CHAPTER 4 Environmental Setting, Impacts, and Mitigation Measures

4.0 INTRODUCTION TO THE ENVIRONMENTAL ANALYSIS

Sections 4.1 through 4.13 of Chapter 4 of this EIR contain a discussion of the potential environmental effects of implementation of the Metro East Mixed Use Overlay Zone, including information related to existing conditions, analyses of the type and magnitude of individual and cumulative environmental impacts, and feasible mitigation measures that could reduce or avoid environmental impacts.

4.0.1 Scope of the Environmental Impact Analysis

The Metro East Mixed Use Overlay Zone EIR is a program-level environmental assessment that evaluates the effects of implementation of the entire Overlay Zone. The environmental assessment of the Metro East Mixed Use Overlay Zone as a whole is provided in this volume (Volume I) of the EIR.

As previously described, preparation of the Metro East Mixed Use Overlay Zone converged with a project-specific proposal for a mixed use development at the corner of Cabrillo Park Drive and First Street. The proposed First and Cabrillo Towers is described in detail, including the project-specific environmental analysis, in Volume II of the Metro East Mixed Use Overlay Zone EIR.

Metro East Mixed Use Overlay Zone EIR (Volume I)

In accordance with Appendix G of the CEQA Guidelines, the potential environmental effects of the proposed Metro East Mixed Use Overlay Zone are analyzed for the following environmental issue areas:

- Aesthetics
- Air Quality
- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration
- Population and Housing
- Public Services

- Transportation/Traffic
- Utilities and Service Systems
- Mandatory Findings of Significance[2]

Based upon the analysis provided in the Initial Study for the proposed project, which is provided in Appendix A of Volume I of this document, impacts to agricultural resources and mineral resources were determined to be "Effects Not Found to Be Significant" according to Section 15128 of the CEQA Guidelines.

With respect to agricultural resources, the Initial Study concluded that the soils within the Overlay Zone are not candidates for listing as prime farmland, unique farmland, or farmland of statewide importance. In addition, no farmland or agricultural activity exists on or in the vicinity of Overlay Zone, and no portion of the Overlay Zone is under a Williamson Act contract. Therefore, no impact would occur with respect to agricultural uses, and no additional analysis is required in this EIR.

With respect to mineral resources, the Initial Study determined that implementation of the Metro East Mixed Use Overlay Zone would not result in the loss of availability of either a known mineral resource of value to the state or region, or a locally important mineral resource recovery site, because no such sites exist within the Overlay Zone. Therefore, the Initial Study concluded that implementation of the Overlay Zone would not result in the loss of availability of a locally important mineral resource delineated on a local general plan, specific plan, or other land use plan, and no additional analysis is required in this EIR.

First and Cabrillo Towers EIR (Volume II)

The environmental analysis of the First and Cabrillo Towers, which is presented as a Project EIR in Volume II of the Metro East Mixed Use Overlay Zone EIR, builds upon the broader programmatic analysis of environmental impacts resulting from implementation of the Overlay Zone. The organization of the First and Cabrillo Towers EIR (Volume II) replicates the organization of the Metro East Mixed Use Overlay Zone EIR (Volume I); however, it avoids repetition of information and analysis provided in Volume I, such as general background and setting information for environmental topic areas, the regulatory context, overall growth-related and growth-inducing issues, issues for which there is no additional information that would require new analysis, cumulative impacts, and broad Overlay Zone planning alternatives. Instead, the analysis presented in Volume II reflects more detailed project-level information regarding the First and Cabrillo Towers as compared to the broader, planning-level information regarding the Overlay Zone as a whole contained in Volume I. Analyses of potential environmental effects of the proposed First and Cabrillo Towers cover the same specific issue areas analyzed in Volume I for the entire Overlay Zone, including the following:

- Aesthetics
- Air Quality

[2] Mandatory Findings of Significance are defined in Appendix G of the CEQA Guidelines, and include specific impacts to biological resources, cumulative impacts, and environmental impacts that will cause substantial adverse effects on human beings, either directly or indirectly. Therefore, Mandatory Findings of Significance are addressed throughout the environmental analysis, which is provided in Sections 4.1 through 4.13 of this EIR.

- Biological Resources
- Cultural Resources
- Geology and Soils
- Hazards and Hazardous Materials
- Hydrology and Water Quality
- Land Use and Planning
- Noise and Vibration
- Population and Housing
- Public Services
- Transportation/Traffic
- Utilities and Service Systems
- Mandatory Findings of Significance

4.0.2 Format of the Environmental Analysis

Environmental Setting/Definition of the Baseline

According to Section 15125 of the CEQA Guidelines, an EIR must include a description of the existing physical environmental conditions in the vicinity of the project to provide the "baseline condition" against which project-related impacts are compared. Normally, the baseline condition is the physical condition that exists when the Initial Study/Notice of Preparation (IS/NOP) is published. The IS/NOP for the Metro East Mixed Use Overlay Zone EIR was originally published in March 2006. However, due to changes in the project design, the IS/NOP was recirculated in September 2006 for public review. Both versions of the IS/NOP and copies of the comments received during both comment periods are provided in Appendix A of Volume I.

Regulatory Framework

The Regulatory Framework provides a summary of regulations, plans, policies, and laws that are relevant to each issue area.

Project Impacts and Mitigation

This section is further divided into the following subsections, as described below.

Analytic Method

This subsection identifies the methodology used to analyze potential environmental impacts.

Thresholds of Significance

Thresholds of significance are criteria used to determine whether potential environmental effects are significant. The thresholds of significance used in this analysis were primarily based upon Appendix G of the CEQA Guidelines; however, in some cases, standards were developed specifically for this analysis or reflect those used by the City in other environmental analyses. This subsection defines the type, amount, and/or extent of impact that would be considered a significant adverse change in the environment. Some thresholds (such as air quality, traffic, and noise) are quantitative, while others, such as visual quality, are qualitative. The thresholds are intended to assist the reader in understanding how and why the EIR reaches a conclusion that an impact is significant or less than significant.

The thresholds of significance are provided both in the "Thresholds of Significance" section and immediately before the relevant impact analysis for ease of correlation.

Effects Not Found to Be Significant

Certain environmental impacts were determined to be "Effects Not Found to be Significant" based upon the analysis provided in the Initial Study for the proposed project and upon further analysis subsequent to the issuance of the IS/NOP. These impacts are summarized in this subsection based upon the analysis provided in the IS/NOP for the proposed project, which is included as Appendix A to this EIR.

Impacts and Mitigation Measures

This subsection describes the potential environmental impacts of the Overlay Zone and, based upon the thresholds of significance, concludes whether the environmental impacts would be considered significant, potentially significant, or less than significant. Each impact is summarized in an "impact statement," followed by a more detailed discussion of the potential impacts and the significance of each impact before mitigation. This subsection also includes feasible mitigation measures that could reduce the severity of the impact. In addition to feasible mitigation measures (MMs), the Overlay Zone will also continue to comply with all applicable local, State, and federal laws and regulations, and these laws and regulations are considered to be part of the project description. Following the description of MMs, the subsection concludes with a statement regarding whether the impact, following implementation of the mitigation measure(s) or continuation of existing City programs, practices, or procedures, would remain significant, and thus be significant and unavoidable, or would be reduced to a less-than-significant level.

The analysis of environmental impacts considers both the construction and operational phases associated with implementation of the Overlay Zone. As required by Section 15126.2(a) of the CEQA Guidelines, direct, indirect, short-term, and/or long-term impacts are addressed, as appropriate, for the environmental issue area being analyzed.

The Draft EIR uses the following terms to describe the level of significance of impacts identified during the course of the environmental analysis:

- **Significant and Unavoidable Impact (SU)—**Impact that exceeds the defined threshold(s) of significance and cannot be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures
- **Potentially Significant Impact (PS)—**Impact that exceeds the defined threshold(s) of significance and can be eliminated or reduced to a less-than-significant level through the implementation of feasible mitigation measures
- **Less-Than-Significant Impact (LS)—**Impact that does not exceed the defined threshold(s) of significance

Each impact discussion is separately numbered and includes a brief impact statement that summarizes the subject of the analysis. This format is designed to assist the reader in quickly identifying the subject of the impact analyses and for use in Table 1-1 (Summary of Environmental Effects and Mitigation Measures), which forms the basis of the Mitigation Monitoring and Reporting Program. Impact numbers and statements are not provided for Effects Not Found to Be Significant. Accordingly, they are not monitored as part of the Mitigation Monitoring and Reporting Program, and no impact numbers or statements are necessary.

Cumulative Impacts

CEQA requires that EIRs discuss cumulative impacts, in addition to project-specific impacts. In accordance with CEQA, the discussion of cumulative impacts must reflect the severity of the impacts and the likelihood of their occurrence; however, the discussion need not be as detailed as the discussion of environmental impacts attributable to the project alone. Further, the discussion is guided by the standards of practicality and reasonableness. According to Section 15355 of the CEQA Guidelines:

> "Cumulative impacts" refer to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts.
>
> (a) The individual effects may be changes resulting from a single project or a number of separate projects.
>
> (b) The cumulative impact from several projects is the change in the environment, which results from the incremental impact of the project when added to other closely related past, present, and reasonably foreseeable probable future projects. Cumulative impacts can result from individually minor but collectively significant projects taking place over a period of time.

Section 15130(a)(1) of the CEQA Guidelines further states that a "cumulative impact consists of an impact which is created as a result of the combination of the project evaluated in the EIR together with other projects causing related impacts."

Section 15130(a) of the CEQA Guidelines also requires that EIRs discuss the cumulative impacts of a project when the project's incremental effect is cumulatively considerable. Where a lead agency is examining a project with an incremental effect that is not cumulatively considerable, it need not consider the effect significant but shall briefly describe the basis for its conclusion. As further clarified by Section 15065 of the CEQA Guidelines, "cumulatively considerable" means that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects. If the combined cumulative impact associated with the project's incremental effect and the effects of other projects is not significant,

Section 15130(a)(2) of the CEQA Guidelines requires a brief discussion in the EIR of why the cumulative impact is not significant and is not discussed in further detail. Section 15130(a)(3) of the CEQA Guidelines requires supporting analysis in the EIR if a determination is made that a project's contribution to a significant cumulative impact is rendered less than cumulatively considerable and, therefore, is not significant. CEQA recognizes that the analysis of cumulative impacts need not be as detailed as the analysis of project-related impacts, but instead should "be guided by the standards of practicality and reasonableness" (CEQA Guidelines Section 15130[b]). The discussion of cumulative impacts in the EIR focuses on whether the impacts of the Overlay Zone are cumulatively considerable.

The fact that a cumulative impact is significant on the whole does not necessarily mean that the project-related contribution to that impact would be significant as well. Instead, under CEQA, a project-related contribution to a significant cumulative impact is only significant if the contribution is cumulatively considerable. To support each significance conclusion, the EIR provides a detailed cumulative impact analysis, and where project-specific impacts have been identified that, together with the effects of other pending projects, could result in cumulatively significant impacts, these potential impacts are documented

The geographic scope of the cumulative impact analysis varies depending upon the specific environmental issue area being analyzed. In addition to describing the geographic scope of analysis, where appropriate, each section also designates the cumulative context within the designated geographic area, which relates to the amount and type of growth that is anticipated to occur within the geographic area. Finally, and where appropriate to the analysis in question, cumulative impacts are assessed with reference to a list of off-site "related projects," as described by CEQA Guidelines §15130(b).

References

This section identifies sources relied upon for each environmental topic area analyzed in this document (Sections 4.1 through 4.13).

4.1 AESTHETICS/VISUAL RESOURCES

This section describes the visual setting of the proposed Mixed Use Overlay Zone (Overlay Zone) and evaluates the potential for changes in visual character due to development under the Overlay Zone. The purpose of the Overlay Zone is to allow for the development of mixed-use and/or residential land uses within the Overlay Zone. Therefore, the environmental analysis for the Overlay Zone is programmatic, rather than project-specific, as the actual sites and design of future buildings are undetermined. However, each major building proposal undertaken during the planning horizon of the Overlay Zone will require project-specific environmental review in accordance with CEQA.

This section analyzes the general effects of approximately 200 acres of development within the Overlay Zone, including the potential loss of existing visual resources, such as landscaping and mature trees, effects on views, compatibility with visual characteristics of surrounding land uses, and the likelihood that adjacent uses (sensitive receptors) would be disturbed by light and glare generated or reflected by new structures. Data used to prepare this section was taken from various sources, including photos from site visits, as well as existing City planning documents.

One comment letter related to aesthetics was received from the City of Tustin in response to the September 5, 2006, Initial Study/Notice of Preparation (IS/NOP) circulated for the project. However, two comment letters were received during the first IS/NOP scoping period (originally filed March 9, 2006). One comment letter was again from the City of Tustin and the other was from the Tustin Preservation Conservancy. All comment letters are included in Appendix A, and their respective concerns and issues are addressed within this section. Full bibliographic entries for all reference material are provided in Section 4.1.5 (References) of this section.

4.1.1 Environmental Setting

Overview of Visual Character of the City

The City of Santa Ana is nearly entirely built-out and developed with a variety of structures. The downtown area, which is located to the west of the Overlay Zone (generally defined by Seventeenth Street, Bristol Avenue, First Street, and Main Street), contains many of the oldest buildings in the City, including a number of historical structures. In addition, a number of new medium- to high-rise commercial structures can be found in the downtown area.

The residential neighborhoods in the City surround the downtown and exhibit a wide range of architecture and site design. Older neighborhoods may be found nearer the downtown area, with newer residential developments located away from the City center. The industrial uses in the City are confined to areas near existing railroads, as well as on the eastern, southwestern and southeastern sections of the City.

The Santa Ana Freeway (I-5) cuts through the northeastern section of the City. The Costa Mesa Freeway (SR-55) generally defines the southeastern boundary of the City and the San Diego Freeway (I-405) is just south of Santa Ana. In addition, the Santa Ana River runs through the western section of the City.

Overlay Zone Characteristics

Generally, the Overlay Zone, which is located immediately north of and between the convergence of I-5 and SR-55, is developed with a mix of commercial and office uses ranging from 1 to 16 stories in height. As shown in Figure 4.1-1 (Overlay Area), several large vacant properties are located along the western boundary of the area, adjacent to I-5. The project area is oriented in a generally north-south perpendicular direction. No designated areas of open space are currently provided within the Overlay Zone. Portions of the area are heavily landscaped with ornamental species that are predominantly restricted to those areas along streets and within surface parking lots.

Fourth Street and First Street are described in the City's Land Use Element as scenic corridors which are significant transportation and activity corridors in the City and are accessible from all freeways (City of Santa Ana 1997).

Adjacent Land Uses

The areas surrounding the Overlay Zone consist of a mix of residential and commercial properties, including a single-family residential neighborhood and Cabrillo Park to the north, and St. Jeanne De Lestonnac School and multi-family residential properties to the south. To the west, the I-5 Freeway is located immediately adjacent to the Overlay Zone, followed by a mix of primarily residential, office, and commercial uses. East of the Overlay Zone, the land uses are predominantly commercial, as well as a medical facility and the SR-55 Freeway. These adjacent uses are illustrated in Figure 4.1-2 (Adjacent Uses). Adjacent uses generally range in height from two to four stories.

Existing Views

Existing Viewsheds

A viewshed is a geographic area composed of land, water, biotic, or cultural elements that may be seen from one or more viewpoints and that has inherent scenic qualities or aesthetic values determined by those who view it. The viewsheds associated with the Overlay Zone are characterized by natural and man-made features. The Santa Ana Mountains are visible from the residences and streets adjacent to the east of the Overlay Zone, as well as from the commercial and office uses to the west. The discussion below provides more detailed descriptions of existing views from, of, and through the Overlay Zone.

Views of and within the Overlay Zone

Views of and within the Overlay Zone are generally limited to immediately adjacent uses/structures. Views to the north, west, south, and east consist primarily of adjacent developed uses of varying scale,

Cabrillo Park Drive and Park Court Place, looking north

First Street, looking north

First Street and Cabrillo park Drive, looking northwest

Fourth Street and Cabrillo Park Drive, looking south

First Street and Golden Circle Drive, looking north

Fourth Street and Golden Circle Drive, looking north

First Street and Tustin Avenue, looking west

Fourth Street and Tustin Avenue, looking west

Tustin Avenue and East 6th Street, looking northwest

***Source*:** Urban Studio, 2006.

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FIGURE **4.1-1**
Overlay Area

Commercial and Office Uses to the East

Cabrillo Park to the North

Commercial uses to the West

Saint Jeanne de Lestonnac School to the Southeast

Single-Family residential to the North

Zoo to the Southwest

***Sources*:** Urban Studio, 2006; IP Associates, A division of PBS&J, 2006.

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FIGURE **4.1-2**
Adjacent Uses

including residential, commercial, institutional, and public uses. Although views looking east from the Overlay Zone are primarily dominated by commercial and office uses, background views of the Santa Ana Mountains to the east can be seen from both the western and eastern boundaries of the Overlay Zone. Similar to views from within the Overlay Zone, views of and through the Overlay Zone are dominated by commercial and office uses. These views are blocked by residential properties to the north, commercial properties to the east, residential and institutional properties to the south, and aboveground portions of the I-5 to the west.

As mentioned above, Fourth Street and First Street are described in the City's 1997 Draft Land Use Element as scenic corridors which are significant transportation and activity corridors in the City and are accessible from all freeways (City of Santa Ana 1997). As a result, primary views that are analyzed within this section are those of and through the Fourth and First Street corridors, from the western and eastern boundaries of the Overlay Zone. In addition, background views of the Santa Ana Mountains through these corridors provide additional scenic resources. The locations of key photographic viewpoints of the Overlay Zone that provide the basis for this analysis are presented in Figure 4.1-3 (Viewpoint Key Map).

