as the main corridor, with development thinning out north toward 5th Street and south toward 3rd Street. By 1906, Sanborn maps show the streets crossing 4th Street in the main corridor, within the APE, starting to fill in, specifically Sycamore, Main, and Bush Streets. Maps from this year also demonstrate the expansion of the areas north and south of 4th Street, east of Olive Street, and west of Birch Street, showing new churches, schools, and subdivisions where empty lots once stood. Sanborn Fire Insurance Maps from 1949 and 1969 show continued signs of urban and suburban development, as lots that were previously empty on earlier maps continue to be divided and developed. It is also important to note that the earliest Sanborn Fire Insurance Maps covered a very limited area. In fact, Sanborn Maps dated from 1885-1888 only cover the immediate downtown area, with the 1885 maps limited strictly to the area between 2nd and 6th Streets (east-west arterials) and Birch and Main Streets (north-south arterials). In 1906, Sanborn maps covered nearly double the area that was surveyed two decades before, indicating a marked development outward from the city center at the turn of the century, as residential and commercial structures began filling in the plots surrounding the City's governmental buildings. Sanborn maps generated post-WWII covered a far greater expanse than their 1885 and 1906 counterparts, with those drafted in 1949 covering the City of Santa Ana in its entirety and those drafted in 1969 covering the City and its surrounding suburban enclaves.

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Chapter 5 Field Methods

In accordance with regulations promulgated by the State Office of Historic Preservation, the survey population properties were inspected in the field, recorded, and photographed in June and July 2011. All cultural resources work for the proposed project was conducted by personnel who meet the Secretary of Interior professional qualifications for archaeology, history, and architectural history. All cultural resources work is consistent with the procedures for compliance with Section 106 of the NHPA and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties" (Section 106), NEPA Section 102(2)(c), and in accordance with CEQA Guidelines Section 15064.5(a)(2)-(3) of the CEQA Guidelines using the criteria outlined in Public Resources Code (PRC) Section 5024.1.

5.1 Archaeological Survey Methods

On June 13, 2011, investigators performed a Phase I archaeological survey of the APE. The Phase I archaeological survey consisted of a windshield survey, intensive pedestrian survey, and reconnaissance walkover of the APE. The archaeologist walked fifteen-meter transects across the APE as part of the intensive pedestrian survey. Approximately 95 percent of the ground was visible within the APE. Overall, the APE appears to be disturbed with: extensive amounts of hardscape, asphalt, and pavement surfaces; graded gravel and paved roadways (one to two lanes in width); recent commercial, residential, and industrial development (with buildings significantly setback from the roadways); and, demolished buildings and/or graded lots and parcels. Of note, due to private property restrictions (e.g., owner permission, fencing, gates, signage), portions of the APE were inaccessible for the intensive pedestrian survey, particularly parcels immediately outside of the maximum footprint for construction, ground-disturbance, and grading areas, In these areas, the archaeological survey of the APE was limited to the areas of direct impact from the proposed project, since these areas of the APE would not be physically demolished, destroyed, relocated/removed, materially altered, or impacted from neglect or deterioration as a result of this project. Consequently, investigators completed a reconnaissance walkover with opportunistic survey methods employed for those inaccessible areas. These inaccessible areas consisted primarily of local commercial, civic, and residential properties, as well as graded and disturbed dirt roadways which are presently used as access roads and driveways. In total, one archaeological resource was recorded, and is included as Map Reference SAFG-PEROW-1.

5.2 Architectural History Survey Methods

On June 14, 2011, investigators completed a reconnaissance windshield survey of the APE. The purpose of the windshield survey was to:

- Identify any key constraints, considerations, or fatal flaws that were apparent;
- Characterize the types of resources anticipated to be encountered during subsequent surveys;

- Note the general distribution, location, and setting of properties located within the Study Area;
- Provide baseline data regarding justification of the APE delineation;
- Accomplish early identification of potentially significant historic-period properties; and
- Facilitate the identification of affected original, historic-period, and/or character defining features of the properties.

The results of the windshield survey were shared with the proposed project team engineers, planners, and designers via conference call on June 16, 2011. Results were discussed as a measure to facilitate the avoidance of impacts to potentially significant historic-period properties either through physical avoidance or implementation of the Secretary of Interior Standards for Rehabilitation, as well as to avoid delay of the progress of the proposed project.

On June 14 through 16, and July 15, 2011, investigators conducted an architectural history survey of the properties within the APE. Properties within the APE which appeared to have been built more than 50 years ago (i.e., constructed in 1961 or earlier) were photographed and field forms were completed. The survey of the APE occurred from public vantage points, since site access and right-of-entry were not available at the time of survey for the privately-owned parcels. Following completion of survey and historic research, properties previously recorded as eligible for listing in the NRHP, CRHR or considered historical resources for purpose of CEQA (i.e., listed on the Santa Ana Register of Historic Properties [SARHP]), and all properties not previously recorded, but appearing eligible for listing in the NRHP, CRHR, or considered historical resources for purposes of CEQA, were recorded through California Department of Parks and Recreation (DPR) 523 forms (refer to Exhibit A-7). In total, 68 architectural history resources were recorded, and are included as Map Reference 1 through 68. Copies of field forms and maps for properties surveyed in the field are included in Exhibits A-5 and A-6.

The qualifications of the individuals contributing to the report are summarized in Section 10.0 (Qualifications of the Preparers).

Chapter 6 Survey Results

As a result of the field surveys and background research, investigators identified one archaeological resource and 68 architectural history resources in the APE.

6.1 Archaeological Survey Results

Based on the background research and historic research, there are seven previously recorded archaeological resources in the APE. These resources were not re-located or re-recorded during field surveys due to limited or restricted access, safety concerns, redevelopment, or data recovery efforts. Many of the redeveloped properties were part of the construction of a federal courthouse and civic complex in the early 1990s, which demolished several downtown blocks. The following provides additional details on those resources:

- Previously recorded cultural resources 1374, 1376, 1377, 1378, and 1379 recorded in 1994, are no longer extant, and have been re-developed as part of the construction associated with the Ronald Reagan Federal Court;
- Previously recorded cultural resource 1031, recorded in 1983 as a cleared lot that previously contained several structures (e.g., pre-1900 privy), was redeveloped in support of an OCTA terminal, and now contains a large office complex; and
- Previously recorded cultural resource 1598, recorded in 2001 as a historic-period trash scatter (e.g., bottles, construction materials) on a private lot used as a warehouse, was not accessible during this survey; however, the site was described as destroyed in 2001.

Investigators identified one archaeological resource in the APE: Map Reference SAFG-PEROW-1, which is a portion of the former Pacific Electric Streetcar ROW.

The resource in the APE is extensively disturbed and no longer has its major physical features, such as its tracks. It presently consists primarily of a pedestrian trail composed of sand and gravel. The archaeological resource was recorded and evaluated for eligibility to the NRHP, CRHR, and as a historical resource for purposes of CEQA.

6.2 Architectural History Survey Results

Within the APE, 68 architectural history resources were recorded and evaluated for eligibility to the NRHP, CRHR, or as historical resources for purposes of CEQA as Map Reference 1 through 68 (See **Table 7-1** in Chapter 7). The 11 architectural history resources recorded in the western 3rd of the APE are mostly vernacular-style, one-story industrial buildings and structures constructed between 1905 and the 1950s, including warehouses, a pair of Quonset huts (MR 2) and the Pacific Electric Santa Ana River Bridge (MR 3). Several small vernacular-style commercial buildings, one and two-story, which were constructed between 1938 and 1947, and a 1953 Ranch-style residence were also recorded. Of the 53 properties in the eastern 3rd of the APE, which is situated in historic Downtown Santa Ana, 34 are two-part commercial blocks constructed between 1877 and 1924, most with façade renovations in the 1930s and 1950s.