Views from the West, Looking East (Viewpoint A)

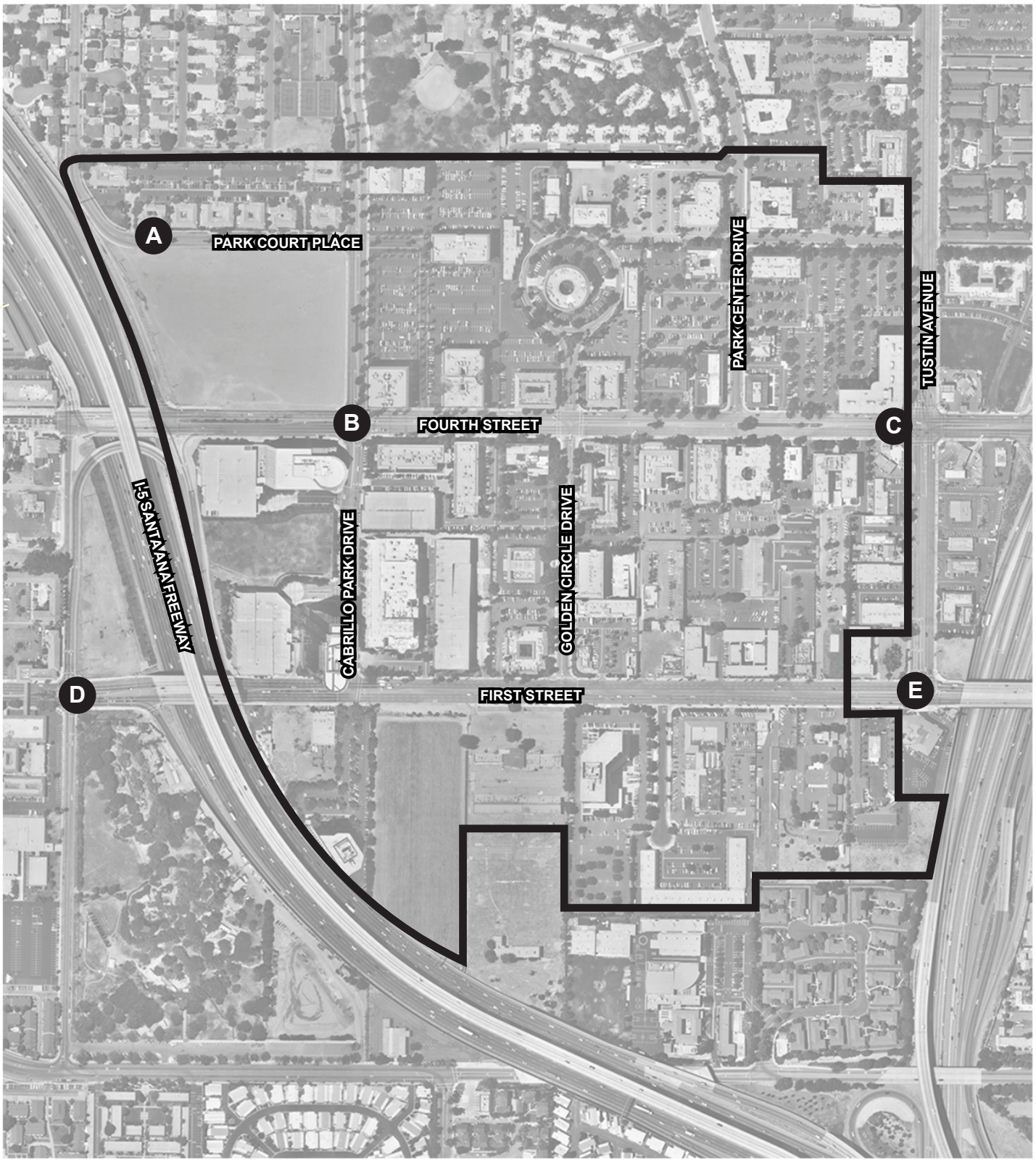
Views looking eastward from the northwestern corner of the Overlay Zone consist primarily of office uses located throughout the area, as well as some vacant lots, as shown in Figure 4.1-4 (Viewpoint A). In particular, the vacant lot along the western boundary of the Overlay Zone, and the Kaiser and Xerox buildings can be seen along Park Court Place. As shown in Figure 4.1-4, land uses in this area are predominantly two stories in height except for those uses south of Fourth Street, which are considered high-rise developments. Background views of the upper portions and ridgelines of the Santa Ana Mountains provide additional scenic visual resources from the west.

Views from Cabrillo Park Drive and Fourth Street (Viewpoint B)

As shown in Figure 4.1-5 (Viewpoint B), the western portion of the Fourth Street corridor is visible from the western boundary of the Overlay Zone, vehicles traveling from the I-5, and of course, along Fourth Street. The most representative viewpoint is from the intersection of Fourth Street and Cabrillo Park Avenue, located in the northwestern portion of the Overlay Zone. The views from this viewpoint consist primarily of the office uses comprising the corridor. In particular, existing office buildings such as Kaiser Permanente and the 8-story structure on the southwest corner of the intersection, can be seen along Fourth Street and the I-5. In addition, the vacant lot located on the northwest corner of the intersection is visible from the corridor as well as the freeway.

Views from the East, Looking West (Viewpoint C)

The eastern portion of the Fourth Street corridor is visible from the adjacent commercial properties from the east and vehicles traveling westbound along Fourth Street, as shown in Figure 4.1-6 (Viewpoint C). The most representative viewpoint is from the intersection of Fourth Street and Tustin Avenue, on the eastern boundary of the Overlay Zone. The views looking west from this viewpoint consist primarily



Source: City of Santa Ana, 2006; IP Associates, A division of PBS&J, 2006.

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FIGURE **4.1-3**
Viewpoint Key Map

Looking East at vacant lot

Looking East down park Court Place

Looking Southeast, East of the I-5

Sources: EIP Associates, A division of PBS&J, 2006.

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FIGURE **4.1-4**

Viewpoint A

Looking East down Fourth Street

Looking Northwest at Vacant lot

Looking Southeast at Kaiser Permanente building

Looking Southwest at office structure

Sources: EIP Associates, A division of PBS&J, 2006.

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FIGURE **4.1-5**

Viewpoint B

Looking Northwest

Looking Southwest

Looking West down Fourth Street

Sources: EIP Associates, A division of PBS&J, 2006.

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FIGURE **4.1-6**

Viewpoint C

of the commercial and office uses of the area. As shown in Figure 4.1-6, the office structure located on Tustin Avenue and Fourth Street to the northwest, a gas station to the southwest, and indiscernible commercial and office properties to the west, comprise this viewpoint.

Views from the West, Looking East (Viewpoint D)

The western portion of the First Street corridor is visible from the adjacent residential neighborhoods from the west, vehicles traveling along the I-5 freeway, and of course, along First Street, as shown in Figure 4.1-7 (Viewpoint D). The most representative viewpoint is from the intersection of First Street and Elk Street, on the western boundary of the Overlay Zone, just west of the I-5. The views looking east from this viewpoint consist primarily of the commercial and office uses of the area, as well as the I-5 itself. In particular, the Xerox building, and the parking structure adjacent to the west of the Xerox building, can be seen from the I-5 and residential properties along Elk Street.

Views from First Street and Tustin Avenue (Viewpoint E)

The eastern portion of the First Street corridor is visible from the adjacent commercial properties from the east, from vehicles traveling along SR-55, and from vehicles traveling along First Street, as shown in Figure 4.1-8 (Viewpoint E). The most representative viewpoint is from the intersection of First Street and Tustin Avenue, on the eastern boundary of the Overlay Zone, just west of SR-55. The views looking west from this viewpoint consist primarily of the commercial and office uses comprising the area, including hotels and restaurants. Although it is located on the western end of the corridor, the most distinguished visible building from this viewpoint is the Xerox building. Looking north from this viewpoint, the upper portions of the Santa Ana mountain ranges are clearly visible to those traveling north along Tustin Avenue, and those traveling northbound along SR-55.

Artificial Light and Glare

Since the project area is urban in nature, the existing area consistently generates and is exposed to artificial light. A variety of sources produce artificial light within the project area, including street lights, automobile headlights, and interior and exterior lighting from commercial and office buildings. These light sources are most noticeable during nighttime hours.

Glare results from sharply reflected light caused by sunlight or artificial light reflecting from highly finished surfaces such as window glass or brightly colored surfaces. Glare is a common phenomenon in the City of Santa Ana, mainly due to the high proportion of days per year with direct sunlight and the highly urbanized nature of the area, which provides many reflective surfaces. Glare from very bright artificial surfaces can be considered a nuisance and, under very unusual circumstances, even a hazard.

Major sources of light and glare within the City include light from street and parking lot lights, illuminated signage, headlights from vehicles, security lighting, and indoor lighting. The types of land uses that are typically sensitive to excess light and glare include homes, hospitals, senior housing, and other types of uses where excessive light may disrupt sleep. In addition, excessive light and glare may interfere with the vision of drivers.

Shade & Shadow

The current low- to mid-rise buildings within the Overlay Zone presently create limited shade and shadow patterns that are contained within a close proximity to each building. In the portions of the Overlay Zone characterized by high-rise structures, such as the Xerox Building, shadows cast by existing on-site development are more extensive. Due to the programmatic nature of this EIR, a complete assessment of shade and shadow patterns cast by existing low-rise and high-rise buildings within the Overlay Zone is not warranted at this time. In the future when specific development projects are proposed within the Overlay Zone, they will be subject to project-level CEQA review and, as necessary, evaluated for potential shade and shadow impacts upon adjacent properties.

4.1.2 Regulatory Framework

Federal

No existing federal regulations pertain to the visual resources within the proposed project area.

State

No existing State regulations pertain to the visual resources within the proposed project area.

Local

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

Santa Ana General Plan Land Use Element

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

Policy 1.9 Coordinate street and parkway designs that are attractive, functional and compatible with on-site or adjacent development.

Policy 1.10 Encourage the location of commercial centers at arterial roadway intersections in commercial districts.

View looking East towards I-5 and First Street

View to the North

View to the Northeast

Sources: EIP Associates, A division of PBS&J, 2006.

EIP ASSOCIATES

A division of PBS&J

FIGURE **4.1-7**

Viewpoint D

View looking West down First Street

***Sources*:** EIP Associates, A division of PBS&J, 2006.

EIP ASSOCIATES

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FIGURE **4.1-8**
Viewpoint E

Policy 2.10 Support new development which is harmonious in scale and character with existing development in the area.

Policy 3.1 Support development which provides a positive contribution to the neighborhood character and identity.

Policy 3.4 Continue proactive code enforcement programs and activities.

Policy 3.5 Encourage new development and/or additions to existing development that is compatible in scale and consistent with the architectural style and character of the neighborhood.

Policy 5.2 Protect the community from incompatible land uses.

Policy 5.5 Encourage development which is compatible with, and supportive of surrounding land uses.

Santa Ana General Plan Urban Design Element

The Urban Design Element establishes a long range vision regarding the City's urban form, in order to orchestrate a safe, functional, and aesthetically pleasing urban environment. This element aims to curtail obsolete, dysfunctional, and chaotic development. Specifically, this element addresses outdoor space and building form, and establishes programs and measures to improve the physical setting in which community life takes place. The following policies are directly applicable to aesthetics for the proposed project.

Policy 1.1 New development and redevelopment projects must have the highest quality design, materials, finishes, and construction

Policy 1.4 Development and other design features that prevent loitering, vandalism, graffiti, and visual deprivation, are to be included in all projects.

Policy 2.2 New development must be consistent with the scale, bulk, and pattern of existing development.

Policy 2.11 New developments must re-enforce, or help establish district character.

Policy 2.12 Development and subdivision patterns are to be compatible with existing patterns of development in and around districts and neighborhoods, and provide a smooth transition along designated edges.

Policy 3.3 Enhanced streetscapes, architectural themes, and landscaping are to be provided to visually strengthen the path and enhance adjacent development.

Policy 3.12 Scenic, historic, and attractive views along paths are to be preserved.

Policy 3.13 Maximize and coordinate resources to improve visual impact at key locations.

Policy 4.3 Architectural and landscape design should use public open space as a means to enhance the aesthetic quality of the development and conduct to community activities.

Policy 6.1 The design of development should frame and enhance landmarks, natural features, and view corridors.

Policy 7.1 Gateways must be developed at strategically designated locations to communicate a sense of arrival and positive image of the City.

Policy 7.2 Gateways to Santa Ana must include unique and distinctive streetscape and development design.

Policy 7.4 Imaginative and distinctive features, such as entry monuments, public art, decorative landscape, directional signs, landscape statements, and architectural elements that project a positive image and community character are to be used at City gateways.

Santa Ana General Plan Scenic Corridors Element

The Scenic Corridors Element of the General Plan is designed to identify Santa Ana's scenic corridors, and thereby to designate them for special treatment and improvements. No County-designated scenic highways run through Santa Ana. However, a number of major transportation system and open space systems are of regional significance in that many residents of the County form their image of Santa Ana from their travels along these corridors. First and Fourth Streets are both identified as Primary street corridors in the majority of the City; however, both streets are identified as Major city entries at the location of the proposed project. Therefore, the following policies are related to aesthetics for the proposed project.

Objective 1.1 Improve and develop the public portions of streetscapes in a comprehensive manner.

Objective 1.3 Encourage improvement and maintenance of private properties along scenic corridors.

Objective 2.3 Enhance the attractiveness of neighborhoods, neighborhood edges, and other Framework Plan components.

Consistency Analysis

The proposed Overlay Zone is intended to facilitate well designed new mixed-use development projects that combine residential and non-residential uses through innovative and flexible design solutions. As shown above, the General Plan states that scenic views should be preserved and new development should be designed to frame natural features and view corridors. As an amendment to the General Plan, the proposed project would be designed to be consistent with policies contained in the General Plan, including those related to visual resources. The proposed project is designed to permit development of vacant and underutilized lands in order to create a mixed-use residential environment that would be

neighborhood-serving, and to increase the visual quality of the area and surrounding neighborhood. Additionally, although no specific land use policies are associated with the project area, the Overlay Zone is located within one of the City's "major development areas," as discussed further in Impact 4.1-1. The City would provide design review of the proposed project, which would consider architectural and aesthetic quality and compatibility with existing structures. Because the overall project is designed to enhance and promote the aesthetic quality of the area, implementation of the proposed Overlay Zone would not conflict with the identified policies.

4.1.3 Project Impacts and Mitigation

Analytic Method

The analysis of visual impacts focuses on the nature and magnitude of changes in the visual character of the project area due to the proposed project, including the visual compatibility of future permitted land uses and adjacent uses, vantage points where visual changes could be evident, and the introduction of sources of light and glare. Site visits by EIP staff documented the existing visual character and context of the project area.

The basic unit of analysis of aesthetics and visual quality impacts in this EIR is the individual viewshed: the analysis focuses primarily on comparing the existing visual characteristics of a particular viewshed, the program elements that would be introduced into the viewshed, and the potential blockage by these structures of significant viewsheds. In addition, the structures' effect on the visual character of the project site and immediate surroundings in terms of the compatibility of height, mass, and form with respect to structures in and adjacent to the site is also evaluated. A significant impact would occur where the proposed project would introduce structures or elements that would be inconsistent with existing patterns of development, thereby degrading the visual character or quality of the site, or creating substantial sources of light or glare, or where documented and important scenic resources or scenic vistas would be damaged or destroyed. Vantage points and associated view corridors were chosen for analysis based on views considered significant in the General Plan's Scenic Corridors Element, in consideration of significant public views that could be affected by the proposed development. Significant impacts to views would occur where documented and important scenic resources or scenic vistas would be damaged or destroyed by the introduction of new structures.

Light and glare are considered for the project as a whole. The primary sources would be exterior lighting associated with the commercial and residential development, as well as security lighting in the parking areas. The primary new source of glare would be the surfaces of the proposed towers. A significant impact would occur where the proposed project would create a new, substantial source of light or glare.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2006 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on aesthetics or visual resources if it would result in any of the following:

- Have a substantial adverse effect on a scenic vista
- Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway
- Substantially degrade the existing visual character or quality of the site and its surroundings
- Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area

Additionally, the City of Santa Ana uses the following criterion to measure shade and shadow impacts:

- A project would be considered to create significant shade/shadow impacts if shade/shadow from the project results in a substantial loss of sunlight in a residential area or other sensitive receptor. Other sensitive receptors would include schools and parks.

Effects Found to Have No Impact

Threshold	Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

The City of Santa Ana does not have any State- or County-designated scenic highways. Nor are there any state- or County-designated scenic highways located nearby. Although First and Fourth Streets are designated as local scenic corridors, these are addressed below in Impact 4.1-1. Consequently, implementation of the proposed project would not substantially damage scenic resources within a State scenic highway, and no further analysis is necessary in this EIR.

Effects Found to Be Less Than Significant

Threshold	Would the project have a substantial adverse effect on a scenic vista?

Impact 4.1-1 **The potential development of mixed uses and high-rise buildings within the Overlay Zone would not cause an obstruction of significant public views or vistas. This would be a *less-than-significant* impact.**

For purposes of this analysis, "scenic resources" can include natural open spaces, topographic formations, and landscapes. Many people associate natural landforms and landscapes with scenic resources, such as oak woodlands, lakes, rivers, streams, and some historical areas. Scenic resources can also include urban open spaces and the built environment. Examples of these would include parks, trails, pathways, nature centers, archaeological, historical resources, and architectural features. With respect to the project area, First Street and Fourth Street qualify as scenic resources under this definition due to their local designation as major city entries within the Scenic Corridors Element of the City's General Plan.

The proposed Overlay Zone seeks to provide an integrated and revitalized urban area, and would guide the future development and improvements of the project area through implementation of the associated development standards. Development under the proposed Overlay Zone would introduce development

forms and uses that will provide for the creation of a high-intensity, mixed-use urban village within a previously developed mid-rise to high-rise office environment.

The majority of the Overlay Zone is currently developed. However, the proposed project would establish the framework for a new development pattern in the area through the re-use and revitalization of existing uses. Implementation of the proposed project would serve to guide future development in the Overlay Zone such that the physical design of the proposed uses would enhance the visual character and quality of the area.

The proposed Overlay Zone is divided into four distinct districts: the Neighborhood Transitional District, the Village Center District, the Active Urban District, and the Office District. These four districts would contain varying mixtures of building heights and aesthetic characteristics to create a vibrant urban mixed-use area in the heavily traveled eastern entryway of the City.. New structures could range in height from one or two stories, up to 20+ stories. Future development within the Overlay Zone would provide an effective new gateway into the City, and could provide a prominent skyline of taller buildings. Both visual attributes would help signify a new, distinctive identity for the City. The varying heights and massing of new buildings would provide a distinctive skyline with planar changes that would create visual interest in the area. The inclusion of ground-floor commercial space at strategic locations, as well as a highly-integrated pedestrian system throughout the project area would also create an internal physical and visual connection for pedestrians with adjacent mixed-use buildings, where one does not currently exist.

Presently, existing views of the Overlay Zone are primarily available from adjacent commercial and office uses, as well as from portions of First Street, Fourth Street, Interstate 5, State Route 55, and Tustin Avenue. Limited views of the Overlay Zone are available from the residential uses to the north. The existing views of the area could be significantly altered with the introduction of revitalized development. Views of the project site from the I-5, SR-55, and First and Fourth Streets would be most significantly altered, as the project area as a whole is most visible when traveling along these routes.

Sensitive receptors located near the project area include residences adjacent to the northern boundary of the project area, north of Sixth Street. Under the proposed Overlay Zone, the Neighborhood Transitional District would frame the northern boundary of the project area, and the scale and design of buildings in this area would reflect the relationship to the adjacent residential uses. Specifically, this district is intended to provide opportunities for low-intensity development that acts as a transition between single-family residential uses to the north and the adjacent high-intensity Active Urban District and Village Center to the south. Designated for the lowest scale and the lowest intensity of uses in the Overlay Zone, development in this district is limited to residential, live/work, or office uses, generally between two and three stories in height. New development in this area would be designed to provide an appropriate interface with high levels of landscaping and design features that minimize impacts to adjacent single family residential areas.

In addition to new buildings, implementation of the proposed project could also include the extension of some roads that would provide more views of the area, which are not currently available. Specifically, the proposed project would extend Circle Center Drive to the north, which would intersect with the new

extension of Park Court Place (from Cabrillo Park Drive to Parkcenter Drive). In addition, Parkcenter Drive would extend south of Fourth Street to the intersection of First Street, and a new roadway between First and Fourth Streets would extend from Cabrillo Park Drive to Parkcenter Drive. With the incorporation of these street extensions, new views could be afforded of the Overlay Zone for motorists and pedestrians because the bridging of these streets would minimize the existing visual and physical barriers between the proposed districts.

Although future development would incorporate a range of architectural styles, building heights, and massing, the proposed project would provide a visual entry way of the City from multiple locations, including along First and Fourth Streets, as well as from the I-5 and SR-55 freeways. Specifically, a new skyline of varying building forms and heights would be created along these major thoroughfares by the new development, and would not degrade views from adjacent roadways or uses. Under the Overlay Zone, the new design guidelines are intended to create a unified identity within the area, with buildings that are compatible in scale, design, character, quality, and style. While some portions of the project area are more visually prominent than others due to location of streets and existing view corridors, development standards of the proposed Overlay Zone would ensure that each future development project includes appropriate site planning, unique architecture, high-quality building materials, extensive indoor and outdoor amenities and first-rate public improvements. Essentially, the proposed project would ensure that form, height, and treatment of buildings would reinforce the prominence and role of major urban spaces and streets. Thus, although future development would include high-rise buildings, the height, bulk, architecture, and/or signage would not degrade the visual unity of the area.

The addition of open space, and landscape and streetscape improvements throughout the Overlay Zone would also improve the aesthetics of the overall area and create a pedestrian-friendly environment that could include widened sidewalks, bike paths, street trees, and street furniture. Thus, the proposed Overlay Zone would provide the area with a set of improvement and development standards that enhance the current level of aesthetics associated with the area. Upon its adoption, future development in the project area would be guided by and be in conformance with the development standards of the proposed Overlay Zone, which would result in new buildings with common architectural design and that would be compatible in scale, mass, and density.

As mentioned previously, the project area currently consists of a variety of low-scale office and commercial structures, with the exception of limited vacant parcels and a few newer structures in the western portion of the area (e.g., the Xerox Building). Although long-term visual characteristics of the project area would be altered with development under the proposed Overlay Zone, it would visually enhance the area and provide the City with a distinctive entryway identity. Further, the intensification of the Overlay Zone is consistent with the City's intent of the Major Development Area, which calls for high intensity, high quality projects.

Project implementation would also create contiguous landscaped pedestrian areas throughout the area in order to promote active street life. Thus, although views of the project area would be modified, the proposed project would not degrade the existing visual character or quality of the site and its surrounding. Rather, development under the proposed Overlay Zone would contribute to the image of, and add to the aesthetic quality of the City of Santa Ana. As such, development under the proposed

project would not degrade the existing visual quality of the area or obstruct key existing views and/or vistas in the vicinity. This impact is considered ***less than significant***.

Threshold	Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

Impact 4.1-2 **Construction and operation of the proposed project and associated infrastructure improvements would substantially improve the visual character or quality of the Overlay Zone. This is considered a *less-than-significant* impact.**

Short-Term Construction Impacts

Visual impacts associated with construction activities would include exposed pads and staging areas for grading, excavation, and construction equipment. In addition, temporary structures could be located in the Overlay Zone during various stages of demolition or construction, within materials storage areas, or associated with construction debris piles on- and off-site. Also, exposed trenches, roadway bedding (soil and gravel), spoils/debris piles, and possibly steel plates would be visible for utilities infrastructure improvements, as well as for roadway improvements.

Although these activities would take place primarily within the Overlay Zone, these visual impacts could affect surrounding land uses to the south and east. Automobiles traveling along Tustin Avenue, Sixth Street, and the I-5 and SR-55 freeways could have short-term views of the Overlay Zone during construction activities. In addition, motorists and pedestrians in the vicinity of intersections at which roadway improvements would occur would have views of construction associated with project improvements. However, these visual conditions would be temporary visual distractions typically associated with construction activities and commonly encountered in developed areas. In addition, the City's building codes require screening and pedestrian protection for sidewalks during construction activities. Therefore, this short-term impact would be considered ***less than significant***.

Operation

The proposed Overlay Zone would facilitate development of a high-quality urban village consisting of residential, office, commercial, service, and entertainment uses within a community of street and sidewalk-facing individual buildings on urban blocks separated by streets, sidewalks, pedestrian paseos, and courtyards. Underutilized areas would be redeveloped with an integrated design intended to foster architectural quality and variety, community connections, landscape buffers, and pedestrian-oriented uses. A variety of massing and forms would be encouraged to introduce variety at the ground plane and skyline of the project area.

The overall scale and massing of development would transition from the one- to two-story scale of the existing residential community to the north to a higher intensity adjacent to the I-5, located west and south of the Overlay Zone. To create a varied skyline and enhance the form of the project area, taller buildings and distinct tower elements that rise from a lower base of three stories and higher would be encouraged within the Active Urban district. Per the general design principals provided for the Overlay

Zone, development on sites throughout the Overlay Zone would encourage connections and linkages to other sites in the project area and surrounding community amenities, while individual building typologies and unit designs would facilitate pedestrian activity and visual connectivity with surrounding development through active sidewalks. To establish interaction between the properties and reinforce the long-term development of the project area as a pedestrian-friendly mixed-use urban village, community- and neighborhood-serving commercial uses would be permitted along Fourth Street and Cabrillo Park Drive in the area specifically designated to establish a pedestrian linkage between First and Fourth Street. These linkages would be enhanced throughout the district by a strong emphasis to provide on-site publicly accessible open spaces and amenities. To further establish human scale and interest and a sense of urban variety and liveliness, architectural diversity with regard to unit types, building types, massing, forms and styles would be strongly encouraged.

One of the primary intents of the Overlay Zone is to guide new development that enhances the overall image of the project area as an exciting destination for visitors and residents. Pedestrian activity would be encouraged, and new development would include public open spaces and increased or improved landscaping. Urban design concepts include small urban plazas, street closing for special events, upgrading alleys as paseos, and dedicating portions of wide sidewalks for social and recreational uses. All new development is expected to be sensitive to existing places and character in the Overlay Zone and surrounding area. In addition, as discussed in Impact 4.1-1, the proposed Overlay Zone includes a gateway and entries concept to further define entries to and definition of, the project area.

The incorporation of new landscaping within the Overlay Zone would provide an additional visual enhancement to the Santa Ana area. New landscaping will occur as new developments are implemented throughout the Overlay Zone and serve to soften and buffer views of the proposed structures. New landscaping features would include potted plants, mature trees, turf surfaces, outdoor furniture, decorative lighting, and other amenities intended to add variety and contribute to a sense of human scale. Plantings would include both new, mature specimen trees, and relocated trees.

Other design guidelines and requirements in the proposed Overlay Zone will help ensure maximum compatibility of design, minimization of light and glare, promote pedestrian-friendly entries and uses, and promote the use of compatible exterior materials. In general, the new development projects that would be introduced would serve to improve the aesthetic character of the Overlay Zone given the architectural design guidelines required for the new developments, the use of design elements, such as landscaped view corridors, and walkways; and the new landscape features to be implemented. Additionally, supporting infrastructure, such as telecommunications equipment and utility lines, will be appropriately screened from view or placed underground.

In general, implementation of the proposed Overlay Zone would enhance the visual character of the area through the guidelines and standards described above. Although future development could result in taller buildings in certain districts compared to existing uses, the overall changes that are proposed would be designed to create visually attractive and compatible uses. Additionally, future development would be required to adhere to policies identified in the City's General Plan Elements, as identified in the Regulatory Framework. Consequently, future development under the Overlay Zone would improve the existing visual character and this impact would be ***less than significant***.

Threshold	Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

Impact 4.1-3 **Implementation of the proposed project would result in new sources of increased daytime glare. This is considered a potentially significant impact. However, implementation of mitigation measure MM-OZ 4.1-1 would reduce the impact to a *less-than-significant* level.**

Implementation of the proposed project, which entails development of commercial, residential, and office uses, could affect daytime views from adjacent sensitive land uses, such as residential neighborhoods located to the north along Sixth Street, to the west along Elk Street, and to the southeast of the Overlay Zone.

Future development under the proposed Overlay zone will create new sources of light and glare in the Overlay Zone. The Overlay Zone will result in greater intensity and density of development over that which exists, resulting in a greater potential for light and glare impacts. Artificial lighting will accompany all new development, including exterior lighting for parking lots, signs, walkways, and interior lighting which could be visible outside. Thus, some areas may experience an increase in lighting with future development. High intensity structures will also cause spillover light to adjacent lots. Glare from reflective surfaces will occur with developments that use mirrors, bright lights, and other reflective surfaces for building facades.

Generally, light poles and exterior lighting which spillover to adjacent properties may be considered adverse if these properties are considered light-sensitive uses, such as residential homes, hospitals, or nursing homes. In addition, driveway design, which directs vehicle headlights into sensitive land uses, could have adverse impacts. The use of reflective surfaces and facades on buildings could also create glare impacts on motorists driving along the surrounding streets. Avoidance of these design features can reduce adverse light and glare impacts.

While daytime glare is currently at a minimum in the Overlay Zone, glare could be produced by the increased amount of surface area of the proposed commercial and retail structures, which could reflect or concentrate sunlight and result in a ***potentially significant*** impact. However, implementation of design features required by mitigation measure MM-OZ 4.1-1, including the use of non-reflective textured surfaces on building exteriors, as well as avoidance of the use of reflective glass, would reduce impacts to off-site uses resulting from daytime glare from new development:

MM-OZ 4.1-1 *Proposed new structures shall be designed to maximize the use of textured or other non-reflective exterior surfaces and non-reflective glass.*

Implementation of mitigation measure MM-OZ 4.1-1 would reduce impacts from daytime glare to a ***less-than-significant*** level by eliminating or minimizing increased glare by the use of non-reflective glass and non-reflective textured surfaces in future development.

Impact 4.1-4 **Implementation of the proposed project could result in new sources of spillover light; however, implementation of mitigation measures MM-OZ 4.1-2 and MM-OZ 4.1-3 would reduce this impact to a *less-than-significant* level.**

Ambient Nighttime Light

Implementation of the proposed Overlay Zone would result in the redevelopment, intensification, and reuse of existing office or commercial uses, as well as development of limited vacant parcels. Nighttime lighting would be included in future project development in a variety of forms including: security lighting; street and parking area lighting; interior lighting for commercial, retail stores/restaurants and residential uses; as well as increased vehicle headlights due to the intensified uses in the Overlay Zone. It should be noted that no high-intensity lighting (e.g., sports field lighting) is currently anticipated within the Overlay Zone. Although the St. Jeanne De Lestonnac School has a sports field, this land use is not located within the Overlay Zone. Due to the urbanized nature of the surrounding area, a significant amount of ambient nighttime light currently exists, reducing the views of stars and affecting views of the nighttime sky. Thus, the increase in nighttime light that would occur under the proposed project would not significantly affect nighttime views of the sky (ability to see stars) because such views are already limited in city settings. Therefore, the impact to ambient nighttime light would be ***less than significant***.

Spillover Light

New development in the Overlay Zone would introduce new and potentially substantial sources of nighttime lighting. Specifically, as described in the Chapter 3 (Project Description), lighting would be used to highlight architectural elements, landscaping, and building tenant and project signage. In addition, security and safety lighting would be provided in parking areas, service passages, and common areas utilized by employees and visitors during and after commercial operating hours. Further, because minimal nighttime traffic is present in the Overlay Zone, increased vehicular traffic could result in more opportunities for vehicular headlights to affect surrounding residences.

The increase in the Overlay Zone lighting could potentially affect adjacent uses if new buildings were developed next to existing sensitive uses (i.e., residential uses) that presently do not experience impacts from existing lighting sources or if tall buildings included significant neon lighting or lighted signs. The nearest residential neighborhood is located immediately adjacent to the northern boundary of the Overlay Zone. As discussed above in Impact 4.1-1, the Neighborhood Transitional District would frame the northern boundary of the project area, and the scale and design of buildings in this area would reflect the relationship to the adjacent residential uses. Building heights would range between two- and three-stories, and development in this area would be specifically designed to provide an appropriate interface with high levels of landscaping and design features to minimize impacts to the adjacent residential area to the north.

The Overlay Zone would provide outdoor lighting standards that aim to prevent impacts on surrounding residential uses. Although the Overlay Zone would provide outdoor light standards, future development could create light pollution disturbances which do not presently exist. Depending on the location and design specifications of lighting on future buildings, lighting could present a ***potentially significant***

impact. Implementation of MM-OZ 4.1-2 and MM-OZ 4.1-3 would be required to reduce these potentially significant lighting impacts to a less-than-significant level.

MM-OZ 4.1-2 *All exterior lighting and advertising (including signage) shall be directed onto the specific location intended for illumination (e.g., parking lots, driveways, and walkways) and shielded away from adjacent properties and public rights-of-way to minimize light spillover onto adjacent areas.*

MM-OZ 4.1-3 *Prior to issuance of a Site Development Permit for each specific development project, the applicant shall submit a lighting plan to the City of Santa Ana for review and approval. The plan shall specify the lighting type and placement to ensure that the effects of security and other outdoor lighting are minimized on adjacent uses and do not create spillover effects. The plan shall specifically incorporate the following design features:*

- *All projects shall incorporate project design features to shield light and/or glare from vehicles entering or exiting parking lots and structures that face sensitive uses (e.g., schools, hospitals, senior housing, or other residential properties) by providing barriers so that light from vehicle headlights would not illuminate off-site sensitive uses.*
- *All projects shall incorporate project design features to provide landscaping, physical barriers, screening, or other buffers to minimize project-generated illumination from entering off-site areas and to prevent glare or interference with vehicular traffic, in accordance with the City's Municipal Code.*

Implementation of MM-OZ 4.1-2 and MM-OZ 4.1-3 would reduce potential lighting impacts to surrounding areas through appropriate site design and configuration. Review and approval of the proposed lighting plan by the City of Santa Ana would ensure that spillover lighting would be minimized so as not to create light pollution disturbances to adjacent uses. This impact would be reduced to a ***less-than-significant*** level.

Threshold	Would the project result in a substantial increase in shade/shadows over uses located off the site that are sensitive to shadow, such as residences, school playgrounds, parks, etc.