There are a smaller number of one-part commercial blocks (seven) constructed between 1877 and 1920 and three-part commercial blocks (three) built in 1923. In addition, the Downtown area contains a theater built in 1915 (MR 17), four churches constructed between 1895 and 1937, a 1901 courthouse, a 1923 YMCA, a 1931 post office, and four residences constructed between 1887 and approximately 1906. The far eastern portion of the APE contains a portion of the 1885 through 1888 Burlington Northern Santa Fe Railway. Architectural styles are diverse, and include vernacular, Ranch, Craftsman, Neoclassical, Spanish Colonial Revival, Art Deco, Queen Anne, and Gothic Revival.

Map Reference 1 through 11 (See **Table 7-1** in Chapter 7 and Exhibit A-6), are located in a mixed-use (primarily residential, commercial, and light industrial) area of Santa Ana, surrounded by similar properties. Map Reference 12 through 68 (commercial, religious, residential, and civic) are located in the densely developed downtown and are surrounded by similar properties. There are no cultural landscapes as defined by NRHP guidance located within the APE. The attached DPR 523 forms (Exhibit A-7) provide specific descriptions and evaluations for each of the recorded properties.

Chapter 7 Findings and Mitigation Measures

7.1 Archaeological Resources Recorded as Part of This Study

The archaeological resource identified in the APE during field survey was Map Reference SAFG-PEROW-1, and is a portion of the former PE ROW.

SAFG-PEROW-1 is a historic linear feature property comprised of a historic ROW for the Pacific Electric Railway. During the 2011 survey, the historic linear property ROW segment was recorded as a slightly raised pedestrian walkway (no vehicle access) comprised of sand and gravel, and extending for approximately 1.25 miles on a northwest to southeast orientation, with the accessible portions beginning at Westminster Avenue and terminating at the Santa Ana River. The site is approximately 80 to 100 feet in width, with the central elevated portion averaging 50 to 60 feet in width. The site is bound to the northeast and southwest by both residential and commercial private properties including the Willowick Golf Course along the southwestern margin. The site is bound to the northwest by Westminster Avenue and commercial property adjacent to the southern margin of the street. There were no artifacts observed associated with this resource.

Other portions of the Pacific Electric Railway ROW, outside of the APE, were previously evaluated as part of an EA/EIR for the State Route 22 – West Orange County Connection project prepared for Caltrans in 2003. The final version of the report states:

> "The former PE ROW was investigated in the course of cultural resources fieldwork. All tracks and associated rail features, such as switches, signals, poles and overheads, were removed following abandonment of the line in 1950. Much of the alignment has been graded and, in several locations, sections of the ROW have been leased for commercial or industrial use. Development along the right-of way, with the exception of the Pacific Electric Santa Ana River Bridge and some buildings near the east end of the proposed project limits, dates from the period following abandonment of the line. The historic character of the rail corridor is no longer expressed. Because of its loss of integrity, the former PE ROW itself is not considered a historical resource and is not eligible for the National Register (Caltrans 2003)."

Traditionally, railways consist of several components including rails, ties and plates, which rest on a bed of ballast, typically granite. Ballast is the material such as gravel, crushed rock and cinders placed on roadbeds to drain water away from the ties and to distribute the load over softer sub-grade and provide an even bearing for the ties. An additional component of electric railways is the overhead transmission lines that supply power to the car through the trolley pole. Raised track segments were also integrated into some alignments to counter varied topography. None of the components used to construct the historic-period Pacific Electric Railway are currently present at the segment of the linear property in the APE. Presently, the ROW consists

of a slightly elevated pedestrian walkway comprised of sand and gravel. A field survey did not uncover any of the rails, ties, plates or other historic-period components that would indicate the property's use as a ROW. Also, while overhead transmission lines can be found along adjacent parcels, they are not in the vicinity of the ROW and would not have been associated with the Pacific Electric Railway. Finally, as is evident in a historic period photograph, the southeast portion of the segment once included a raised platform to provide an even grade for the approach to the Santa Ana River Bridge (Copeland, 1997) (refer to Exhibit A-6 for a copy of the photograph). The raised structure is no longer extant.

Overall, the ROW does not retain its historic materials, fabric or appearance. Although dates of the demolition and removal of historic-period materials are unavailable, the components of the ROW segment are no longer present. Additionally, changes in the area's general character such as community development and landscape changes disrupt the original historic-period physical features which characterize the ROW within the APE. The property is not representative of utilitarian railroad construction and engineering from any period and does not express a vernacular method of construction or highly sophisticated configurations. The potential for information related to the design and operation of the site is very low, and is presently heavily disturbed. Existing historic photographs, archival materials, plans, and drawings would provide more readily available data for the entire system and the site. Due to this loss of integrity with regards to design, setting, materials, workmanship, feeling and association, the segment of the ROW within the historic architecture APE does not appear eligible for listing in the NRHP, CRHR or for consideration as a historical resource for purposes of CEQA.

7.2 Architectural History Resources Recorded as Part of This Study

Sixty-eight historic-period properties were evaluated in accordance with Section 106 of the NHPA and its implementing regulations 36 CFR Part 800 "Protection of Historic Properties" (Section 106), NEPA Section 102(2)(c), and in accordance with CEQA Guidelines Section 15064.5(a)(2)-(3) of the CEQA Guidelines using the criteria outlined in PRC Section 5024.1. Fifty-three of the 68 resources were either previously listed or determined to be eligible for the California Register of Historic Places (CRHP) and 46 were either previously listed or determined to be eligible for the National Register of Historic Places (NRHP). Forty of the NRHP eligible resources were previously listed, one was previously determined to be eligible for the NHRP, and five new properties were determined to be eligible as a result of this survey evaluation, which included a historic context statement and completion of DPR forms 523 A and B. One of the five properties, Bristol Drug Company (Resource No 11), has since been demolished after being evaluated.

One property was previously recorded and assigned NRHP status codes 1D, 1S, and 5S1, which means it is a contributor to a district listed in the NRHP, an individual property listed in the NRHP, and an individual property which is listed or designated locally. This property also has a CRHR status code of 1CL, which means it is listed in the CRHR as a Point of Historical Interest.

Two properties were previously recorded and assigned NRHP status codes 1D, 1S, and 5S1, which means each is a contributor to a district listed in the NRHP, individual property listed in the NRHP, and an individual property which is listed or designated locally. These properties also have a CRHR status code of 1CS, which means each is listed in the CRHR as an individual property.

One property was previously recorded and assigned NRHP status codes 1D, 1S, and 5S1, which means it is a contributor to a district listed in the NRHP, an individual property listed in the NRHP, and an individual property which is listed or designated locally.

One property was previously recorded and assigned NRHP status codes 1D and 5S1, which means it is a contributor to a district listed in the NRHP and an individual property which is listed or designated locally. This property also has a CRHR status code of 1CS, which means it is listed in the CRHR as a individual property.

A total of 29 properties were previously recorded and assigned NRHP status codes 1D and 5S1, which means each is a contributor to a district listed in the NRHP and an individual property which is listed or designated locally.

One property was previously recorded and assigned NRHP status code 2S2, which means it is an individual property determined eligible for the NRHP by consensus through the Section 106 process and listed in the CRHR.

Five properties were previously recorded and assigned NRHP status code 1D, which means they are each a contributor to a district listed in the NRHP.

Eight properties were previously recorded and assigned NRHP status code 5S1, which means they are each an individual property which is listed or designated locally.

Five properties were newly recorded and assigned NRHP status code 3S, which means they each appear to be eligible for the NRHP as an individual property through survey evaluation.