Impact 4.1-5 **Implementation of the proposed project could result in a substantial increase in shade/shadows over sensitive uses, which is considered a potentially significant impact. However, implementation of mitigation measure MM-OZ 4.1-4 would reduce shading to a *less-than-significant* impact.**

The current low-rise buildings within the Overlay Zone presently create limited shade and shadow patterns that are contained within a close proximity to each low- to mid-rise building. In the Overlay Zone Active Urban District, shadows cast by existing on-site development are more extensive. Future development of new multi-story buildings in the Overlay Zone may create new sources of shading that could impact shadow-sensitive uses in the vicinities of the new development sites. Due to the programmatic nature of this EIR, specific project-level design plans (including building heights, positioning, and dimensions) are not available at this time and a complete assessment of shade and shadow impacts of proposed development under the Overlay Zone is not possible. In the future when

specific development projects are proposed within the Overlay Zone, project design plans will be developed and subject to project-level CEQA review. The project-level design plans will be evaluated, as necessary, to determine the extent of potential shade and shadow impacts upon adjacent shadow-sensitive uses. Typically, a variety of criteria are used to determine the significance of a shadow impact, including the following:

- Affected land use (criticality of direct sunlight for the use)
- Duration (hours per day in shadow)
- Time of day (critical time period for direct sunlight)
- Season (time of year use would be shadowed)
- Extent (percentage of use that would be shadowed)
- Type (solid or dappled shadow)
- Preexisting condition (shadow condition due to existing buildings, landscaping, or other features)

With these criteria as a basis for shadow impact analysis, the following mitigation measure shall be applied to future development in the Overlay Zone.

MM-OZ 4.1-4 *Prior to issuance of a building permit each project shall be required to perform a shade and shadow analysis that demonstrates that the project will not result in significant impacts according to the following criteria. Shadowing impacts in the Overlay Zone are considered significant when shadows would be cast upon potentially sensitive uses during a substantial portion (greater than 50 percent) of the main daylight hours (9:00 a.m. to 3:00 p.m. during the fall, winter, and spring seasons, and 9:00 a.m. to 5:00 p.m. [daylight savings time] during the summer season). Light sensitive uses are those that depend upon light for their operation (e.g., solar panels) or for which solar access is essential for their function (e.g., swimming pools). Light-sensitive uses also include public parks, residences, and routinely useable outdoor spaces associated with residences (e.g., yards).*

Therefore, future development would be required to adhere to the significance criteria for shade and shadow impacts identified in MM-OZ 4.1-4. To ensure that future projects comply with these standards, development would require individual shade and shadow analyses, as identified above, and compliance would be further ensured by MM-OZ 4.1-3, which requires the applicant to submit a lighting plan to the Planning Division for review and approval. Therefore, because future development in the Overlay Zone would be required to adhere to significance criteria for shade and shadow impacts, this impact is considered ***less than significant***.

4.1.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found to Have No Impact, which result in no project-related impacts

The geographic context for the analysis of cumulative aesthetic impacts includes areas with views of the Overlay Zone, within a 1.5-mile radius. The analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Santa Ana General Plan Framework (see Section 4.8 [Land Use and Planning] for definition and discussion) and development of

the related projects provided in Table 3-3 in Chapter 3.0 (Project Description). The surrounding areas are largely built out, and the Overlay Zone itself is located between two major freeways (I-5 and SR-55).

Views of scenic resources and corridors are protected from adverse impact by the City of Santa Ana ordinances, the CEQA review process, and through the application of guidelines for the preservation of visual integrity contained in planning documents such as the General Plan Framework. Within the surrounding area, the major scenic resources (as analyzed in this document) including the First and Fourth Street scenic corridors, which are identified as Major City Entries in the vicinity of the project. As discussed above under Impact 4.1-1, although future development in the Overlay Zone would substantially alter the Fourth Street and First Street scenic corridors, changes to the scenic vistas would not be adverse; rather, utilization of vacant lands and architectural and landscaping elements would enhance the aesthetic quality of these corridors and would provide the City with distinctive identity features that do not presently exist. Therefore, existing views of the corridors would remain and would not be adversely affected. As a result, the contribution of the Overlay Zone to impacts on views of scenic corridors is not cumulatively considerable. This is considered to be a ***less-than-significant*** impact.

Because the City is an urban, developed area, it is anticipated that any future projects would generally be consistent with the community design pattern established in the General Plan. In addition, future development will continue to be guided by the General Plan and Zoning Code and would be subject to design review, which would consider the types and placement of planned development throughout the City. Consequently, changes in land use that would substantially degrade the visual characteristics of the surrounding area would generally not be permitted to occur under the General Plan or CEQA review, thereby protecting the visual character of these areas. The Zoning Code ensures that development occurs consistent with its surroundings, in terms of design, massing, and building heights. Additional development within the surrounding area would constitute further intensification of an already urban and largely built-out area and would generally occur through infill development. Therefore, cumulative development would not be expected to result in substantial degradation of the visual quality of the area. As such, because the overall Overlay Zone would not degrade the existing visual quality of the area, the project would not have cumulatively considerable contribution to this impact. Consequently, the cumulative change in the visual character of the areas surrounding the project site would be ***less than significant***.

The City is nearly built out and contains numerous existing sources of daytime glare and nighttime lighting. The geographic context for both issue areas (e.g., glare and lighting) is site-specific and includes the areas adjacent to the Overlay Zone, including projects implemented under buildout of the General Plan and those cumulative projects identified in Table 3-2 with views of the Overlay Zone. Cumulative development within the surrounding areas could result in some increase in daytime glare, as specific building materials and configurations are uncertain. However, these potential increases are likely to be minor and consistent with the existing built environment due to limited development potential and existing City regulations. Further, future projects would, in many cases, be subject to CEQA review and would require mitigation for these effects, which would likely also reduce the impacts to a less-than-significant level. Consequently, cumulative daytime glare within the surrounding area would be less than significant. As implementation of the proposed project would not, after mitigation, result in a significant daytime glare impact, the proposed project would not result in a cumulatively considerable contribution

to this impact. Therefore, cumulative impacts associated with daytime glare would not be cumulatively considerable and would be ***less than significant***.

Santa Ana is an urbanized City and contains numerous existing sources of nighttime lighting. As discussed above, additional development within the areas surrounding the Overlay Zone would constitute further intensification of an already urban and nearly built-out area and would generally occur through redevelopment or infill development. Although cumulative new development or redevelopment could include direct illumination of project structures, features, and/or walkways, the increase in ambient nighttime lighting levels in these areas would only raise minimally because a significant amount of ambient lighting currently exists due to the urbanized nature of the City as a whole. Thus, increases in nighttime lighting that would occur under cumulative development would not significantly affect nighttime views of the sky because such views are already limited. Because nighttime views of the sky are already limited due to the urbanized nature of the City, cumulative development within the areas surrounding the Overlay Zone, in combination with development under the proposed project, is not anticipated to result in the creation of new sources of light that could negatively affect nighttime views. Therefore, cumulative impacts associated with ambient nighttime lighting would be considered ***less than significant***.

The cumulative context for spillover light would be other development that could add to the spillover light effects of the project on properties in the adjacent residential neighborhoods. Spillover light is a site-specific effect that could only be added to by other projects in the immediate vicinity of the affected property. There are no other known projects along the boundaries of the existing residential uses. Therefore, there would be no cumulative effect associated with spillover lighting.

Similar to spillover lighting impacts, shade and shadow effects are typically site-specific effects of projects on adjacent uses. Future development projects in the City would, in many cases, be subject to CEQA review and would require mitigation for these effects, which would likely also reduce the impacts to a less-than-significant level. As discussed in Impact 4.1-5 above, future development in the Overlay Zone would be required to adhere to significance criteria for shade impacts with respect to sensitive land uses. Therefore, the proposed project would not result in a cumulatively considerable contribution to this impact. Cumulative impacts associated with shade and shadow would not be cumulatively considerable and would be ***less than significant***.

4.1.5 References

Santa Ana, City of. 1997. *Draft Environmental Impact Report for the Land Use Element of the Santa Ana General Plan* (State Clearinghouse No. 97071058).

_____. 1998. *Santa Ana General Plan Land Use Element.*

_____. 1998. *Santa Ana General Plan Urban Design Element.*

_____. 1998. *Santa Ana General Plan Scenic Corridors Element.*

4.2 AIR QUALITY

This EIR section analyzes the potential for adverse impacts on air quality resulting from implementation of the proposed project. The Initial Study (Appendix A) identified the potential for impacts associated with violation of air quality standards or substantial contribution to an existing or projected air quality violation; conflict with or obstruction of implementation of the applicable air quality plan; exposure of sensitive receptors to substantial pollutant concentrations; or, a cumulatively considerable net increase of criteria pollutants for which the project region is not in attainment.

No issues related to air quality were scoped out in the Initial Study, included as Appendix A of this document. Data used to prepare this section were taken from various sources, including the South Coast Air Quality Management District (SCAQMD) CEQA Air Quality Handbook, the SCAQMD Air Quality Analysis Guidance Handbook, the 2003 Air Quality Management Plan (AQMP), as amended, and the Traffic Impact Study/Existing Conditions Report for the Mixed Use Overlay Zone in the City of Santa Ana.

4.2.1 Environmental Setting

The City of Santa Ana proposes the creation of the Overlay Zone over a portion of the City. The Overlay Zone is comprised of more than 200 acres of land that is currently developed with commercial and office uses. Along the western boundary of the Overlay Zone there are several large vacant properties. The areas surrounding the Overlay Zone are a mix of residential, educational, and commercial properties, including a single-family residential neighborhood to the north, and St. Jeanne De Lestonnac School and multi-family residential properties to the south.

The Overlay Zone is located east of the Santa Ana Freeway (Interstate 5 or I-5) and west of State Route 55 (SR-55) in the City of Santa Ana in Orange County. The Overlay Zone is bounded by the Santa Ana Freeway (I-5) on the west and south; Tustin Avenue on the east; and East Sixth Street on the north. Several roadways provide access to properties within the Overlay Zone, including East First Street, East Fourth Street, Cabrillo Park Drive, Park Court Place, East Sixth Street, Parkcenter Drive, and North Golden Circle Drive.

Climate

The City of Santa Ana is situated on the Santa Ana River, which is located in the Santa Ana Valley in the southwestern portion of California, approximately 12 miles from the Pacific Ocean. The City is located within the South Coast Air Basin (Basin), named so because its geographical formation is that of a basin, with the surrounding mountains trapping the air and its pollutants in the valleys or basins below. This 6,600-square-mile area includes all of Orange County and the non desert portions of Los Angeles, San Bernardino, and Riverside Counties. The regional climate within the Basin is considered semi-arid and is characterized by warm summers, mild winters, infrequent seasonal rainfall, moderate daytime onshore breezes, and moderate humidity. The air quality within the Basin is influenced by a wide range of emission sources, such as dense population centers, heavy vehicular traffic, industry, and meteorology.

A semi-permanent, subtropical high pressure cell over the Pacific Ocean largely controls the climate of the Basin by moderating the difference in seasonal temperatures. The annual average temperature varies little throughout the Basin, with the average in the middle 60s, measured in degrees Fahrenheit (°F). Coastal areas have a more pronounced oceanic influence, and show less variability in annual minimum and maximum temperatures than inland areas. The City of Santa Ana is located in northern Orange County, which is in the southern portion of the Basin. The annual average temperature in the City is 75.0°F, with temperature ranges from approximately 68.0°F in January to 85.0°F in July.

The year-round humidity of Santa Ana is generally 53 percent, and the sun shines approximately 300 days out of the year. The majority of annual rainfall in the Basin occurs between November and April. Summer rainfall is minimal and generally limited to scattered thundershowers in coastal regions and slightly heavier showers in the eastern portion of the Basin, along the coastal side of the mountains. Average rainfall in the City of Santa Ana is 12.95 inches annually and occurs almost exclusively from late October to early April.

The Basin experiences a persistent temperature inversion, which is characterized by increasing temperature with increasing altitude. This inversion limits the vertical dispersion of air contaminants, holding them relatively near the ground. As the sun warms the ground and lower air layer, the temperature of the lower air layer approaches the temperature of the base of the inversion (upper) layer until the inversion layer finally breaks, allowing vertical mixing with the lower layer.

The vertical dispersion of air contaminants in the Basin is also affected by wind conditions. The combination of stagnant wind conditions and low inversions produces the greatest pollutant concentrations. On days of no inversion or high wind speeds, ambient air pollutant concentrations are the lowest. During periods of low inversions and low wind speeds, air pollutants generated in urbanized areas in the Basin are transported predominantly on-shore into Riverside and San Bernardino Counties. The Santa Ana winds are strong, dry, north or northeasterly winds that occur during the fall and winter months, and disperse air contaminants in the Basin. The Santa Ana conditions often last for several days at a time.

Winds in the vicinity of the proposed project site blow predominantly from the south-southwest, with relatively low velocities. Wind speeds at the proposed project site average about 6.5 miles per hour. Summer wind speeds are, on average, slightly higher than winter wind speeds (WRCC 2006).

Air Quality Background

Air pollutant emissions within the Basin are generated by stationary and mobile sources. Stationary sources can be divided into two major subcategories: point and area sources. Point sources are usually required to have a permit from the SCAQMD in order to operate. Point sources typically occur at specific identified locations, and are usually associated with manufacturing and industry. Some examples of point sources are boilers or combustion equipment that produce electricity or generate heat, such as heating, ventilation, and air conditioning (HVAC) units. Area sources are widely distributed and produce many small emissions, thus the SCAQMD does not require permits to operate. The area-wide use of area sources contributes to regional air pollution. Examples of area sources include residential and

commercial water heaters, painting operations, portable generators, lawn mowers, agricultural fields, landfills, and consumer products, such as barbeque lighter fluid and hairspray. Mobile sources are classified as either on-road or off-road sources and account for the majority of the air pollutant emissions within the Basin. Examples of mobile sources are emissions from motor vehicles, including tailpipe and evaporative emissions. On-road sources are those that are legally operated on roadways and highways. Off-road sources include aircraft, ships, trains, racecars, and construction vehicles. Air pollutants can also be generated by the natural environment, such as when fine dust particles are pulled off the ground surface and are suspended in the air during high winds.

Both the federal and state governments have established ambient air quality standards for outdoor concentrations of specific pollutants which are referred to as "criteria pollutants," in order to protect public health. The national and state ambient air quality standards have been set at concentration levels that will protect the most sensitive persons from illness or discomfort with a margin of safety. Applicable ambient air quality standards are identified later in this section. The SCAQMD is responsible for bringing air quality in the Basin into attainment with the national and state ambient air quality standards.

The criteria pollutants for which federal and state standards have been promulgated and that are most relevant to air quality planning and regulation in the Basin are ozone, carbon monoxide, fine suspended particulate matter, sulfur dioxide, and lead. In addition, toxic air contaminants are of concern in the Basin. Each of these is briefly described below.

- *Ozone (O_3)* is a gas that is formed when volatile organic compounds (VOCs) and nitrogen oxides (NOx), both byproducts of internal combustion engine exhaust, undergo slow photochemical reactions in the presence of sunlight. Ozone concentrations are generally highest during the summer months when direct sunlight, light wind, and warm temperature conditions are favorable to the formation of this pollutant.
- *Carbon Monoxide (CO)* is a colorless, odorless gas produced by the incomplete combustion of fuels. CO concentrations tend to be the highest during the winter morning, with little to no wind, when surface-based inversions trap the pollutant at ground levels. Motor vehicles operating at slow speeds are the primary source of CO in the Basin because the CO is emitted directly from internal combustion engines. The highest ambient CO concentrations are generally found near congested transportation corridors and intersections.
- *Respirable Particulate Matter (PM_{10})* and *Fine Particulate Matter ($PM_{2.5}$)* consist of extremely small, suspended particles or droplets 10 microns and 2.5 microns or smaller in diameter, respectively. Some sources of particulate matter, like pollen and windstorms, are naturally occurring. However, in populated areas, most particulate matter is caused by road dust, diesel soot, combustion products, abrasion of tires and brakes, and construction activities.
- *Nitrogen dioxide (NO_2)* is a nitrogen oxide compound that is produced by the combustion of fossil fuels, such as in internal combustion engines (both gasoline and diesel powered), as well as point sources, especially power plants. Of the seven types of nitrogen oxide compounds, NO_2 is the most abundant in the atmosphere. Commuters in heavy traffic may be exposed to higher concentrations of NO_2 than those indicated by regional monitors, because ambient concentrations of NO_2 are related to traffic density.
- *Sulfur dioxide (SO_2)* is a colorless, extremely irritating gas or liquid which enters the atmosphere as a pollutant, mainly as a result of burning high sulfur-content fuel oils and coal, as well as from

chemical processes occurring at chemical plants and refineries. When sulfur dioxide oxidizes in the atmosphere, it forms sulfates (SO_4). Collectively, these pollutants are referred to as sulfur oxides (SO_X).

- *Lead (Pb)* occurs in the atmosphere as particulate matter. The combustion of leaded gasoline is the primary source of airborne lead in the Basin. The use of leaded gasoline is no longer permitted for on road motor vehicles, therefore the majority of such combustion emissions are associated with off-road vehicles such as race cars. Other sources of lead include the manufacturing and recycling of batteries, paint, ink, ceramics, ammunition, and the use of secondary lead smelters.
- *Toxic Air Contaminants (TACs)* refer to a diverse group of air pollutants that are capable of causing chronic (i.e., of long duration) and acute (i.e., severe but of short duration) adverse effects on human health. TACs include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. Toxic air contaminants are different than "criteria" pollutants in that ambient air quality standards have not been established for them, largely because there are hundreds of air toxics and their effects on health tend to be local rather than regional. TACs are primarily concentrated within ¼ mile of the emissions source, and the accepted practice is to analyze TACs when receptors are located within this ¼-mile radius.

State standards have been promulgated for other criteria air pollutants, including SO_4, hydrogen sulfide, Pb, and visibility-reducing particles. The state also recognizes vinyl chloride as a TAC, but with an undetermined threshold level of exposure for adverse health effects. Vinyl chloride and hydrogen sulfide emissions are generally generated from mining, milling, refining, smelting, landfills, sewer plants, cement manufacturing, or the manufacturing or decomposition of organic matter. The state standards for sulfate and visibility reducing particles are not exceeded anywhere in the Basin. Lead is typically only emitted during demolition of structures expected to include lead-based paint and materials. However, the developer would be required to follow federal and state regulations that govern the renovation and demolition of structures where materials containing lead are present. Further discussion on the presence and removal of lead-based materials is included in Section 4.6 (Hazards and Hazardous Materials).

Health Effects of Air Pollutants

Ozone

Individuals exercising outdoors, children, and people with preexisting lung disease, such as asthma and chronic pulmonary lung disease, are considered to be the most susceptible sub-groups for ozone effects. Short-term exposure (lasting for a few hours) to ozone at levels typically observed in Southern California can result in breathing pattern changes, reduction of breathing capacity, increased susceptibility to infections, inflammation of the lung tissue, and some immunological changes. Elevated ozone levels are associated with increased school absences. In recent years, a correlation between elevated ambient ozone levels and increases in daily hospital admission rates, as well as mortality, has also been reported. An increased risk for asthma has been found in children who participate in multiple sports and live in high ozone communities.

Ozone exposure under exercising conditions is known to increase the severity of the responses described above. Animal studies suggest that exposure to a combination of pollutants that includes ozone may be more toxic than exposure to ozone alone. Although lung volume and resistance changes observed after a single exposure diminish with repeated exposures, biochemical and cellular changes appear to persist, which can lead to subsequent lung structural changes.

Carbon Monoxide

Individuals with a deficient blood supply to the heart are the most susceptible to the adverse effects of CO exposure. The effects observed include earlier onset of chest pain with exercise, and electrocardiograph changes indicative of worsening oxygen supply to the heart.

Inhaled CO has no direct toxic effect on the lungs, but exerts its effect on tissues by interfering with oxygen transport and competing with oxygen to combine with hemoglobin present in the blood to form carboxyhemoglobin (COHb). Hence, conditions with an increased demand for oxygen supply can be adversely affected by exposure to CO. Individuals most at risk include fetuses, patients with diseases involving heart and blood vessels, and patients with chronic hypoxemia (oxygen deficiency) as seen at high altitudes.

Reduction in birth weight and impaired neurobehavioral development have been observed in animals chronically exposed to CO, resulting in COHb levels similar to those observed in smokers. Recent studies have found increased risks for adverse birth outcomes with exposure to elevated CO levels; these include pre-term births and heart abnormalities.

Particulate Matter

A consistent correlation between elevated ambient fine particulate matter (PM_{10} and $PM_{2.5}$) levels and an increase in mortality rates, respiratory infections, number and severity of asthma attacks and the number of hospital admissions has been observed in different parts of the United States and various areas around the world. In recent years, some studies have reported an association between long-term exposure to air pollution dominated by fine particles and increased mortality, reduction in life-span, and an increased mortality from lung cancer.

Daily fluctuations in $PM_{2.5}$ concentration levels have also been related to hospital admissions for acute respiratory conditions in children, to school and kindergarten absences, to a decrease in respiratory lung volumes in normal children, and to increased medication use in children and adults with asthma. Recent studies show lung function growth in children is reduced with long-term exposure to particulate matter.

The elderly, people with pre-existing respiratory or cardiovascular disease, and children appear to be more susceptible to the effects of high levels of PM_{10} and $PM_{2.5}$.

Nitrogen Dioxide

Population-based studies suggest that an increase in acute respiratory illness, including infections and respiratory symptoms in children (not infants), is associated with long-term exposure to NO_2 at levels

found in homes with gas stoves, which are higher than ambient levels found in Southern California. Increase in resistance to air flow and airway contraction is observed after short-term exposure to NO_2 in healthy subjects. Larger decreases in lung functions are observed in individuals with asthma or chronic obstructive pulmonary disease (e.g., chronic bronchitis, emphysema) than in healthy individuals, indicating a greater susceptibility of these sub-groups.

In animals, exposure to levels of NO_2 considerably higher than ambient concentrations results in increased susceptibility to infections, possibly due to the observed changes in cells involved in maintaining immune functions. The severity of lung tissue damage associated with high levels of ozone exposure increases when animals are exposed to a combination of ozone and NO_2.

Sulfur Dioxide

A few minutes of exposure to low levels of SO_2 can result in airway constriction in some asthmatics, all of whom are sensitive to its effects. In asthmatics, increase in resistance to air flow, as well as reduction in breathing capacity leading to severe breathing difficulties, are observed after acute exposure to SO_2. In contrast, healthy individuals do not exhibit similar acute responses even after exposure to higher concentrations of SO_2.

Animal studies suggest that despite SO_2 being a respiratory irritant, it does not cause substantial lung injury at ambient concentrations. However, very high levels of exposure can cause lung edema (fluid accumulation), lung tissue damage, and sloughing off of cells lining the respiratory tract.

Some population-based studies indicate that the mortality and morbidity effects associated with fine particles show a similar association with ambient SO_2 levels. In these studies, efforts to separate the effects of SO_2 from those of fine particles have not been successful. It is not clear whether the two pollutants act synergistically or one pollutant alone is the predominant factor.

Lead

Fetuses, infants, and children are more sensitive than others to the adverse effects of Pb exposure. Exposure to low levels of Pb can adversely affect the development and function of the central nervous system, leading to learning disorders, distractibility, inability to follow simple commands, and lower intelligence quotient. In adults, increased Pb levels are associated with increased blood pressure.

Pb poisoning can cause anemia, lethargy, seizures and death, although it appears that there are no direct effects of Pb on the respiratory system. Pb can be stored in the bone from early age environmental exposure, and elevated blood Pb levels can occur due to breakdown of bone tissue during pregnancy, hyperthyroidism (increased secretion of hormones from the thyroid gland) and osteoporosis (breakdown of bony tissue). Fetuses and breast-fed babies can be exposed to higher levels of Pb because of previous environmental Pb exposure of their mothers.

Odors

The science of odor as a health concern is still new. Merely identifying the hundreds of VOCs that cause livestock odors poses a big challenge. Offensive livestock odors can potentially affect human health in several ways. First, odorant compounds can irritate the eye, nose, and throat, which can reduce respiratory volume. Second, the VOCs that cause odors can stimulate sensory nerves to cause neurochemical changes that might influence health, for instance, by compromising the immune system. Finally, unpleasant odors can trigger memories or attitudes linked to unpleasant odors, causing cognitive and emotional effects such as stress.

Toxic Air Contaminant Emissions

Toxic Air Contaminants (TACs) are airborne substances that are capable of causing chronic and acute adverse effects on human health. They include both organic and inorganic chemical substances that may be emitted from a variety of common sources including gasoline stations, motor vehicles, dry cleaners, industrial operations, painting operations, and research and teaching facilities. TACs are different from the "criteria" pollutants previously discussed in that ambient air quality standards have not been established for them.

Regional Air Quality

Measurements of ambient concentrations of the criteria pollutants are used by the United States Environmental Protection Agency (U.S. EPA) and the California Air Resources Board (ARB) to assess and classify the air quality of each air basin, county, or, in some cases, a specific urbanized area. The classification is determined by comparing actual monitoring data with national, state, and federal standards. If a pollutant concentration in an area is lower than the standard, the area is classified as being in "attainment". If the pollutant exceeds the standard, the area is classified as a "non-attainment" area. If there is not enough data available to determine whether the standard is exceeded in an area, the area is designated "unclassified."

The entire Basin is designated as a federal-level extreme nonattainment area for ozone, meaning that federal ambient air quality standards are not expected to be met for more than 17 years, and as a serious nonattainment area for CO and PM_{10}. The area is also a federal-level nonattainment area for NO_X and $PM_{2.5}$, as designated by the U.S. EPA. The Basin is a state-level extreme nonattainment area for ozone, and is a state-level nonattainment area for $PM_{2.5}$ and PM_{10}. It is in attainment for the state CO standard, and it is in attainment for both the federal and state ambient air quality standards for SO_2, Pb, and NO_2, which is a pure form of NO_X (ARB 2006).

The SCAQMD divides the Basin into 38 source receptor areas (SRAs) in which thirty-two monitoring stations operate to monitor the various concentrations of air pollutants in the region. The City of Santa Ana is located within SRA 17, which covers the Central Orange County area. The ARB also collects ambient air quality data through a network of air monitoring stations throughout the state. These data are summarized annually and are published in the ARB's California Air Quality Data Summaries. The Anaheim-Pampas Lane monitoring station is the nearest monitoring station to the project site. The

Anaheim-Pampas Lane station currently monitors emission levels of ozone, CO, NO_2, PM_{10}, and $PM_{2.5}$ but does not monitor the pollutant levels of SO_2 and H_2S.

Table 4.2-1 (Summary of Ambient Air Quality in the Proposed Project Vicinity) identifies the national and state ambient air quality standards for the relevant air pollutants and identifies the ambient pollutant concentrations that have been measured at the Central Orange County monitoring stations from 2003 through 2005.

According to air quality data shown in Table 4.2-1, the national 1-hour ozone standard has not been exceeded in the past two years in Central Orange County, however, the standard was exceeded for two days in 2003. The state 1-hour ozone standard was exceeded a total of twenty-six days over the past three years. The national 8-hour ozone standard was exceeded a total of nine days over the past three years, while the state 8-hour ozone standard was exceeded a total of thirty-nine days over the past two years. No national or state standards for CO or NO_2 have been exceeded over the last three years within the Central Orange County area. The Particulate Matter (PM_{10}) was exceeded on three days over the last three years for national 24-hour standards. The Particulate Matter ($PM_{2.5}$) was exceeded on three days in 2003 for the national 24-hour standards. Ambient air quality levels were not available for sulfur dioxide.

Table 4.2-1 Summary of Ambient Air Quality in the Proposed Project Vicinity

Air Pollutants Monitored Within SRA 17—Central Orange County Area	*Year*		
	2003	*2004*	*2005*
Ozone (O_3)			
Maximum 1-hour concentration measured	0.136 ppm	0.120	0.095 ppm
Number of days exceeding national 0.12 ppm 1-hour standard	2	0	0
Number of days exceeding state 0.09 ppm 1-hour standard	11	14	1
Maximum 8-hour concentration measured	0.087 ppm	0.097 ppm	0.077 ppm
Number of days exceeding national 0.08 ppm 8-hour standard	1	8	0
Number of days exceeding state 0.07 ppm 8-hour standard	0	35	4
Nitrogen Dioxide (NO_2)			
Maximum 1-hour concentration measured	0.127 ppm	0.122 ppm	0.089 ppm
Number of days exceeding state 0.25 ppm 1-hour standard	0	0	0
Annual average	0.024 ppm	0.020 ppm	0.021 ppm
Does measured annual average exceed national 0.0534 ppm annual average standard?	No	No	No

Table 4.2-1 Summary of Ambient Air Quality in the Proposed Project Vicinity

Carbon Monoxide (CO)			
Maximum 1-hour concentration measured	6 ppm	5 ppm	4 ppm
Number of days exceeding national 35.0 ppm 1-hour standard	0	0	0
Number of days exceeding state 20.0 ppm 1-hour standard	0	0	*
Maximum 8-hour concentration measured	3.89 ppm	4.09 ppm	3.27 ppm
Number of days exceeding national 9.0 ppm 8-hour standard	0	0	0
Number of days exceeding state 9.0 ppm 8-hour standard	0	0	0
Suspended Particulates (PM_{10})			
Maximum 24-hour concentration measured	96.0 µg/m³	74.0µg/m³	65.0 µg/m³
Number of days exceeding national 150 µg/m³ 24-hour standard	0	0	0
Number of days exceeding state 50.0 µg/m³ 24-hour standard	6	7	3
Annual Average Concentration µg/m³	32.8 µg/m³	34.0 µg/m³	28.1 µg/m³
Suspended Particulates ($PM_{2.5}$)			
Maximum 24-hour concentration measured	115.5 µg/m³	58.9 µg/m³	54.7 µg/m³
Number of days exceeding national 150 µg/m³ 24-hour standard	3	0	0
Sulfur Dioxide (SO_2)[a]			
Maximum 24-hour concentration measured	0.012 ppm	0.008 ppm	0.008 ppm
Number of days exceeding federal 0.14 ppm 24-hour standard	0	0	0
Number of days exceeding state 0.04 ppm 24-hour standard	0	0	0

SOURCE: ARB 2006

a Sulfur Dioxide (SO_2) concentrations were measured at the Costa Mesa-Verde monitoring station.

ppm = parts by volume per million of air.

µg/m³ = micrograms per cubic meter.

*Information not provided by AQMD.

Local Air Quality

According to the City of Santa Ana General Plan, the area has experienced improved air quality due to more stringent vehicle emissions standards, the elimination of older polluting vehicles, and cleaner burning fuels. In addition, larger stationary emission sources are gradually being eliminated or undergoing retrofitting with the best available pollution control technology (BACT).

Motor vehicles (off highway and highway) are the primary source of pollutants in the project site vicinity. Local emissions sources also include stationary activities, such as space and water heating, landscape maintenance from leaf blowers and lawn mowers, consumer products, and mobile sources. Traffic-congested roadways and intersections have the potential to generate localized high levels of CO. Localized areas where ambient concentrations exceed national and/or state standards for CO are termed "CO hotspots." Chapter 5 of the SCAQMD's CEQA Air Quality Handbook identifies CO as a localized problem requiring additional analysis when a project is likely to subject sensitive receptors to CO hotspots. The SCAQMD defines typical sensitive receptors as residences, schools, playgrounds, childcare

centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes.

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak hour turning volumes to ambient CO air concentrations. For this analysis, localized CO concentrations were calculated based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and accepted by the SCAQMD. The simplified model is intended as a screening analysis, which identifies a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO concentrations.

Maximum existing CO concentrations were calculated for 20 of the intersections within the study area that would be affected by project-related traffic and represent the lowest level of service as determined in the traffic report prepared by Katz, Okitsu & Associates (Appendix H). As all other intersections are expected to operate at a better LOS, those intersections would produce lower CO concentrations. The results of these calculations are presented in Table 4.2-2 (Existing Localized Carbon Monoxide Concentrations) for representative receptor locations at 25, 50, and 100 feet from each roadway. These distances were selected because they represent locations where a person may be living or working for one to eight hours at a time. The National 1-hour standard is 35.0 parts per million (ppm), and the state 1-hour standard is 20.0 ppm. The 8-hour national and state standards are both 9.0 ppm. As shown in Table 4.2-2, no intersection currently exceeds National or State standards for 1-hour or 8-hour CO concentrations.

As shown in Table 4.2-2, under worst-case conditions, existing CO concentrations near the study area do not exceed national or state 1-hour and 8-hour ambient air quality standards. Therefore, CO hotspots do not exist near this intersection.

Regulatory Framework

Air quality within the Basin is addressed through the efforts of various federal, state, regional, and local government agencies. These agencies work jointly, as well as individually, to improve air quality through legislation, regulations, planning, policy-making, education, and a variety of programs. The agencies responsible for improving the air quality within the Basin are discussed below.

Federal

United States Environmental Protection Agency

The U.S. EPA is responsible for setting and enforcing the National Ambient Air Quality Standards for atmospheric pollutants. It regulates emission sources that are under the exclusive authority of the federal government, such as aircraft, ships, and certain locomotives.

Table 4.2-2 Existing Localized Carbon Monoxide Concentrations

Intersection	CO Concentrations in Parts per Million[a,b]					
	25 Feet		50 Feet		100 Feet	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
First Street and B Street	6.8	4.8	6.7	4.6	6.5	4.5
First Street and Cabrillo Park Drive	7.3	5.2	7.1	5.0	6.8	4.7
First Street and Elk Lane	7.4	5.2	7.2	5.0	6.9	4.8
First Street and Newport Avenue	7.3	5.1	7.1	5.0	6.8	4.7
First Street and Prospect Avenue	7.0	4.9	6.8	4.7	6.6	4.6
Fourth Street and Cabrillo Park Drive	7.4	5.2	7.1	5.0	6.9	4.8
Fourth Street and Golden Circle Drive	7.1	4.9	6.9	4.8	6.6	4.6
Fourth Street and I-5 Northbound Ramps	7.5	5.3	7.2	5.1	6.9	4.8
Fourth Street and Parkcenter Drive	6.9	4.8	6.7	4.7	6.5	4.5
Fourth Street and SR-55 Southbound Ramps	7.5	5.3	7.2	5.1	6.9	4.8
Fourth Street and Tustin Avenue	7.7	5.5	7.4	5.2	7.1	4.9
Fruit Street and Cabrillo Park Drive	6.5	4.5	6.4	4.4	6.3	4.3
Irvine Boulevard and Newport Boulevard	7.5	5.3	7.2	5.1	6.9	4.8
Irvine Boulevard and SR-55 Northbound Ramps	7.6	5.4	7.3	5.1	7.0	4.9
Park Court Place and Cabrillo Park Drive	6.5	4.5	6.4	4.4	6.3	4.3
Seventeenth Street and Cabrillo Park Drive	7.5	5.3	7.2	5.0	6.9	4.8
Seventeenth Street and SR-55 Northbound Ramps	7.5	5.3	7.2	5.1	6.9	4.8
Seventeenth Street and Tustin Avenue	8.0	5.7	7.6	5.4	7.2	5.1
Tustin Avenue and Sixth Street	7.1	5.0	6.9	4.8	6.7	4.6
Wellington Avenue and Cabrillo Park Drive	6.5	4.5	6.4	4.4	6.3	4.3

SOURCE: PBS&J 2006. Calculation sheets are provided in Appendix C.