Of note, there are several properties which have previously been determined to be both contributors and non-contributors to the NRHP-listed Downtown Santa Ana Historic District, as part of the 1984 nomination. As noted in the nomination, these properties have been identified as a contributor and non-contributor, as a portion of the building has retained its historic character and architectural integrity, while another portion has received façade alterations to the extent of no longer retaining the historic integrity necessary for that portion's inclusion in the NRHP district. Map Reference 26, for example, was listed as both a contributor and a non-contributor because the integrity of the east portion of the property has been severely compromised. Though the east half of the building has lost its integrity of design and does not contribute to the district, the west portion retains much of its Spanish Colonial Revival detail and contributes to the streetscape on Broadway. The determination in the nomination states that the property does not appear to have sufficient overall integrity to qualify the entire commercial block as a contributor (per NR Nomination Form 84000438).

Table 7-1 summarizes the results and Exhibit A-2 depicts the location of the resources that are within the APE.

Table 7-1. Cultural Resources Recorded within the APE

Map Ref. No.	Address	Resource Name / Historic Relevance	SHPO Status Code	Other Identifier
1	12022 Quatro Ave.	Ranch style single-family residence	6Z	176912
2	1424 N. Susan St.	Quonset Huts	3S	N/A
3	Old Pacific Electric Santa Ana River Bridge	Pegram Truss style bridge	2S2	161847
4	2415 W. 5th St.	Automotive Core Supplier Vernacular industrial building	6Z	177031
5	2216 W. 5th St.	Sarinana's Market Tamale Factory	6Z	177028
6	2110 W. 5th St.	Craftsman Bungalow-style single-family residence	6Z	177029
7	2106 W. 5th St.	Carnitas Uruapan/San Juan Market - Vernacular commercial building	6Z	177030
8	2016-2020 W. 5th St.	6 single-family houses -Vernacular building originally a grocery store e	6Z	177032
9	1804 W. 5th St.	Foreign Wrecks West –originally a major employer as a lumber and investment company	6Z	177033
10	1802 W. 4th St.	Vernacular commercial/industrial building	6Z	177034
11	1302 W. Santa Ana Blvd.[1]	Bristol Drug Co. – Art Moderne two-part commercial block building	3S	176992
12	414 W. 4th St.	Telacu (Parsons Market Building) - 20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 189
13	412 W. 4th St.	Nicholas Academic Center (Parsons apartment building) -20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 190
14	408 W. 4th St.	Clausen-Block, Pastrami Deli - 20th century two-part commercial block building	5S1	C-NR 84000438, SARHP 140
15	404 and 406 W. 4th St.	Lawrence commercial building - 20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 174
16	400 and 402 W. 4th St.	Bistro (Company L. Armory) - 20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 179
17	324 A and B W. 4th St.	West End Theater – Italian Renaissance building	1D, 5S1	C-NR 84000438, SARHP 218
18	312, 314, and 316 W. 4th St.	Casa De Empeno (Semi-Tropic Hotel) - 20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 243
19	310 W. 4th St.	Abogados (Bon Ton Bakery) – Mid-century Modern building	1D, 5S1	C-NR 84000438, SARHP 237
20	302, 304, 306, and 308 W. 4th St.	The Peggy Shop (Gilmaker Block) - 20th century one-part commercial block building	5S1	NC-NR 84000438, SARHP 244
21	222 W. 4th St.	Cenesis Bridal Shop (Moore Building) – Mission Revival	1D, 5S1	C-NR 84000438, SARHP 182
22	220 W. 4th St.	Hispano-American Jewelers (Ed Waites Saloon & Billiard Hall) - one-part commercial block building	6Z	NC-NR 84000438
23	214, 216, and 218 W. 4th St.	Bridal Shop (Riverine Block) - two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 152
24	202, 204, 206, 208 210, and 212 W. 4th St.	W.H. Spurgeon Building - 20th century two-part commercial block building	1D, 1S, 1CS, 5S1	C-NR 84000438, SARHP 20; NRIS 79000516;

Map Ref. No.	Address	Resource Name / Historic Relevance	SHPO Status Code	Other Identifier
				CPHI 487
25	301-309 W. 4th St.	Starbucks (Phillips Block) - two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 11
26	221 and 223 W. 4th St.	Teresa's Jewelers (Been Block/Fashion Saloon) - two-part commercial block building	1D, 5S1	C-NR 84000438, NC-NR 84000438, SARHP 153
27	219 W. 4th St.	Cassandra's Bridal (Crabtree Saloon) – Vernacular commercial building	5S1	NC-NR 84000438, SARHP 144
28	213, 215, and 217 W. 4th St.	Elia's Bridal, Epocca, and Joshua's Designs - 20th century one-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 160
29	209 and 211 W. 4th St.	Fiesta Juice (Semi-Tropic #2) – Victorian commercial building	1D, 5S1	C-NR 84000438, SARHP 198
30	407, 409, and 411 N. Broadway	Las Brisas Restaurant (Beem Building, J.J. Wilson's Shoeshine Parlor) – Spanish Colonial Revival	1D, 5S1	C-NR 84000438, SARHP 175
31	203 and 205 W. Civic Center Drive	YMCA – Community Center/Social Hall	1S, 5S1	NRIS 93000237, SARHP 6
32	211 W. Santa Ana Blvd.	Old Orange County Courthouse – Richardsonian Romanesque	1D, 1S, 1CL, 5S1	C-NR 84000438, NRIS 77000321, CHL 837, SARHP 1
33	120 E. Civic Center Drive	Dr. Howe-Waffle House – Queen Anne	1D, 1S, 1CS, 5S1	C-NR 84000438, NRIS 77000320, CHPI P341, SARHP 2
34	600 N. Main St.	First Presbyterian Church – Gothic Revival	3S	N/A
35	618-624 Main St.	World Travel (Dr. Wehrly Medical) - 20th century two-part commercial block building	1D	C-NR 84000438
36	120 W. 4th St.	Don Roberto Jewelers - 20th century two-part commercial block building	6Z	NC-NR 84000438
37	116 W. 4th St.	Valencia Jewelry MFG (Orange County Savings & Trust) – Classic Revival	1D, 5S1	C-NR 84000438, SARHP 186
38	108, 110, 112, and 114 W. 4th St.	Foto Fiesta, Pasarela Bridal, La Moda, Mo's Perfume (Titchenal Block/Santa Ana Hardware Company) – Classic Revival	1D, 5S1	C-NR 84000438 SARHP 197 SARHP 155 SARHP 164
39	102 and 106 W. 4th St.	Bank of America (First National Bank Buiding) – Beaux Arts	1D, 5S1	C-NR 84000438, SARHP 234
40	102 E. 4th St.	Dental, Tax Office (Dibble Building) - 20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 245
41	104 and 106 E. 4th St.	Rhodes Jewelry & Loan, Rancho D Mendoza (Dragon Confectionary) – Art Deco	1D, 5S1	C-NR 84000438, SARHP 238
42	108, 110, and 112 E. 4th St.	Clothing Retail Stores (Shaffer-Wakeham Building) – Art Deco	1D, 5S1	C-NR 84000438, SARHP 246
43	114 E. 4th St.	Belinda's Photo Y Video (George Edgar Block) - 20th century two-part commercial block building	1D	C-NR 84000438
44	116 E. 4th St.	Bandolero (Brunner Building) – Zig Zag Moderne	1D, 5S1	C-NR 84000438, SARHP 239
45	118 E. 4th St.	Harby Kryhal – Neoclassical	1D, 5S1	C-NR 84000438, SARHP 247
46	120 E. 4th St.	La Moda Clothing Retail (California Commercial Block) – Neoclassical	1D	C-NR 84000438
47	202, 204, 206, 208, and 210 E. 4th St.	Patty's Bridal, Brian's La Paloma El Paso Shoe Store (Hervey-Finley Building) - 20th century	1D, 5S1	C-NR 84000438, SARHP 256