[a]. National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

[b]. National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

As part of its enforcement responsibilities, the EPA requires each state with federal nonattainment areas to prepare and submit a State Implementation Plan (SIP) that demonstrates the means to attain the federal standards. The SIP must integrate federal, state, and local plan components and regulations to identify specific measures to reduce pollution, using a combination of performance standards and market-based programs within the timeframe identified in the SIP.

State

California Air Resources Board

The ARB, a part of the California EPA, is responsible for the coordination and administration of both federal and state air pollution control programs within California. In this capacity, the ARB conducts research, sets state ambient air quality standards, compiles emission inventories, develops suggested control measures, provides oversight of local programs, and prepares the SIP. The ARB establishes emissions standards for motor vehicles sold in California, consumer products (e.g., hairspray, aerosol

paints, and barbecue lighter fluid), and various types of commercial equipment. It also sets fuel specifications to further reduce vehicular emissions.

Regional

South Coast Air Quality Management District

The SCAQMD is the agency principally responsible for comprehensive air pollution control in the Basin. To that end, the SCAQMD, a regional agency, works directly with the Southern California Association of Governments (SCAG), county transportation commissions, and local governments and cooperates actively with all federal and state government agencies. The SCAQMD develops rules and regulations, establishes permitting requirements for stationary sources, inspects emissions sources, and enforces such measures through educational programs or fines, when necessary.

The SCAQMD is directly responsible for reducing emissions from stationary (area and point), mobile, and indirect sources. It has responded to this requirement by preparing a sequence of AQMPs. The most recent of these was adopted by the Governing Board of the SCAQMD on August 1, 2003, to update and revise the previous 1997 AQMP. The 2003 AQMP was prepared to comply with the federal and state Clean Air Acts and amendments, to accommodate growth, to reduce the high pollutant levels in the Basin, to meet federal and state ambient air quality standards, and to minimize the fiscal impact that pollution control measures have on the local economy. The purpose of the 2003 AQMP for the Basin is to set forth a comprehensive program that will lead the area into compliance with all federal and state air quality planning requirements. Compared with the 1997 AQMP, the 2003 AQMP utilizes revised emissions inventory projections that use 1997 as the base year, relies on the ARB on-road motor vehicle emissions model EMFAC2002 and the SCAG 2001 Regional Transportation Plan (RTP) forecast assumptions,[3] updates the attainment demonstration for the federal standards for ozone and PM_{10}, replaces the 1997 attainment demonstration for the federal CO standard and provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal NO_2 standard that the Basin has met since 1992. In terms of working towards ozone attainment, the 2003 AQMP builds upon the 1997 AQMP and 1999 Amendments to the ozone SIP. In terms of PM_{10} attainment, the PM_{10} control strategy in the 2003 AQMP has augmented the 1997 AQMP with a number of additional PM_{10} control measures.

The 2003 AQMP also addresses several state and federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. Specifically, the 2003 AQMP is designed to satisfy the California *Clean Air Act* (CCAA) tri-annual update requirements and fulfill the SCAQMD's commitment to update transportation emission budgets based on the latest approved motor vehicle emissions model and planning assumptions.

The 2003 AQMP control measures consist of (1) the District's Stationary and Mobile Source Control Measures, (2) State Control Measures proposed by the ARB, and (3) Transportation Control Measures provided by SCAG. Overall, there are 28 stationary and 21 mobile source measures that are defined

[3] Although the SCAG revised and replaced the 2001 RTP in 2004, the 2003 AQMP was based on the 2001 RTP.

under the 2003 AQMP. These measures primarily rely on the traditional command-and-control approach facilitated by market incentive programs, as well as advanced technologies expected to be implemented by 2010. The proposed control measures in the 2003 AQMP are based on implementation of all feasible control measures through the application of available technologies and management practices, as well as advanced technologies and control methods. The basic principles used in designing the District's control strategy were to (1) meet at least the same overall remaining emissions target of the 1997/1999 SIP; (2) replace long-term measures with more specific near-term measures, where feasible; and (3) develop new short-term control measures and long-term strategies to achieve the needed reductions for attainment demonstration. Principal control measures of the 2003 AQMP focus on adoption of new regulations or enhancement of existing 1997 AQMP regulations for stationary sources and implementation/facilitation of advanced transportation technologies (i.e., zero emission and alternative-fueled vehicles and infrastructure; fuel cell vehicles; heavy-duty electric and hybrid-electric vehicles; and both capital and non-capital transportation improvements). Capital improvements consist of high-occupancy vehicle (HOV) lanes; transit improvements; traffic flow improvements; park-and-ride and intermodal facilities; and freeway, bicycle, and pedestrian facilities. Noncapital improvements consist of rideshare matching and transportation demand management activities derived from the congestion management program.

Programs set forth in the 2003 AQMP require the cooperation of all levels of government: local, regional, state, and federal. Each level is represented in the Plan by the appropriate agency or jurisdiction that has the authority over specific emissions sources. Accordingly, each agency or jurisdiction is associated with specific planning and implementation responsibilities.

Local

City of Santa Ana

Local jurisdictions, such as the City of Santa Ana, have the authority and responsibility to reduce air pollution through their police power and decision-making authority. Specifically, the City is responsible for the assessment and mitigation, as necessary, of air emissions resulting from its land use decisions. The City of Santa Ana is also responsible for the implementation of transportation control measures within their jurisdiction as outlined in the 2003 AQMP. Examples of such measures include bus turnouts, energy-efficient streetlights, and synchronized traffic signals. In accordance with CEQA requirements and the CEQA review process, the City assesses the air quality impacts of new development projects, mitigates potentially significant air quality impacts by conditional discretionary permits, and monitors and enforces implementation of such mitigation.

4.2.2 Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on the nature and magnitude of the change in the air quality environment due to implementation of the proposed project. Air pollutant emissions associated with the proposed project would result from operation of the proposed development and from project-related

traffic volumes. Construction activities would also generate emissions in the project area and on roadways resulting from construction-related traffic. The net increase in project site emissions generated by these activities and other secondary sources have been quantitatively estimated and compared to thresholds of significance established by the SCAQMD.

Construction Emissions

Construction emissions are calculated using the URBEMIS 2002 computer model developed for the ARB by estimating the types and number of pieces of equipment that would be used to demolish existing structures, grade and excavate a particular development site, construct the proposed development, and plant new landscaping within the Overlay Zone. Construction emissions are analyzed according to the thresholds established by the SCAQMD and published in the SCAQMD CEQA *Air Quality Handbook*. The construction activities associated with the proposed project would create diesel emissions, and would generate emissions of dust. Construction equipment within the project site that would generate criteria air pollutants could include excavators, export trucks, and loaders. Some of this equipment would be used during demolition and grading activities as well as when structures are constructed on the project site. In addition, emissions during construction and grading activities include truck trips off-site to remove debris during the demolition phase and construction truck trips. It is assumed that grading would be substantially balanced, meaning that no significant quantity of soil would be transported off-site for disposal nor would soil be transported on site for use in construction activities. It is further assumed that most of the construction equipment used would be diesel-powered.

Operational Emissions

Operational emissions associated with the proposed project are estimated using the URBEMIS 2002 computer model developed for the ARB and recommended by the SCAQMD, and the information provided in Chapter 3 (Project Description). Operational emissions would be comprised of mobile source emissions and area source emissions. Mobile source emissions are generated by the increase in motor vehicle trips to and from the project site associated with operation of the proposed project. Area source emissions are generated by natural gas consumption for space and water heating, and landscape maintenance equipment. To determine if an air quality impact would occur, the increase in emissions was compared with the SCAQMD's recommended thresholds.

Localized CO Concentrations for Operation

The SCAQMD recommends the use of CALINE4, a dispersion model for predicting CO concentrations, as the preferred method of estimating pollutant concentrations at sensitive receptors near congested roadways and intersections. For each intersection analyzed, CALINE4 adds roadway-specific CO emissions calculated from peak-hour turning volumes to the existing ambient CO air concentrations. For this analysis, CO concentrations were calculated based on a simplified CALINE4 screening procedure developed by the Bay Area Air Quality Management District and utilized by the SCAQMD and traffic volumes provided in the traffic report, which is included in its entirety as Appendix H of this EIR. The simplified model is intended as a screening analysis in order to identify a potential CO hotspot. This methodology assumes worst-case conditions and provides a screening of maximum, worst-case CO

concentrations. For this analysis, CO concentrations from 20 roadway intersections determined to operate at LOS E or F at buildout of the Overlay Zone were analyzed. All other roadway intersections are expected to generate lower CO concentrations that would not exceed the federal or state 1-hour and 8-hour standards.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2006 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on air quality if it would result in any of the following:

- Conflict with or obstruct implementation of the applicable air quality plan
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation
- Result in a cumulatively considerable net increase of any criteria pollutant for which the proposed project region is in non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors, including VOCs and NO_X)
- Expose sensitive receptors to substantial pollutant concentrations
- Create objectionable odors affecting a substantial number of people

As the agency principally responsible for comprehensive air pollution control in the Basin, the SCAQMD recommends that projects should be evaluated in terms of air pollution control thresholds established by the SCAQMD and published in the CEQA Air Quality Handbook. These thresholds were developed by the SCAQMD to provide quantifiable levels so that projects can be compared with the same standard. The City utilizes the SCAQMD's thresholds that are recommended at the time that development projects are proposed to assess the significance of quantifiable impacts. The following quantifiable thresholds are currently recommended by the SCAQMD and are used to determine the significance of air quality impacts associated with the proposed project.

Construction Emissions Thresholds

The SCAQMD recommends that projects with construction-related emissions that exceed any of the following emissions thresholds should be considered significant:

- 550 pounds per day of CO
- 75 pounds per day of VOC
- 100 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}

Operational Emissions Thresholds

The SCAQMD recommends that projects with operational emissions that exceed any of the following emissions thresholds should be considered significant; these thresholds apply to individual development projects only; they do not apply to cumulative development:

- 550 pounds per day of CO
- 55 pounds per day of VOC
- 55 pounds per day of NO_X
- 150 pounds per day of SO_X
- 150 pounds per day of PM_{10}

In order to assess cumulative impacts, the SCAQMD recommends that projects be evaluated to determine whether they would be consistent with 2003 AQMP performance standards and project-specific emissions thresholds. In the case of the proposed project, air pollutant emissions would be considered to be cumulatively considerable if the new sources of emissions exceeded SCAQMD emissions thresholds.

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to air quality.

Effects Found to Be Less Than Significant

Threshold	Would the project conflict with or obstruct implementation of the applicable air quality plan?

Impact 4.2-1 **Operation of the proposed project would provide new sources of regional air emissions but would not conflict with or obstruct implementation of the Air Quality Management Plan. This is considered a *less-than-significant* impact.**

The 2003 AQMP, discussed previously, was prepared to accommodate growth, to reduce the high levels of pollutants within the areas under the jurisdiction of SCAQMD, and to return clean air to the region. Projects that are considered to be consistent with the AQMP would not interfere with attainment, because this growth is included in the projections used to formulate the AQMP. Therefore, projects, uses, and activities that are consistent with the applicable assumptions used in the development of the AQMP would not jeopardize attainment of the air quality levels identified in the AQMP, even if they exceed the SCAQMD's recommended daily emissions thresholds.

Projects that are consistent with the projections of employment and population forecasts identified in the Growth Management Chapter of SCAG's 1996 Regional Comprehensive Plan and Guide (RCPG) are considered consistent with the AQMP growth projections. This is because the Growth Management Chapter of the 1996 RCPG forms the basis of the land use and transportation control portions of the 2003 AQMP. Implementation of the proposed Overlay Zone would introduce new residential housing which would directly induce population growth within the Overlay Zone. As a result, the proposed Overlay Zone would result in an estimated direct population increase of 11,102 residents. Population projections for the City of Santa Ana assumed a population increase of 16,905 residents between the years 2005 and 2030. As implementation of the Overlay Zone would result in increased population that is within that projected for the City of Santa Ana, the proposed residential development would not result in an exceedance by the City for either SCAG or General Plan population projections because SCAG's

regional growth forecasts are based upon, among other things, land uses specified in city general plans. As the AQMP is based on SCAG growth projections, the proposed project would be consistent with the 2003 AQMP population growth projections.

As discussed in Section 4.10, SCAG projections indicate an increase of up to 13,394 employees in the City from 2005-2030. The proposed project could generate up to 2,343 employment positions, and would not substantially affect the employment forecasts within the City. By generating approximately 2,343 long-term employment positions, the proposed project would contribute only an incremental portion to this growth in employment. Therefore, the employment that would be generated by implementation of the Overlay Zone has been accounted for in previous growth projections, and the proposed project would not result in any increase in employment not accounted for in the General Plan. The employment growth resulting from the proposed project would be consistent with SCAG's employment forecasts for the City. Therefore, the proposed project would be consistent with the 2003 AQMP employment forecasts for Los Angeles County.

Based on the consistency of the Overlay Zone with the existing SCAG population and employment projections and the AQMP forecasts, as discussed above, the proposed project would not impair implementation of the AQMP, and this impact would be ***less than significant***. No mitigation measures are required.

Threshold	Would the project expose sensitive receptors to substantial pollutant concentrations?

Impact 4.2-2 **Operation of the proposed project would generate increased local traffic volumes, but would not expose sensitive receptors to substantial localized carbon monoxide (CO) concentrations. This would be considered a *less-than-significant* impact.**

As was done to assess existing CO concentrations, the simplified CALINE4 screening procedure was used to predict future CO concentrations. CO concentrations were calculated 20 intersections evaluated in the traffic report (included in its entirety as Appendix H) that is expected to operate at LOS E or F (unacceptable levels) at project buildout. Intersections operating at LOS E or F typically generate high CO concentrations that could exceed the federal or state 1-hour and 8-hour standards and are analyzed at project buildout to show the maximum effect of implementation of the Overlay Zone on ambient CO concentrations. The results of air emissions modeling are shown in Table 4.2-3 (Future 2030 Buildout with Overlay Zone Localized Carbon Monoxide Concentrations). As shown, future CO concentrations near these intersections would not exceed the national 35.0 ppm and state 20.0 ppm 1-hour ambient air quality standards or the national or state 9.0 ppm 8-hour ambient air quality standards when the Overlay Zone is fully implemented in 2030. Therefore, sensitive receptors located in close proximity to these intersections would not be exposed to substantial pollutant concentrations, and the potential impacts of the Overlay Zone would be ***less than significant***. No mitigation is required. It should be noted that the CO concentrations shown in Table 4.2-3 are lower than the existing CO concentrations shown in Table 4.2-2 (Existing Localized Carbon Monoxide Concentrations) due to anticipated improvements in vehicle emission rates projected for the future by the ARB.

Table 4.2-3 Future 2030 Buildout with Overlay Zone Localized Carbon Monoxide Concentrations

Intersection	CO Concentrations in Parts per Million[a,b]					
	25 Feet		50 Feet		100 Feet	
	1-Hour	8-Hour	1-Hour	8-Hour	1-Hour	8-Hour
First Street and B Street	6.2	4.3	6.2	4.2	6.1	4.2
First Street and Cabrillo Park Drive	6.4	4.4	6.3	4.3	6.2	4.3
First Street and Elk Lane	6.3	4.4	6.3	4.3	6.2	4.3
First Street and Newport Avenue	6.3	4.3	6.3	4.3	6.2	4.2
First Street and Prospect Avenue	6.2	4.3	6.2	4.2	6.1	4.2
Fourth Street and Cabrillo Park Drive	6.4	4.4	6.3	4.3	6.2	4.3
Fourth Street and Golden Circle Drive	6.3	4.4	6.3	4.3	6.2	4.3
Fourth Street and I-5 Northbound Ramps	6.4	4.4	6.3	4.3	6.2	4.3
Fourth Street and Parkcenter Drive	6.3	4.4	6.3	4.3	6.2	4.3
Fourth Street and SR-55 Southbound Ramps	6.4	4.4	6.3	4.4	6.3	4.3
Fourth Street and Tustin Avenue	6.5	4.5	6.4	4.4	6.3	4.3
Fruit Street and Cabrillo Park Drive	6.2	4.2	6.1	4.2	6.1	4.2
Irvine Boulevard and Newport Boulevard	6.4	4.4	6.3	4.3	6.2	4.3
Irvine Boulevard and SR-55 Northbound Ramps	6.4	4.4	6.3	4.3	6.2	4.3
Park Court Place and Cabrillo Park Drive	6.2	4.2	6.1	4.2	6.1	4.2
Seventeenth Street and Cabrillo Park Drive	6.3	4.3	6.3	4.3	6.2	4.2
Seventeenth Street and SR-55 Northbound Ramps	6.3	4.4	6.3	4.3	6.2	4.3
Seventeenth Street and Tustin Avenue	6.4	4.4	6.3	4.4	6.3	4.3
Tustin Avenue and Sixth Street	6.3	4.3	6.2	4.3	6.2	4.2
Wellington Avenue and Cabrillo Park Drive	6.1	4.2	6.1	4.2	6.1	4.2

SOURCE: PBS&J 2006. Calculation sheets are provided in Appendix C.

[a] National 1-hour standard is 35.0 parts per million. State 1-hour standard is 20.0 parts per million.

[b] National 8-hour standard is 9.0 parts per million. State 8-hour standard is 9.0 parts per million.

Threshold	Would the project create objectionable odors affecting a substantial number of people?