Map Ref. No.	Address	Resource Name / Historic Relevance	SHPO Status Code	Other Identifier
		two-part commercial block building		
48	312, 314, and 316 E. 4th St.	Charlie's Boots (Semi-Tropic #1) - one-part commercial block building	5S1	NC-NR 84000438, SARHP 254
49	318 and 320 E. 4th St.	Barber (Mussleman Block) - 20th one and two-part commercial block building	5S1	SARHP 255
50	400-412 E. 4th St.	Mega Furniture Superstore (Hotel Finley) - two-part commercial block building	5S1	SARHP 30
51	117 W. 4th St.	The Rankin Building – three-part commercial block	1D, 1S, 5S1	C-NR 84000438, SARHP 192
52	115 W. 4th St.	Dollar Express (Home Mutual and Loan) - two-part commercial block building	6Z	NC-NR 84000438
53	113 W. 4th St.	Mina Bridal (Tinkers Jewelry) - two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 236
54	109 W. 4th St.	Colleen O'Hara's Beauty Academy (Pedrini's) - two-part commercial block building	6Z	NC-NR 84000438
55	101 W. 4th St.	Wells Fargo (Otis Building) - two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 187
56	118 and 120 W. 5th St.	Ramona Building – 20th century two-part commercial block building	1D, 5S1	C-NR 84000438, SARHP 191
57	501 E. 5th St.	Single-family (Whitson-Powelson House) – Queen Anne	5S1	SARHP 29
58	507 N. Minter	Multi-family – Folk Victorian	3S	N/A
59	5151 N. Main St.	Commercial Building (McFadden Public Market) - Spanish Colonial Revival	1D, 5S1	C-NR 84000438, SARHP 178
60	517 and 519 N. Main St.	Horton Furniture (JC Horton) – Art Deco	1D, 5S1	C-NR 84000438, SARHP 166
61	115 E. Santa Ana Blvd.	United Presbyterian Church – Classical Revival	1D	C-NR 84000438
62	615 N. Bush St.	AW Mellon (United States Post Office Spurgeon Station) – Spanish Colonial Revival	1D	C-NR 84000438
63	614 N. Bush St.	Church of the Messiah – English Gothic	1D, 1CS, 5S1	C-NR 84000438, CHPI P515, SARHP 251
64	624 French	First United Methodist Church – Tudor Revival	3S	N/A
65	607 E. Santa Ana Blvd.	Commercial Building (405-407 Fruit Street) – one-part commercial block	6Z	179882
66	611 E. Santa Ana Blvd.	Multi-family (411-413 Fruit Street) – Craftsman	6Z	161037
67	621 N. Spurgeon	Single-family (Thomas House) – Queen Anne	5S1	SARHP 26
68	Portion of Burlington Northern Santa Fe Railway	BNSF Railway (Atchinson, Topeka, and Santa Fe Railway)	6Z	176663

Notes: Shaded rows are newly identified properties found eligible for listing in the Nation Register through current survey and evaluation documented in the Cultural Resources Technical Report.

C-NR = Contributor to a NRHP district
NC-NR = Noncontributor to a NRHP district
SARHP = Santa Ana Register of Historical Properties
1D = Listed in National Register as a Contributor to a district or multi. resource property.
2S2 = Det. eligible for separate listing by a consensus determination
6Z = Found ineligible for National Register.
5S1 = Eligible for Local Listing only-listed or eligible separately under Local Ordinance.
3S = Appears eligible for listing in National Register as a separate property.
N/A = Not Applicable

Source: URS Corporation, Cultural Resource Evaluation Technical Report, 2011.

1 Building is no longer at site

7.3 Effects Analysis

7.3.1 No Adverse Effects and Significant Impacts

Archaeological Resources

The Study Area does not include known archeological or paleontological resources eligible for listing in the National Register of Historic Places. Ground disturbance would not be more than five feet beneath the existing surface in most areas although ground disturbance may exceed five feet for the maintenance facility site. While no significant archaeological resources were found within the APE, there are several factors which influence the sensitivity of the area which include known archaeological sites in the vicinity of City of Santa Ana, associated historical development, the topography containing the presence of an alluvial floodplain, and concerns raised by local Native American groups identifying the presence of archaeological resources. These factors all combine to increase the archaeological sensitivity of the project area. Although the APE has already been subject to extensive disruption from previous development and may contain artificial fill materials, the project area has the possibility of containing intact, undisturbed cultural deposits below the level of previous disturbance. As such, important archaeological resources may exist within the project area. The potential exists that construction activities associated with ground disturbance within the project area may unearth undocumented archaeological resources. Implementation of the Mitigation Measure **CR1** identified in Section 7.5 would ensure that measures are taken to minimize potential effects to archaeological resources. Therefore, no adverse impact would occur to archaeological resources.

The proposed project would occur almost entirely within the street and PE ROW, which have been previously disturbed with pavement, utility lines and a previous rail line. Within the street ROW, construction would require a depth of approximately 18 inches below ground surface of excavation for placement of foundation material and laying track. Within the PE ROW, a similar or less depth of excavation would occur as the tracks would be placed on ballasts. Additional depth of excavation would be required for utility relocations and the installation of catenary poles at a depth of five feet or less, but this would not likely encounter previously undisturbed soil. Additional ROW required for the maintenance facility and bicycle lane would occur on previously disturbed soil and would not exceed the depths described above. In a small area of the maintenance site, where up to ten foot of excavation would be required for the narrow pit to service vehicles, undisturbed soil could be encountered, and mitigation has been incorporated to require monitoring under a qualified archaeologist who will determine if a Native American monitor is appropriate. Ground disturbance may exceed five feet for elevated structures across Westminster Avenue and the Santa Ana River. These areas are all located in previously disturbed areas with underground infrastructure along the street ROW or across a concrete channel, and the potential for the accidental discovery of archeological resources is low.

Architectural History Resources

Overall, historic research and field survey analysis identified the presence of 53 significant historic properties eligible for listing in the NRHP, CRHR, and as historical resources for purposes of CEQA within the APE (i.e., properties not assigned NRHP status code 6Z). The significant historic properties located within the APE would not be adversely affected or significantly impacted by the Streetcar Alternatives 1 or 2.

The construction and operation of the proposed project would not disrupt the essential form or integrity of the APE's environment, and would not be considered a visual, audible, or atmospheric intrusion. As described in Section 2.1.4, many of the proposed construction features such as staging and construction areas would be considered temporary or indirect effects, since no permanent improvement would occur. Other improvements would be considered small minor changes to the built environment that would not have any direct effect or physical alteration to a character-defining feature of a historic property. These types of improvements include the removal of street landscaping (e.g., trees), new traffic signals, gated crossings, curb closures, and pedestrian safety measures (e.g., cross-walks).

Since construction of the proposed project would be temporary and would not require acquisition or physical alterations with surrounding historical properties, the only potential for an adverse impact to occur during construction would result from indirect vibration effects that cause physical damage to historic structures. There are seven historic structures that would be potentially impacted from vibration levels that may exceed the FTA vibration damage threshold of 0.12 inches per second peak particle velocity for historic structures by use of construction equipment, such as a vibratory roller, given their close proximity to the proposed streetcar alignments (**Table 7-2**). All remaining historic properties would be set back at a distance far enough (26 feet) from construction activity that the vibration levels would be below the FTA threshold for historic structures.

TABLE 7-2. Construction Vibration Impacts at Historic Structures

Address	Construction Year	Structure Use	Structure Type	Distance (feet)	Alternative
624 French St.	1895	Institutional	Stucco	9	Alt 1/Alt 2
600 Main St.	1937	Institutional	Stucco	13	Alt 1
507 Minter St.	1906	Residential	Wood Siding	16	Alt 2
203 and 205 Civic Center Dr.	1923	Institutional	Concrete	18	Alt 2
1302 Santa Ana Blvd.	1947	Commercial	Stucco	20	Alt 1/Alt 2
501 5th St.	1921	Residential	Wood Siding	22	Alt 1/Alt 2
PE Santa Ana River Bridge	1905	None	Steel-framed	4	Alt 1/Alt 2

SOURCE: URS Corp, *Noise and Vibration Impact Technical Report*, 2011.