Impact 4.2-3 **Construction and operation of the proposed project would not create objectionable odors affecting a substantial number of people. Implementation of mitigation measure MM-OZ 4.2-1 would ensure that this impact would remain *less than significant*.**

Construction activities do not usually emit offensive odors. Although construction activities occurring in association with the proposed project could generate airborne odors associated with the operation of construction vehicles (i.e., diesel exhaust) and the application of interior and exterior architectural coatings, these emissions would only occur during daytime hours, would generally be restricted to the immediate vicinity of the construction site and activity, and would not affect a substantial number of people.

Potential operational airborne odors could result from cooking activities associated with the new residential units and restaurants. These odors would be similar to existing residential and restaurant uses in the vicinity and would be confined to the immediate vicinity of the Overlay Zone. Restaurants are also typically required to have ventilation systems that avoid substantial adverse odor impacts. The other potential source of odors would be new trash receptacles within the Overlay Zone. The following mitigation measure shall be implemented:

MM-OZ 4.2-1 *Trash receptacles within the Overlay Zone will be required to have lids that enable convenient collection and loading and will be emptied on a regular basis, in compliance with City of Santa Ana regulations for the collection of solid waste.*

Implementation of mitigation measure MM-OZ 4.2-1 would ensure the proposed project would not create substantial objectionable odors and this impact would remain ***less than significant***.

Effects Found to Be Significant

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact 4.2-4 **Construction activities associated with the proposed project would exceed South Coast Air Quality Management District Standards for VOC and NO_X, and would result in a projected air quality violation. This is considered a potentially significant impact. Compliance with the identified project requirement and implementation of mitigation measures MM-OZ 4.2-2 through MM-OZ 4.2-16 would reduce this impact, but not to a less-than-significant level. Therefore, this impact would be considered *significant and unavoidable*.**

The thresholds of significance that have been recommended by the SCAQMD for construction emissions were developed for individual development projects and are based on the SCAQMD's New Source Review emissions standards for individual sources. They are applicable to the daily emissions that would result from construction and operational activities associated with an individual development project, and do not apply to cumulative development or multiple projects, such as that proposed under the Overlay Zone. Future individual development projects within the Overlay Zone may require further tiered CEQA air quality review.

Many of the individual projects that could be developed under the proposed project may be small and thus would not generate construction emissions that exceed the SCAQMD's recommended thresholds of significance. To the extent that construction of these individual projects overlaps, then the combined emissions from these small, individual projects could exceed the recommended SCAQMD thresholds, particularly for CO, NO_X, and PM_{10}, for which the Basin is currently in nonattainment. In addition to the smaller-scale projects, some of the individual development projects could also be large enough to generate construction emissions that exceed the SCAQMD thresholds. As the specific size, location, and construction techniques and scheduling that will be utilized for each individual development project occurring within the project area from implementation of the Overlay Zone is not currently known, the

provision of precise emission estimates for each individual development project, or a combination of these projects, is not currently feasible and would require the City to speculate regarding such potential future projects' potential environmental impacts. Through the environmental review process, the City will consider these future projects on a case-by-case basis to ascertain whether an individual project would generate potentially significant air quality impacts and where it is necessary, will require the implementation of mitigation measures to minimize emissions and reduce potentially significant impacts. However, for the purposes of this analysis, an estimation of potential daily air emissions resulting from construction with the Overlay Zone is given in Table 4.2-4 (Estimated Peak Daily Construction Emissions).

Table 4.2-4 Estimated Peak Daily Construction Emissions

Construction Phase	Peak Day Emissions in Pounds per Day (Lbs/day)				
	VOC	NO_X	CO	SO_X	PM_{10}
Site Demolition					
Fugitive Dust	—	—	—	—	14.31
Off-Road Diesel	43.35	282.96	355.62	—	11.20
On-Road Diesel	2.24	49.56	8.35	0.09	1.15
Worker Trips	0.28	0.73	7.16	0.00	0.04
Maximum Lbs/Day	*45.87*	*333.25*	*371.13*	*0.09*	*26.70*
SCAQMD Thresholds	75	100	550	150	150
Significant Impact	No	Yes	No	No	No
Site Grading					
Fugitive Dust	—	—	—	—	33.00
Off-Road Diesel	54.40	347.60	452.39	—	13.67
On-Road Diesel	0.00	0.00	0.00	0.00	0.00
Worker Trips	0.18	0.10	2.15	0.00	0.03
Maximum Lbs/Day	*54.58*	*347.70*	*454.54*	*0.00*	*46.70*
SCAQMD Thresholds	75	100	550	150	150
Significant Impact	No	Yes	No	No	No
Building Construction					
Off-Road Diesel	52.54	326.45	441.64	—	11.70
Worker Trips	1.40	0.81	17.17	0.00	0.29
Maximum Lbs/Day	*53.94*	*327.26*	*458.81*	*0.00*	*11.99*
SCAQMD Thresholds	75	100	550	150	150
Significant Impact	No	Yes	No	No	No

Table 4.2-4 Estimated Peak Daily Construction Emissions

Construction Phase	Peak Day Emissions in Pounds per Day (Lbs/day)				
	VOC	NO_X	CO	SO_X	PM_{10}
Architectural Coating[a]					
Architectural Coating Emissions	1,351.76	—	—	—	—
Worker Trips	1.40	0.81	17.17	0.00	0.29
Total	*1,353.16*	*0.81*	*17.17*	*0.00*	*0.29*
SCAQMD Thresholds	75	100	550	150	150
Significant Impact	Yes	No	No	No	No
Mitigation/Reduction	869.51	N/A	N/A	N/A	N/A
Maximum Lbs/Day	*483.65*	*0.85*	*17.93*	*0.00*	*0.30*
Significant Impact after Mitigation	Yes	No	No	No	No
Asphalt Paving					
Off-Gas	0.60	—	—	—	—
Off-Road Diesel	25.94	157.42	218.35	—	5.26
On-Road Diesel	0.12	2.19	0.42	0.00	0.05
Worker Trips	0.10	0.06	1.20	0.00	0.02
Maximum Lbs/Day	*26.76*	*159.67*	*219.97*	*0.00*	*5.33*
SCAQMD Thresholds	75	100	550	150	150
Significant Impact	No	No	No	No	No

SOURCE: PBS&J 2006. Calculation sheets are provided in Appendix C.

Daily thresholds for emissions of lead and $PM_{2.5}$ are not provided as they have not been established by the SCAQMD. In addition, because ozone is formed by photochemical reactions between VOCs and NO_x, the generation of ozone resulting from the proposed project is addressed through the daily emissions of these two precursors, which are shown in this table.

[a] Value is obtained from calculation based on information provided in the CEQA Air Quality Handbook, Chapter 9, *Information for Architectural Coatings and Other Coating Materials*, Tables A9-13A, A9-13B, and A9-13C.

As shown in Table 4.2-4, implementation of the proposed project would likely generate emissions of VOC and NO_X that exceed established SCAQMD thresholds. Further environmental review will be required as on a site-specific basis to make a determination of contribution of air emissions from individual projects.

If site-specific review of the future development projects occurring within the Overlay Zone identifies potentially significant air quality impacts associated with construction activities, mitigation measures MM-OZ 4.2-1 through MM-OZ 4.2-12 would be implemented to reduce these emissions. While implementation of mitigation measures MM-OZ 4.2-1 through MM-OZ 4.2-12 would reduce construction-related emissions, they may not reduce these emissions to levels below the SCAQMD thresholds for each individual development project, as the amount of emissions generated for each project would vary depending on its size, the land area that would need to be disturbed during construction, and the length of the construction schedule. Under these conditions, no further feasible mitigation measures are available and this impact would be considered significant and unavoidable. The City will make site-specific determinations of significance during the review of these individual development projects to determine which projects for which construction emissions may exceed significance thresholds.

For the purpose of analysis in this EIR, a programmatic level of analysis is provided for the proposed development under the Overlay Zone. The proposed project would develop 5,400 residential units, a total of 1.1 million square feet of commercial space, and 1.7 million square feet of office uses by the year 2030. As the proposed project has the potential to exceed SCAQMD's recommended thresholds of significance and results in short-term air quality impacts, the impact of the proposed project is anticipated to be significant. The following mitigation measures shall be implemented where appropriate:

MM-OZ 4.2-2 *The developer shall require by contract specifications that all diesel-powered equipment used would be retrofitted with after-treatment products (e.g., engine catalysts and other technologies available at the time construction commences) when construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-3 *The developer shall require by contract specifications that all heavy-duty diesel-powered equipment operating and refueling at the project site would use low-NO_X diesel fuel to the extent that it is readily available and cost effective (up to 125 percent of the cost of California Air Resources Board diesel) in the South Coast Air Basin at the time construction activities commence. This requirement shall not apply to diesel-powered trucks traveling to and from the project site. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-4 *The developer shall require by contract specifications that alternative fuel construction equipment (i.e., compressed natural gas, liquid petroleum gas, and unleaded gasoline) would be utilized to the extent feasible in the South Coast Air Basin at the time construction activities commence. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-5 *The developer shall require by contract specifications that construction equipment engines will be maintained in good condition and in proper tune per manufacturer's specification for the duration of construction. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-6 *The developer shall require by contract specifications that construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes. Diesel-fueled commercial motor vehicles with gross vehicular weight ratings of greater than 10,000 pounds shall be turned off when not in use for more than 5 minutes. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-7 *The developer shall require by contract specifications that construction operations rely on the electricity infrastructure surrounding the construction site rather than electrical generators powered by internal combustion engines to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-8 *The developer shall require by contract specifications that construction parking be configured to minimize traffic interference during the construction period and, therefore, reduce idling of traffic. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-9 *The developer shall require by contract specifications that temporary traffic controls are provided, such as a flag person, during all phases of construction to maintain smooth traffic flow. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-10 *The developer shall require by contract specifications that construction activities that affect traffic flow on the arterial system be scheduled to off-peak hours (10:00 A.M. to 4:00 P.M.). Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-11 *The developer shall require by contract specifications that dedicated on-site and off-site left-turn lanes on truck hauling routes be utilized for movement of construction trucks and equipment on site and off site to the extent feasible during construction activities. Contract specifications shall be included in the proposed project construction documents, which shall be approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-12 *Upon issuance of building or grading permits, whichever is issued earliest; notification shall be mailed to owners and occupants of all developed land uses within ¼ mile of the Overlay Zone and the individual projects within the Overlay Zone providing a schedule for major construction activities that will occur through the duration of the construction period. In addition, the notification will include the identification and contact number for a community liaison and designated construction manager that would be available on site to monitor construction activities. The construction manager shall be responsible for complying with all project requirements related to PM_{10} generation. The construction manager will be located at the on-site construction office during construction hours for the duration of all construction activities. Contract information for the community liaison and construction manager will be located at the construction office, City Hall, the police department, and a sign on site.*

MM-OZ 4.2-13 *As required by South Coast Air Quality Management District Rule 403—Fugitive Dust, all construction activities that are capable of generating fugitive dust are required to implement dust control measures during each phase of project development to reduce the amount of particulate matter entrained in the ambient air. These measures include the following:*

- *Limiting the amount of area disturbed during site grading to 10 acres per day*
- *Application of soil stabilizers to inactive construction areas*
- *Quick replacement of ground cover in disturbed areas*
- *Watering of exposed surfaces three times daily*
- *Watering of all unpaved haul roads three times daily*
- *Covering all stock piles with tarp*
- *Reduction of vehicle speed on unpaved roads*
- *Post signs on site, limiting traffic to 15 miles per hour or less*

- *Sweep streets adjacent to the project site at the end of the day if visible soil material is carried over to adjacent roads*
- *Cover or have water applied to the exposed surface of all trucks hauling dirt, sand, soil, or other loose materials prior to leaving the site to prevent dust from impacting the surrounding areas*
- *Install wheel washers where vehicles enter and exit unpaved roads onto paved roads to wash off trucks and any equipment leaving the site each trip*

In addition, emission levels of VOCs, which are a precursor for ozone, would likely exceed SCAQMD significance thresholds during the application of architectural coatings (paint and primer) for the proposed project. In order to reduce the VOC emissions levels associated with architectural coatings, the following mitigation measures shall be implemented:

MM-OZ 4.2-14 *The developer shall require by contract specifications that the architectural coating (paint and primer) products used would have a VOC rating of 125 grams per liter or less. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-15 *The developer shall require by contract specifications that materials that do not require painting be used during construction to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City of Santa Ana Planning and Building Agency staff.*

MM-OZ 4.2-16 *The developer shall require by contract specifications that pre-painted construction materials be used to the extent feasible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed and approved by the City of Santa Ana Planning and Building Agency staff.*

However, because construction emissions for an individual project typically exceeds the SCAQMD's recommended thresholds of significance and results in short-term air quality impacts, the impact of the proposed project, which takes into consideration the construction emissions generated from all of the development proposed under the proposed project, is anticipated to be ***significant and unavoidable***.

Threshold	Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Impact 4.2-5 **Operation of the proposed project would exceed South Coast Air Quality Management District standards for VOC, NO_X, CO, and PM_{10} and would result in a projected air quality violation. This is considered a potentially significant impact. Therefore, this impact would be considered *significant and unavoidable*.**

Operational emissions generated by both stationary and mobile sources would result from normal day-to-day activities on the project site after occupation. Stationary, area source emissions would be generated by the consumption of natural gas for space and water heating devices, and the operation of

landscape maintenance equipment. Mobile emissions would be generated by the motor vehicles traveling to and from the Overlay Zone.

The analysis of daily operational emissions from the proposed project has been prepared utilizing the URBEMIS 2002 computer model recommended by the SCAQMD. In terms of operational emissions, the proposed project would incorporate certain features in its design that would help reduce the operational emissions that would otherwise be generated by the proposed project. These design features include the following:

- Street lighting to provide safety along pedestrian routes
- Shade trees to shade sidewalks to encourage use by pedestrians

The proposed project's design features would encourage pedestrian activity, which would reduce the emissions from the operation of motor vehicles by project employees and residents.

The results of the URBEMIS 2002 calculations for the daily operational emissions of the proposed project are presented in Table 4.2-5 (Project Daily Operational Emissions), which takes into consideration the project design features listed above for project trip reduction, as shown in the trip rates for the proposed project in the project traffic study.

Table 4.2-5 Proposed Project Daily Operational Emissions

Emissions Source	Emissions in Pounds per Day				
	VOC	NO_X	CO	SO_X	PM_{10}
Water and Space Heating	4.74	62.69	35.78	0.00	0.12
Landscape Maintenance	0.27	0.03	1.89	0.00	0.00
Consumer Products	264.18	—	—	—	—
Architectural Coatings	126.09	—	—	—	—
Motor Vehicles	169.55	192.09	1,661.45	4.54	774.49
Maximum Daily Emissions	*564.83*	*254.81*	*1,699.12*	*4.54*	*774.61*
SCAQMD Thresholds (lb/day)	55.00	55.00	550.00	150.00	150.00
Significant Impact	Yes	Yes	Yes	No	Yes

SOURCE: PBS&J 2006. Calculation sheets are provided in Appendix C.

As shown, operation of the proposed project would generate emissions that exceed the thresholds of significance recommended by the SCAQMD for VOC, and NO_X, CO, and PM_{10}. The exceedance of the SCAQMD thresholds for these four criteria pollutants is primarily due to the increase in motor vehicles traveling to and from the project site. As no feasible mitigation is available to reduce these emissions, this impact would remain ***significant and unavoidable***.

Threshold	Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is in nonattainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?

Impact 4.2-6 **Construction and operation of the proposed project could result in a cumulatively considerable net increase of criteria pollutants for which the proposed project region is in nonattainment under an applicable federal or state ambient air quality standard. This is considered a significant impact. Implementation of mitigation measures MM-OZ 4.2-2 through MM-OZ 4.2-16 would reduce this impact, but not to a less-than-significant level. Therefore, this impact would be considered *significant and unavoidable*.**

A significant impact may occur if a project would add a cumulatively considerable contribution of a federal or state non-attainment pollutant. Because the Basin is currently in nonattainment for ozone (for which VOC and NO_X are precursors) and PM_{10} under national and state standards, and is in nonattainment for CO under national standards, projects could cumulatively exceed an air quality standard or contribute to an existing or projected air quality exceedance. With regard to determining the significance of the proposed project contribution, the SCAQMD neither recommends quantified analyses of cumulative construction or operational emissions, nor provides separate methodologies or thresholds of significance to be used to assess cumulative construction or operational impacts. Instead, the SCAQMD recommends that a project's potential contribution to cumulative impacts should be assessed using the same significance criteria as those for project specific impacts; that is, individual development projects that generate construction-related or operational emissions that exceed the SCAQMD-recommended daily thresholds for project-specific impacts would also cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

As discussed previously in Impact 4.2-4 and shown in Table 4.2-4 (Estimated Peak Daily Construction Emissions), construction-related daily emissions associated with project development would exceed SCAQMD significance thresholds for NO_X during the demolition, site grading, and building construction phases, and VOC when architectural coatings (paints and primers) are applied to the new buildings. No SCAQMD significance thresholds would be exceeded during asphalt paving with implementation of the proposed project. Therefore, the emissions generated by construction of the proposed project would be cumulatively considerable and would constitute a substantial contribution to an existing or projected air quality violation. As described above in Impact 4.2-4, implementation of mitigation measures MM-OZ 4.2-2 through MM-OZ 4.2-16 would reduce these emissions, but not to a less-than-significant level.

As discussed in Impact 4.2-5, operation of the proposed project would generate emissions that exceed the thresholds of significance recommended by the SCAQMD for VOC, NO_X, CO, and PM_{10}. Because the Basin is in nonattainment for PM_{10}, and both VOC and NO_X are precursors of ozone, for which the Basin is also in nonattainment, the proposed project would make a cumulatively considerable contribution to ozone emissions.