During final design, a qualified structural engineer shall survey the existing foundation and other structural aspects of the Pacific Electric Santa Ana Railroad Bridge and buildings located within close proximity of the construction zone boundaries. Pot holing or other non-destructive testing of the below grade conditions may be necessary to establish baseline conditions. Depending on anticipated construction activities, the survey report will identify buildings that could be affected

by construction vibration. The qualified structural engineer shall document in the survey report baseline conditions at all buildings that may be affected by construction vibration.

The survey report for potentially affected historic structures shall provide a shoring design to protect identified structures from potential vibration damage. Alternatively, the structural engineer may recommend alternative construction methods that would produce lower vibration levels. For example, sonic pile driving or caisson drilling may be recommended instead of pile driving.

These survey report documenting baseline conditions shall be forwarded to the lead agency and to the mitigation monitor prior to approval and issuance of any local government construction permits. For the Santa Ana River Bridge, vibration isolators or structural damping will be required at footings of the vertical columns of the straddle bents to ensure that vibration effects during construction remain below the FTA threshold for historic structures of 0.12 inches per second peak particle velocity. All other construction-related effects would be temporary and would not cause a change in the setting of the two historic districts or the use or alter the distinctive physical features of individual historic properties.

One historic-period property, Map Reference 3 – the Old Pacific Electric Santa Ana River Bridge, could be affected by the operation of the proposed project. This would occur where the western edge of the bridge abutment is modified to connect to the western end. Standard conditions are provided in Section 7.5 to ensure that these effects are not adverse.

Current views of the bridge are limited to long range views along 5th Street to the south and Fairview Street to the north and east. Unobstructed views of the bridge can only be seen from the Santa Ana River Trail, which is open to pedestrians, bicycles and horses. The existing bridge would remain in place and a new bridge would be constructed adjacent to the south of the existing historic bridge. The proposed project would require the alignment to be grade separated from the Santa Ana River Trail on both the east and west sides of the river. This would require an alteration to the west abutment of the Old Pacific Electric Santa Ana River Bridge to allow the trails to be separated. The western abutment of the bridge is not part of the original bridge structure and does not contribute to the historic features of the bridge. The existing bridge height and widths would not change; however, the visual elements of the bridge would be affected because the materials used for the new parallel structures would differ from the historic materials.

The feature that qualifies the bridge as a resource, the Pegram truss, is defined by its features of a distinguishable geometric design, with the posts arranged at increasing angles from the vertical chords from the center of the truss towards the ends. These features are most distinguishable at the top of the bridge span. Because the views of the existing bridge would only be partially obstructed at the base of the bridge and to a limited group of viewers, the adjacent single-track bridge would not substantially impair the bridge's activities, or view of the Pegram truss architecture. The new adjacent single-track bridge would not substantially impair the bridge's activities, features or attributes that quality it as a historical resource.

During operation, vibration from the new bridge can only be transmitted through points of contact between the new bridge and the existing bridge. Vibration from the new concrete bridge would need to travel down the support columns, into the bridge foundation and essentially vibrate the ground and the concrete channel lining. Those vibrations would then need to be transmitted up the existing bridge support/pier to the existing bridge truss. In general, concrete is not good at transmitting vibrations because it generally is in a cracked condition (it is not a homogeneous material like steel) that tends to damp out/mute vibrations. The likelihood that vibration from a streetcar traveling over the new concrete bridge and causing any damage to the existing adjacent bridge would be very low. During final design, a qualified structural engineer would survey the existing foundation and other structural aspects of the Pacific Electric Santa Ana Railroad Bridge and provide measures to protect the historic bridge from potential vibration damage. Therefore, vibration from streetcar operations would not result in an adverse effect to the Old Pacific Electric Santa Ana River Bridge.

The streetcars and trackwork would be located within highly dense developed areas that feature numerous non-historic period elements. These changes have affected the general setting, feeling, and character of the APE, including the areas in the two historic districts – the Downtown Santa Ana Historic District (NR 84000438) and the French Park Historic District (NR 990000551). The APE, including the two historical districts, has multi-lane roadways featuring thirty to forty foot tall traffic signals, utility lines, overpasses, and other traffic calming measures. New and recent infill developments, specifically multi-story residential, commercial, industrial and civic buildings, are located within this area, as well. The streetcars themselves would operate in the street right-of-way and would be a minor change when considering the existing traffic and the built-up environment of the area. In addition, other non-historic period elements and objects are located throughout the APE, such as large utility boxes, billboards, tall fences and walls, vegetation and landscaping (tall hedges), which have affected the area's visual narrative, quality, and ability to convey a specific period.

The TPSS sites and passenger platforms for the project would be small mundane utilitarian elements intended to match the existing setting within the APE. The TPSS sites would be visually consistent with other small objects and equipment located along the sidewalks and ROW, such as utility boxes, generators, and telecommunication equipment. As shown in the APE maps in Exhibit A-2, there would be not be a TPSS located within the Downtown Santa Ana or French Park Historic Districts or adjacent to a historic building. There are no station platforms within or adjacent to the French Park Historic District. Two of the station platforms would be located within the Downtown Santa Ana Historical District at Broadway and Main Street. The platform areas would look similar to existing bus stop vestibules. They would have a minimal visual intrusion to the surrounding area and would not alter the character of the historical district.

Within the Downtown Santa Ana Historical District, Streetcar Alternatives 1 and 2 would travel on 4th and 5th Streets and along a short segment of Santa Ana Boulevard. The streetcar system would have an overhead contact system consisting of poles and catenary wires. Streetcar Alternatives 1 and 2 would not travel inside the French Park Historical District. The majority of

existing electrical wires are underground within these two historical districts. The poles and catenary wires for the streetcar system would be located on one side of the street and would contain approximately two poles per block, at a minimum height of approximately 13.5 feet. The Pacific Electric Railway operated in a similar fashion, with overhead wires, from the early 1900s to 1950, along 4th Street through Downtown Santa Ana. As a result, the catenary system and operation of a streetcar through the Downtown Santa Ana Historical District would be consistent with the use of public transit within the historical setting and would not alter the character of the historical district. Therefore, the effects of the overhead catenary system would not be adverse.

None of the remaining proposed project elements (embedded tracks, O & M facility, etc.) would intrude or impeded the significance or visual character of the Downtown Santa Ana and French Park Historic Districts or individual historic properties, and would be visually consistent with other urban elements located in the transportation right-of-way throughout the APE. The construction and operation of the Streetcar Alternatives 1 or 2 would not cause a change in the in the setting of the two historic districts or the use or distinctive physical features of individual historic properties and would be considered in-scale and appropriate when considering other changes within the boundaries of the APE.

The areas where buildings would be removed, or ROW impacts would occur would involve non-significant historic-period properties or non-historic period properties, such as the existing car wash and other buildings at the northwest terminus of the proposed project (i.e., 13880 Harbor Boulevard, 13921 Nautilus Street, 13941 Nautilus Street [Streetcar Alternatives 1 and 2]), or the surface parking lot at 610 Santiago Street. These areas presently have numerous non-historic period buildings and structures, are not located near existing historic districts or significant properties, are surrounded by infill development, and are not characterized by any distinctive landscape feature or characteristic. The proposed construction of a twenty foot tall O & M facility in one of two locations would be located in non-historic period settings, surrounded by similar large industrial, light manufacturing, or 'big box' retail stores. For example, O & M facility Option B, located immediately west of Raitt Street, would be sited alongside an existing junkyard and recycling center, and O & M facility Option A, located at the southeast terminus of the proposed project, adjacent to the SARTC, would be alongside other existing railroad infrastructure, including large warehouses. In these areas, the proposed maintenance facilities would not be considered a change in use or character for these portions of the APE.

The new transit bridge which crosses Westminster Avenue (Streetcar Alternatives 1 and 2) at the northwest terminus of the proposed project is surrounded by non-historic period commercial and industrial properties, and would not cause a change in the area's visual character and would not be considered a visual intrusion to the surrounding area. Similarly, the overhead guideway elements and actual track would be located on existing roadways and a non-vehicular ROW. These areas already have existing elements located overhead (such as utility lines), and therefore the overhead guideway elements would not disturb the feeling of a significant property, or affect the viewshed or visual narrative.

The proposed project would not cause substantial changes to significant historic-period properties. The proposed project would not destroy the historic or visual relationship between any property and its landscape or setting, despite improvements within the existing roadways and ROW. The proposed project would not radically change or remove any feature associated with a significant property or area. The proposed project would not create a false sense of history or historical appearance, particularly near the two historic districts – the Downtown Santa Ana Historic District (NR 84000438) and the French Park Historic District (NR 990000551); would not introduce non-compatible visual out-of-scale elements that contrast with the size, design, and character of the APE; and would not remove historic properties important in defining the history of an area.

Based on the above, many of the elements associated with the proposed project would meet the Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings or the Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Building, and would not be considered to have an adverse effect to historic properties under NEPA and Section 106 of the NHP, or a significant impact to historical resources under CEQA.

7.4 CEQA Impact Analysis

Based on Appendix G of the State CEQA Guidelines, impacts to cultural resources would be considered significant under CEQA if the proposed project would:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5;
- Cause a substantial adverse change in the significance of a unique archaeological resource pursuant to define Section 15064.5; and/or
- Disturb any human remains, including those interred outside of formal cemeteries.

No Build Alternative

The No Build Alternative includes existing conditions within the Study Area and adds future planned and funded transit and roadway improvement projects. Each of these future projects will be environmentally cleared through separate project-specific environmental documentation. The streetcar would not operate under this alternative and there would not be related effects to cultural resources. Therefore, the No Build Alternative would not result in adverse effects related to cultural resources.

TSM Alternative

The TSM Alternative emphasizes low-cost improvements and operational efficiencies, such as focused traffic engineering actions, expanded bus service, and improved access to transit services. It may include some minor physical enhancements, such as improvements to transit stop amenities (e.g., bus benches). These minor improvements would have no or negligible impacts to cultural resources. Therefore, the TSM Alternative would not result in adverse effects related to cultural resources.

Streetcar Alternatives 1 and 2

Research and field survey analysis identified no significant archaeological resources and 53 significant historic properties eligible for listing to the NRHP, CRHR, and as historical resources for purposes of CEQA within the APE. However, Streetcar Alternatives 1 and 2 would not impact significant historic properties located within the APE.

As discussed in Section 7.3.1, existing changes to the Study Area have affected the general setting, feeling, and character of the APE environs, including the areas near the two historic districts. The streetcars themselves would be a minor change when considering the existing traffic and the built-up environment of the area. In addition, other non-historic period elements and objects are located throughout the APE, which have affected the area's visual narrative, quality, and ability to convey a specific period. The construction and operation of the Streetcar Alternatives 1 or 2 would not cause a change in the historic properties' use or distinctive physical features, and would be considered in-scale and appropriate when considering other changes within the boundaries of the APE. Furthermore, the construction and operation of the proposed project would not disrupt the essential form or integrity of the APE's environment, and would not be considered a visual, audible, or atmospheric intrusion. Many of the proposed features would be considered temporary or cause only indirect effects. Other improvements would be considered small minor changes to the built environment that would not have any direct effect or physical alteration to a character-defining feature of a historic property. The areas where buildings would be removed, or where ROW impacts would occur would involve non-significant historic-period properties or non-historic period properties.

In summary, Streetcar Alternatives 1 and 2 would not cause a substantial adverse change in the significance of a unique archaeological resource; disturb any human remains; or cause a substantial adverse change in the significance of 52 out of 53 historical resources identified during the field surveys. In the unlikely event that archaeological resources or human remains are encountered during the construction of the proposed project, mitigation is provided in Section 7.5 to reduce potential impacts. Impacts would be less than significant with the implementation of standard conditions.

A detailed discussion of impacts to the existing bridge is contained in Section 7.3.2. The Old Pacific Electric Santa Ana River Bridge would not be significantly impacted by the Streetcar Alternatives 1 and 2 as a result of the construction of a new transit bridge adjacent to the existing bridge. Therefore, impacts to the bridge would be less than significant.

Initial Operable Segments 1 and 2

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 the streetcar alternatives. IOS-1 and IOS-2 would not cause a substantial adverse change in the significance of a unique archaeological resource; disturb any human remains; or

cause a substantial adverse change in the significance to any historical resources identified during the field surveys. Impacts under IOS-1 and IOS-2 are less than impacts identified under Streetcar Alternatives 1 and 2.

7.5 Standard Conditions, Avoidance, Minimization, and/or Mitigation Measures

The proposed project is not anticipated to impact significant archaeological resources; however, mitigation would be implemented to reduce potential impacts to archaeological resources to a less than significant level in the unlikely event that cultural resources are identified within the proposed project boundaries during construction. Should a potentially significant cultural resource be encountered, evaluation of this resource to determine significance would be required.

CR1 A qualified principal investigator who meets the Secretary of the Interior's professional qualification standards for an archeologist shall be responsible for managing archaeological resources and human remains. During final project design and prior to construction, the qualified principal investigator shall develop and implement a plan that includes use of as-built drawings to identify locations where undisturbed soils may be encountered, procedures for advance coordination with Native American groups, field investigations and soil probes prior to construction, and monitoring of soil-disturbance activities during construction. The qualified principal investigator shall appoint an archaeological monitor to be present for ground-disturbing activities that could encounter undisturbed soils. If the qualified principal investigator determines that Native American archaeological resources and human remains are likely present, then both an archaeological and Native American monitor identified by the applicable tribe and/or the Native American Heritage Commission shall be appointed. The timing and duration of the monitoring shall be determined by the principal investigator based on the sensitivity of exposed sediments.

Prior to initiation of earth-disturbing activities that could encounter undisturbed soils, the archaeological monitor shall conduct a brief awareness training session for all construction workers and supervisory personnel. The training shall explain the importance of and legal basis for the protection of significant archaeological resources. Each worker shall learn the proper procedures to follow in the event that cultural resources or human remains/burials are uncovered. These procedures include work curtailment or redirection and the immediate contact of the site supervisor and the archaeological monitor. It is recommended that this worker education session include visual images of artifacts that might be found in the project vicinity, and that the session take place on-site immediately prior to the start of ground-disturbing activities.

If archaeological resources or human remains are encountered during construction, all work shall cease in the area of potential effects until the find can be addressed. The Orange County Coroner's Office shall be contacted pursuant to procedures set forth in

Public Resources Code Section 5097 et seq. and Health and Safety Code in Sections 7050.5, 7051, and 7054 with respect to treatment and removal, Native American involvement, burial treatment, and re-burial, if necessary. A fifty-foot buffer, or more if deemed appropriate by the principal investigator, shall be established and work outside the buffer may resume.

Areas that would not encounter undisturbed soils and would therefore not be required to retain an archaeologist shall demonstrate non-disturbance to the City of Santa Ana and SHPO through the appropriate construction plans, as-built drawings, or geotechnical studies prior to any earth-disturbing activities. Impacts to any significant resources shall require development of a Memorandum of Agreement to mitigate impacts to a less-than-significant level through SHPO consultation, which may include data recovery or other methods determined adequate through consultation. Any identified cultural resources shall be recorded on the appropriate California Department of Parks and Recreation 523 form and filed with the South Central Coastal Information Center.

An Unanticipated Discoveries Plan would be completed prior to final design and construction that will involve consultation with appropriate parties prior to construction for both archaeological resources and human remains.

At the completion of archaeological monitoring for the proposed project, an archaeological resources monitoring report will be prepared and submitted, along with any DPR forms, to the SCCIC to document the results of the monitoring activities and summarize the results of subsurface resources encountered, if any.

Impacts to cultural resources related to the unanticipated discovery of human remains are reduced to less than significant by ensuring that, in the event that human remains are encountered, construction in the area of the find will cease, and the remains will remain *in situ* pending definition of an appropriate plan to adequately address the resources. The Orange County Coroner will be contacted to determine the origin of the remains. In the event the remains are Native American in origin, the NAHC will be contacted to determine necessary procedures for protection and preservation of the remains, including reburial, as provided in CEQA Guidelines, Section 15064.5(e), "CEQA and Archaeological Resources," CEQA Technical Advisory Series.

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Chapter 8 Cumulative Impacts

Cultural resources include significant archaeological and built environment resources. Cumulative impacts to these cultural resources are directly related to the presence and significance of these resources within the area of direct effect. The cultural resources assessment prepared for the proposed project did not identify any previously significant or newly recorded prehistoric or historic archaeological sites within the boundaries of the Study Area. Given the lack of direct impacts to significant archaeological resources associated with the proposed project, no significant cumulative impacts are anticipated as a result of concurrent construction activities in the area.

The cultural resources assessment prepared for the proposed project has determined that potentially significant built environment resources are present within the Study Area (refer to Chapter 6, above); based on record searches and historic research, there are a number of significant or potentially significant cultural resources located within the proposed project vicinity. However, the proposed projects in **Table 8-1** are subject to CEQA-level environmental review and include provisions to preserve historic structures and districts. Consequently, impacts to significant or potentially significant cultural resources can typically be mitigated through the avoidance of important cultural resources, the development and implementation of a data recovery plan, and/or following the Secretary of Interior Standards for the Treatment of Historic Properties. During the future development of other projects, these measures could lessen cumulative impacts to cultural resources, and, therefore, cumulatively considerable impacts to cultural resources are not expected to occur.

Table 8-1. Santa Ana-Garden Grove Fixed Guideway - Cumulative Projects List

No.	Project	Description/ Land Use	No. of u or square feet (sf)	Location	Primary APN
Approved					
1	Alliance Church of Orange	Church addition (gym/classroom), approved 2009	21,000 sq.ft.	2130 N. Grand Ave.	396-191-44
2	Christ Our Savior Cathedral	Sanctuary (2,800-seat), approved 2005		2001 W. McArthur Blvd.	140-061-94
3	Discovery Science Center Ph. II	IMAX theatre (275-seat), approved 2002		2032 N. Main St.	399-102-09
4	Lyon Homes	Residential (Condo), approved 2011	300 units	100-130 E. McArthur Blvd.	411-081-26
5	Promenade Point	Residential (Condo), approved 2005	194 units	200 E. First American Wy.	411-074-03
6	CVS/Sav-On Drug Store	Pharmacy, drive through, approved 2008	15,836 sq.ft.	115 N. Harbor Blvd.	198-182-22
7	Skyline Phase II	Residential (Condo), approved 2005	150 units	10 E. Hutton Ctr.	411-081-28
8	Vista Del Rio	Residential, approved 2009	41 units	1600 W. Memory Ln.	101-055-27
9	Xerox Tower II	Office, approved 2001	210,000 sq.ft.	200 N. Cabrillo Park Dr.	400-071-03
10	YMCA	Recreational Facility, approved 2007	32,000 sq.ft.	2100 W. Alton Ave.	140-061-91
11	1306 W. Santa Ana Blvd.	Medical/Office Building, approved 2011	6,000 sq.ft.	1306 W. Santa Ana Blvd.	007-183-08
12	Grand Avenue Widening Specifically included in No Build Description	Roadway Widening		First St. to 4th St.	Multiple APNS
13	Broadway Reconstruction	Street Reconstruction		Civic Center Dr. to Santa Clara St.	Multiple APNS
14	Bristol Street Widening Specifically included in No Build Description	Street Widening		Warner Ave. to Memory Ln.	Multiple APNS
15	First and Cabrillo Towers	Residential (Condo), approved 2007	374 units	1901 E. First St.	400-081-08
16	Related Co. Apartments	Residential (Apartments)	74 units	611 E. Minter St.	398-301-07
A	First Street Widening Source: RTIP / RTP. Specifically included in No Build Description	Roadway widening from 4 to 6 Lanes		Susan St. to Fairview St.	Multiple APNS
B	Transit Zoning Code Specifically included in No Build Description	Land Use/Zoning Overlay, approved 2010		eastern 3rd of Study Area	Multiple APNS
Application Under Review					
17	C & C Affordable Housing Project	Residential (Apartments)	36 units	605 E. Washington Ave.	398-151-12
18	Dayton Commercial Center	Commercial	7,275 sq.ft.	W. Edinger Ave.	408-273-11
19	Dr. Bui Medical Building	Medical Office	6,500 sq.ft.	202 N. Euclid Ave.	099-223-26
20	Francis Xavier	Residential (Affordable/Special Needs)	12 units	801 E. Santa Ana Blvd.	398-303-04
21	Related Co. Apartments	Residential (Apartments)	13 units	714 E. Santa Ana Blvd.	398-312-18
22	Related Co. Apartments	Residential (Apartments)	12 units	801 E. Brown St.	398-312-09
23	Related Co. Apartments	Residential (Apartments)	12 units	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 units	501-515 E. 5th St.	398-332-06
25	Related Co. Site B	Residential (Rowhouse)	9 units	606-620 E. 5th St.	398-228-02
26	Related Co. Site C1 & C2	Residential (Rowhouse and duplex)	6 units	601-607 E. 5th St.	398-333-01
27	Related Co. Site D	Residential (Rowhouse)	4 units	615-621 E. 5th St.	398-333-05
28	Related Co. Site E	Residential (Duplex)	2 units	712 E. 5th St.	398-337-03
29	Santa Ana Blvd. Spec. Plan Area	Mixed-used	600 units	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 units	1584 E. Santa Clara Ave.	396-052-14
32	Town and Country Independent Living	Residential (Condo)	144 units	555 E. Memory Ln.	041-213-04
33	Vista Del Rio	Residential (Apartments/Special needs)	41 units	1600 W. Memory Ln.	101-055-27
34	1100 S. Grand Ave.	McDonald's with drive through	3,838 sq.ft.	1100 S. Grand Ave.	011-263-02
35	3312 W. First St.	Office (two-story)	29,000 sq.ft.	3312 W. 1st St.	144-341-07
36	630 S. Hathway St.	Industrial (two-story)	4,100 sq.ft.	630 S. Hathaway	011-311-04
C	Santa Ana Blvd. Grade Separation PSR / conceptual engineering is in process. City of Santa Ana is lead. Not included in No Build	Reconstruct Santa Ana Blvd. at Metrolink railroad tracks		north of SARTC	Multiple APNS
D	SARTC Expansion / Redevelopment Master Planning Stage - Santa Ana is lead, funded by OCTA Go Local. Not included in No Build	Intermodal Transportation Center / Land Use Development		SARTC and surrounding parcels including east of existing Metrolink tracks	Multiple APNS
E	PE Major Arterial 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 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. City of Santa Ana is lead and planning concept for this	Early planning stages (per Citywide bicycle program)		TBD – on Civic Center Dr.	Multiple APNS

No.	Project	Description/ Land Use	No. of u or square feet (sf)	Location	Primary APN
	bike lane has been identified. Not in No Build, but design for Streetcar Alternative 2 accounts				
G	Class I bicycle facility on PE ROW No work has been completed. Not in No Build list.	OCTA and County of Orange Bicycle Master Plan only.		Harbor Blvd. to Raitt	Multiple APNS
		Under Construction			
37	Alton Court	Residential (Single Family)	38 units	3321 S. Fairview St.	414-171-01
38	Wintersburg Presbyterian Church	Classrooms, Gym, Outreach Center	24,348 sq.ft.	2000 N. Fairview St.	101-652-13
39	Audi Dealership	Commercial, addition to showroom	7,700 sq.ft.	1425 S. Auto Mall Dr.	402-101-37
40	Courtyard by Marriot Hotel	Hotel (155 rooms)	100,000 sq.ft.	8 McArthur Pl.	411-081-28
41	Downtown Artist Lofts III	Artist Live/Work Lofts	16 units	SWC Main/3rd St.	398-601-02
42	Dr. Do Medical Office	Office (two-story)	6,000 sq.ft.	4718 W. First St.	108-101-45
43	Goodwill Industries	Office/Industrial	12,000 sq.ft.	410 N. Fairview St.	405-222-04
44	Latino Health Access	Community Center	3,074 sq.ft.	602 E. 4th St.	398-481-05
45	Santa Ana Express Car Wash	Drive-through car wash		202 E. 1st St.	398-51-401
46	Olen Properties (Parkcenter)	Office (one and two-story)	29,170 sq.ft.	601 N. Park Center Dr.	400-042-04
47	One Broadway Plaza	Office (37-story)	518,000 sq.ft.	1109 N. Broadway	398-561-07

Source: City of 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)

TBD – To Be Determined

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Chapter 10 Qualifications of the Preparers

Mr. Jeremy Hollins, URS Corporation Senior Architectural Historian, supervised the fieldwork, research, and preparation of the report. Mr. Hollins has an MA in Public History and a BA in History (Environmental) and has been performing cultural resources work for over eight years in California. Mr. Hollins has been published in several peer-reviewed journals, lectured as an adjunct instructor in World Architectural History, and was the lead historian on over 30 historic and cultural resource surveys and reports. Mr. Hollins has been with URS Corporation for over four years. Prior to working for URS Corporation, Mr. Hollins was employed by IS Architecture, the New School of Architecture, and the La Jolla Historical Society.

Ms. Melanie Lytle, URS Corporation Architectural Historian, led the field work and prepared the report. Ms. Lytle has an MA in Historic Preservation and a BA in History. Ms. Lytle has been performing cultural resources work for five years in California. Ms. Lytle has been with URS Corporation for more than a year. Prior to working for URS Corporation, Ms. Lytle was employed as a historian by Brian F. Smith and Associates, Inc.

Ms. Arleen Garcia-Herbst, URS Corporation Project Manager/Principal Investigator, oversaw the archaeological survey. Ms. Garcia-Herbst has more than 13 years of experience in archaeological research, fieldwork, and publication in the American Southwest (California, Arizona, Colorado and Nevada), and Argentina (Patagonia). Ms. Garcia-Herbst is currently working on her Ph.D. in Anthropology at the University of California, Santa Barbara. She has special technical expertise in relation to compliance with Section 106 and 110 of the National Historic Preservation Act (NHPA), as well as compliance with State historic preservation and archaeological resources regulations under the California Environmental Quality Act (CEQA).

Mr. Lucas Tutschulte, URS Corporation Staff Archaeologist, performed the Phase I archaeological survey. Mr. Tutschulte has a BS in Anthropology and Geography. Mr. Tutschulte has five years of cultural resource management experience including prehistoric, protohistoric, and historic archeological sites. He has performed cultural resource investigations under the Section 106 of the National Historic Preservation Act (NHPA), National Environmental Policy (Act), and the California Environmental Quality Act (CEQA). Mr. Tutschulte has conducted cultural resources literature searches, historic/archival research, archaeological field surveys, site recordation and mapping, construction monitoring, archaeological resource treatment plans, familiar with both laboratory and field testing and data recovery procedures throughout the country. Mr. Tutschulte has been with URS Corporation for over two years.

Dr. Kim Maeyama, PhD., URS Corporation Staff Archaeologist/Technical Specialist, performed background research and assisted with the preparation of the report. Dr. Maeyama has over six years of professional experience as a Cultural Resource Management Archaeologist and over six years international archaeological experience. In addition to Dr. Maeyama's diverse professional background, educational achievements include the award of a Doctorate of Philosophy in Archaeology (2004) and a professional certificate in Geographic Information Systems (GIS;

awarded 2009). Specialized skills include the performance of archaeological fieldwork, the operation of hand-held Global Positioning System (GPS) devices, the postprocessing of GPS data using ArcGIS, technical writing and editing, as well as database development for the management of archaeological data. Dr. Maeyama has been with URS Corporation for over a year.

Ms. Sarah Provo, URS Corporation Architectural Historian, conducted the field work and assisted with preparation of the report. Ms. Provo has an MA in Historic Preservation, a BA in History, and is a Secretary of Interior Professional Qualified Architectural Historian. Since 2009, Ms. Provo has performed numerous historic assessments and determinations of eligibility and effect for a range of property types based on local, State, and National Register of Historic Places (NRHP) criteria in the form of technical reports, Environmental Impact Studies/Environmental Impact Reports, DPR 523 series forms, cultural landscape reports, and HABS/HAER documentation.

Mr. Joel Levanetz, URS Corporation Architectural Historian, conducted field work and assisted with the preparation of the report. Mr. Levanetz has an MA in Public History and is a Secretary of Interior Professional Qualified Architectural Historian. Mr. Levanetz has been active in the field of architectural history since 2008, applying his knowledge and ability to a range of projects, including historic structures reports, historic resources assessments, Historic American Building Survey (HABS)/Historic American Engineering Record (HAER) documentation, and DPR 523 series form preparation. Prior to working for URS Corporation, Mr. Levanetz was employed by Heritage Architecture and Planning, the San Diego History Center, and ASM Affiliates.

Ms. Pei-Ming Chou, URS Corporation Environmental Planner, also conducted the field work and assisted with preparation of the report. Ms. Chou has an MA in Historic Preservation Planning (thesis pending) and has over five years of experience in planning and environmental consulting. Ms. Chou has been with the URS Corporation for over two years. Prior to working for URS Corporation, Ms. Chou worked for a year as the manager of the City of Rancho Cucamonga Historic Preservation Program, administering the Mills Act and evaluating resources for the local register.

Mr. Glenn Charles DeBerg, Jr., URS Corporation Urban/Environmental Planner, helped conduct the field work. Mr. DeBerg has a BA in Geography and over three years of experience writing CEQA and NEPA compliant documents including Environmental Impact Reports (EIRs), Environmental Impact Statements (EISs), Environmental Assessments (EAs), and Initial Studies (ISs). Mr. DeBerg has been with URS Corporation for more than five years. His experience at URS has included such responsibilities as assisting in project research, environmental document preparation (i.e., EIRs, EAs, ISs, etc.), project coordination, and environmental field studies such as biological surveys (watershed and vegetation), storm water quality monitoring, and noise/vibration studies.

Mr. Kevin McManus, URS Corporation Architectural Historian, assisted with research and the preparation of the report. Mr. McManus has a BA and an MA in History, and is a Secretary of Interior Professional Qualified Historian. Active in the field of architectural history for over three years, Mr. McManus' areas of expertise include archival research, California history, and 19th – 20th century American architecture. Prior to working for URS Corporation, Mr. McManus was employed by the San Diego History Center and San Diego State University.

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Exhibit A-1
Engineering Drawings

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