Because the proposed project would exceed SCAQMD thresholds for the pollutants and precursors of ozone for which the Basin is in non-attainment, the proposed project would make cumulatively considerable contributions of these pollutants during both construction and operation of the proposed project. Because no feasible mitigation beyond what is proposed for Impact 4.2-4 is available to further reduce these contributions to levels below SCAQMD thresholds, this impact is considered to be ***significant and unavoidable***.

For clarification, and as evident by the above analysis, this threshold essentially repeats the analysis provided in Impacts 4.2-2 and 4.2-3 and applies it to the cumulative condition, whereby any individual project that exceeds the SCAQMD recommended daily thresholds for project-specific impacts is considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment.

4.2.3 Cumulative Impacts

The geographic context for cumulative air quality impacts is SRA 17, which covers Central Orange County. This analysis, therefore, accounts for all anticipated cumulative growth within this geographic area, including ambient growth along with development of the related projects provided in Table 3-3 (List of Related Development Projects) in Chapter 3 (Project Description) of this EIR. As discussed in Impact 4.2-6, the significance of cumulative air quality impacts is typically determined according to the project-specific impact methodology recommended by the SCAQMD.

Cumulative development would not result in a significant impact in terms of conflicting with, or obstructing implementation of, the 2003 AQMP. As discussed in Impact 4.2-1, growth considered to be inconsistent with the AQMP could interfere with attainment of federal or state ambient air quality standards because this growth is not included in the projections utilized in the formulation of the AQMP. Consequently, as long as growth in the Basin is within the projections for growth identified in the Growth Management Chapter of the 1996 RCPG, implementation of the AQMP would not be obstructed by such growth. Growth under the proposed project would be considered consistent with the growth assumptions of City of Santa Ana General Plan and is therefore consistent with the 1996 RCPG (see Impact 4.2-1), and the 2003 AQMP. The cumulative impact of the proposed project regarding potential conflicts with the AQMP would not be cumulatively considerable and would be considered ***less than significant***.

As the Basin is currently in nonattainment for ozone, CO, NO_X, PM_{10}, and $PM_{2.5}$, cumulative development could violate an air quality standard or contribute to an existing or projected air quality violation. Therefore, this is considered to be a significant cumulative impact within the Basin. With regard to determining the significance of the proposed project contribution, SCAQMD recommends that individual projects that exceed the SCAQMD recommended daily thresholds for project-specific impacts be considered to cause a cumulatively considerable increase in emissions for those pollutants for which the Basin is in nonattainment (Smith, 2005). As discussed previously under Impact 4.2-4, construction of the proposed project would cause a net increase in daily, construction-related emissions of criteria air pollutants that exceed the thresholds of significance recommended by the SCAQMD. Construction under the proposed project would make a cumulatively considerable contribution to this significant

impact. In addition, as discussed in Impact 4.2-5, operation at full buildout of the proposed project would result in quantities of air emissions that exceed the SCAQMD thresholds for VOC, NO_X, CO, and PM_{10}, and would create a cumulatively considerable contribution to this significant impact. Consequently, the cumulative impact of the proposed project for construction emissions would be ***significant and unavoidable***.

It is unlikely that future projects will result in long-term future exposure of sensitive receptors to substantial pollutant concentrations, because CO levels are projected to be lower in the 2030 due to improvements in vehicle emission rates predicted by the ARB. Therefore, the cumulative impact is considered to be less than significant. Cumulative development is not, therefore, expected to expose sensitive receptors to substantial CO concentrations. As discussed in Impact 4.2-2, the future CO concentrations at the 20 study intersections determined to operate at LOS E and F in 2030, are based on the projected future traffic volumes from the study intersections contained in the traffic study, which takes into account emissions from the proposed project, future ambient growth, and related projects in the project area. As shown in Table 4.2-3 (Future with Project Localized Carbon Monoxide Concentrations), future 1-hour and 8-hour CO concentrations near these study intersections would not exceed national or state ambient air quality standards. All other intersections are expected to operate at LOS D or higher. As a result, CO hotspots would not occur near these intersections in the future, and the contribution of the proposed project to CO hotspots would not be cumulatively considerable. Therefore, the cumulative impact of the proposed project would be ***less than significant***.

For this threshold, the relevant geographic area is the City, and related projects projected to be built include primarily residential, commercial, and office uses, and could include restaurants. Odors resulting from the construction of these projects are not likely to affect a substantial number of people, due to the fact that construction activities do not usually emit offensive odors. As discussed in Impact 4.2-3, although construction activities occurring in association with the proposed project could generate airborne odors associated with the operation of construction vehicles (e.g., diesel exhaust) and the application of interior and exterior architectural coatings, these emissions would only occur during daytime hours, would generally be restricted to the immediate vicinity of the construction site and activity, and standard construction requirements would be imposed on the developers/applicants associated with these construction projects. Odors from construction activities would not affect a substantial number of people. The odor impacts resulting from residential and office projects are not expected to affect a substantial amount of people, as activities typically associated with these uses do not emit offensive odors and solid waste from these projects would be stored in special areas and in containers, as required by mitigation measure MM-OZ 4.2-1. In addition, restaurants are typically required to have ventilation systems that prevent substantial adverse odor impacts. Thus, this cumulative impact would be less than significant. Because a less-than-significant cumulative impact would occur with respect to objectionable odors, and the proposed project would not result in objectionable odors that would affect a substantial number of people, the cumulative impact of the proposed project would also be ***less than significant***.

4.2.4 References

Bay Area Air Quality Management District. 1996. *BAAQMD CEQA Guidelines*.

California. 1999. Department of Transportation, *California LINE Source Dispersion Model, version 4*, v. 1.31, April.

———. 2005. Air Resources Board, *Transportation and Land Use Programs Model, URBEMIS 2002*, version 8.7.0, April.

City of Santa Ana. Land Use Element of the Santa Ana General Plan. Adopted February 2, 1998.

Katz, Okitsu & Associates. December 2006. *Traffic Impact Study for the Mixed Use Overlay Zone in the City of Santa Ana.*

Office of Environmental Health Hazards. 2003. *Air Toxics Hot Spots Program Risk Assessment Guidelines, Air Toxics Hot Spots Program Guidance Manual for Preparation of Health Risk Assessments*, August.

Smith, Steve. 2005. Personal communication with Program Supervisor, South Coast Air Quality Management District, 13 January.

South Coast Air Quality Management District, 1993. *CEQA Air Quality Handbook*.

———. 1997. *1997 Air Quality Management Plan*.

———. 1999. *Final 1999 Amendment to the 1997 Ozone SIP Revision for the South Coast Air Basin*.

———. 2003. *2003 Air Quality Management Plan*.

———. ND. *Air Quality Analysis Guidance Handbook*. Portions available for review at http://www.aqmd.gov/ceqa/hdbk.html, accessed 10 October.

Southern California Association of Governments (SCAG). 2005. *2004 RTP Growth Forecasts*. http://www.scag.ca.gov/forecast/downloads/2004GF.xls, Accessed August 2006.

Western Regional Climatic Center (WRCC) website: http://www.wrcc.dri.edu, Accessed July 2006.

4.3 BIOLOGICAL RESOURCES

This section describes existing vegetation, landscaping, and biological resources within the Overlay Zone, and evaluates potential impacts to those resources. Analyses in this EIR include the assessment of potential impacts to: sensitive species (as defined by Section G of 2006 CEQA Guidelines), including migratory bird species; sensitive natural communities; and federally protected wetlands. This section relies upon information published in federal, State, and local documents, as well as information gathered during reconnaissance-level surveys conducted on April 30, 2006, by EIP Associates.

No comment letters were received in response to the Initial Study/Notice of Preparation circulated for the project related to biological resources. Full bibliographic entries for all reference material are provided in Section 4.3.5 (References) of this section.

4.3.1 Environmental Setting

Regional Setting

The Overlay Zone is generally bounded by the Santa Ana Freeway (I-5) on the west, Tustin Avenue on the east, East Sixth Street, Cabrillo Park and single-family residences on the north, and I-5 and residential properties on the south. Several roadways provide access to properties within the Overlay Zone, including East First Street, East Fourth Street, Cabrillo Park Drive, Park Court Place, East Sixth Street, Parkcenter Drive, and North Golden Circle Drive. The Overlay Zone is located in an area designated by the City's General Plan for Professional and Administrative Office use. Development in the area is comprised primarily of offices with a small amount of commercial and service uses. Several large vacant properties are located along the western boundary of the Overlay Zone.

Existing On-Site Conditions

The Overlay Zone is 200+ acres in size and is comprised of 73 parcels and portions of East First Street, East Fourth Street, Cabrillo Park Drive, Park Court Place, East Sixth Street, Parkcenter Drive, and North Golden Circle Drive. Of the parcels that have been developed, 48 contain office uses, seven are commercial/retail, three are auto-related retail, two are care/rehabilitation facilities, and two are motels. No residential properties are located within the Overlay Zone.

The areas immediately surrounding the Overlay Zone are a mix of residential and commercial properties. The Overlay Zone is bordered to the north by a single-family residential neighborhood, and to the south by St. Jeanne De Lestonnac School and multi-family residential properties, and therefore, is located in an area with sensitive receptors. Properties located east of Tustin Avenue are primarily used for commercial purposes. I-5 and additional commercial properties are located to the west of the Overlay Zone.

Biological Resources

Literature Survey

Information on occurrences of special-status species in the vicinity of the Overlay Zone was obtained from searching databases and lists of California Department of Fish and Game's (CDFG) Natural Diversity Data Base (CNDDB, January 2006) and California Native Plant Society's (CNPS) Electronic Inventory (January 2006) for the U. S. Geological Survey's (USGS) 7.5-minute Orange, Anaheim, Tustin, and Newport Beach quadrangles. Information on the status of special-status plant and animal species potentially occurring within the Overlay Zone was also obtained from the CDFG's Special Vascular Plants, Bryophytes, and Lichens List (January 2006), CDFG's List of State and Federally Listed Endangered and Threatened Animals of California (January 2006), and CDFG's list of Special Animals (January 2006). This search range encompasses a sufficient distance to accommodate for regional habitat diversity and to overcome the limitations of the CNDDB. The CNDDB is based on reports of actual occurrences and does not constitute an exhaustive inventory of every resource.

Additionally, background information on biological resources was derived from the Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), the List of California Terrestrial Natural Communities Recognized by the Natural Diversity Data Base (CDFG, January 2002), and The Jepson Manual of Higher Plants of California (J.C. Hickman, Ed., 1993). Based upon the results of the literature review and record searches, a list of special-status plant and animal species and habitats with the potential to occur within the Overlay Zone was developed for verification in the field. A copy of that list is available as Appendix D.

Field Survey

EIP Associates performed a general survey on April 30, 2006, to assess the biological resources of the Overlay Zone. The survey was conducted by walking longitudinal transects of the Overlay Zone.

Plant Survey

Plant species were identified in the field or collected for future identification. Plants were identified using Hickman (1993) and Abrams (1923). Because the Overlay Zone has been developed, paved, or landscaped, and is also surrounded by development, it does not support sensitive (including threatened and endangered) plant species. The Overlay Zone is defined by common street trees and ornamental species that are typically present in developed areas. The most dominate of these species were noted as: magnolia (*Magnolia* sp.), sycamore (*Platanus* sp.), pittosporum (*Pittosporum* sp.), maple (*Acer* sp.), pine (*Pinus* sp.), rhododendron (*Rhododendron* sp.), hare barley (*Hordeum murinum* var. *leporinum*), prickly sow thistle (*Sonchus asper*), eucalyptus (*Eucalyptus* sp.) and various palm species.

Wildlife Survey

Because the Overlay Zone has been developed, paved, or landscaped, and is also surrounded by development, it does not support sensitive wildlife species. Only common species that are typically present in developed areas were observed or are anticipated to occur. Birds were identified by standard

visual and auditory recognition, and the presence of nests or other evidence of breeding activity was noted. Due to the nature of the DSP area, mostly birds that are typically present in developed areas were observed, including: mourning dove (*Zenaida macroura*), common raven (*Corvus corvax*), American crow (*Corvus brachyrhynchos*), house finch (*Carpodacus mexicanus*), house sparrow (*Passer domesticus*), and house wren (*Troglodytes aedon*). Also observed at the Overlay Zone: domestic cat (*Felis catus*) and western fence lizard (*Sceloporus occidentales*).

Vegetation Communities

The Overlay Zone has been entirely developed, paved, landscaped, and/or graded, and supports largely non-native plant species. No defined, vegetative communities are found within the Overlay Zone.

Wildlife Resources

Since the Overlay Zone has been developed, paved, landscaped, and/or graded, suitable habitat for sensitive mammal, reptile, amphibian, or fish species does not exist within the Overlay Zone or adjacent areas.

Wildlife Movement

Wildlife corridors link together areas of suitable wildlife habitat that are otherwise separated by rugged terrain, changes in vegetation, or human disturbance. The fragmentation of open space areas by urbanization creates isolated "islands" of wildlife habitat. In the absence of habitat linkages that allow movement to adjoining open space areas, various studies have concluded that some wildlife species, especially the larger and more mobile mammals, would not likely persist over time in fragmented or isolated habitat areas because they prohibit the infusion of new individuals and genetic information (MacArthur and Wilson 1967; Soule 1987; Harris and Gallagher 1989; Bennett 1990). Corridors mitigate the effects of this fragmentation by (1) allowing animals to move between remaining habitats, thereby permitting depleted populations to be replenished and promoting genetic exchange; (2) providing escape routes from fire, predators, and human disturbances, thus reducing the risk of catastrophic events (such as fire or disease) on population or local species extinction; and (3) serving as travel routes for individual animals as they move within their home ranges in search of food, water, mates, and other needs (Noss 1983; Simberloff and Cox 1987; Harris and Gallagher 1989).

Wildlife movement activities usually fall into one of three movement categories: (1) dispersal (e.g., juvenile animals from natal areas, or individuals extending range distributions); (2) seasonal migration; and (3) movements related to home range activities (foraging for food or water, defending territories, searching for mates, breeding areas, or cover). A number of terms have been used in various wildlife movement studies, such as "wildlife corridor," "travel route," "habitat linkage," and "wildlife crossing," to refer to areas in which wildlife move from one area to another. To clarify the meaning of these terms and facilitate the discussion of wildlife movement in this analysis, these terms are defined as follows:

- *Travel route*—A landscape feature (such as a ridgeline, drainage, canyon, or riparian strip) within a larger natural habitat area that is used frequently by animals to facilitate movement and provide access to necessary resources (e.g., water, food, cover, den sites). The travel route is generally

preferred because it provides the least amount of topographic resistance in moving from one area to another. It contains adequate food, water, and/or cover while moving between habitat areas and provides a relatively direct link between target habitat areas.

- *Wildlife corridor*—A piece of habitat, usually linear in nature, that connects two or more habitat patches that would otherwise be fragmented or isolated from one another. Wildlife corridors are usually bounded by urban land areas or other areas unsuitable for wildlife. The corridor generally contains suitable cover, food, and/or water to support species and facilitate movement while in the corridor. Larger, landscape-level corridors (often referred to as "habitat or landscape linkages") can provide both transitory and resident habitat for a variety of species.
- *Wildlife crossing*—A small, narrow area, relatively short in length and generally constricted in nature, that allows wildlife to pass under or through an obstacle or barrier that otherwise hinders or prevents movement. Crossings typically are manmade and include culverts, underpasses, drainage pipes, and tunnels to provide access across or under roads, highways, pipelines, or other physical obstacles. These often represent "choke points" along a movement corridor.

Within a large open space area in which there are few or no manmade or naturally occurring physical constraints to wildlife movement, wildlife corridors, as defined above, may not yet exist. Given an open space area that is both large enough to maintain viable populations of species and provide a variety of travel routes (canyons, ridgelines, trails, riverbeds, and others), wildlife would use these "local" routes while searching for food, water, shelter, and mates, and would not need to cross into other large open space areas. Based on their size, location, vegetative composition, and availability of food, some of these movement areas (e.g., large drainages and canyons) are used for longer lengths of time and serve as source areas for food, water, and cover, particularly for small- and medium-size animals. This is especially true if the travel route is within a larger open space area. However, once open space areas become constrained and/or fragmented as a result of urban development or construction of physical obstacles, such as roads and highways, the remaining landscape features or travel routes that connect the larger open space areas can "become" corridors as long as they provide adequate space, cover, food, and water, and do not contain obstacles or distractions (e.g., manmade noise, lighting) that would generally hinder wildlife movement.

The Overlay Zone does not function as an important regional wildlife corridor because it has been developed, paved, landscaped, and/or graded. The areas immediately surrounding the Overlay Zone are a mix of residential and commercial properties, including major highways. As such, wildlife does not use the Overlay Zone to travel from one habitat or resources area to the next.

Sensitive Biological Resources

The following section addresses special-status biological resources observed, reported, or having the potential to occur on the site. These resources include plant and wildlife species that have been afforded special status and/or recognition by federal and State resource agencies, as well as private conservation organizations and special interest groups such as the CNPS (List 1A, 1B, and 2). In general, the principal reason an individual taxon (species, subspecies, or variety) is given such recognition is the documented or perceived decline or limitation of its population size or geographical extent and/or distribution, resulting in most cases from habitat loss. Appendix D lists special status plants and animals known to occur within

the region of the project, along with their federal and State listing and potential for occurrence within the Overlay Zone. In addition, special-status biological resources include vegetation types and habitats that are unique, of relatively limited distribution in the region, or of particularly high wildlife value. These resources have been defined as sensitive by federal, State, and local government conservation programs.

In addition to the other sources listed in this section, the following sources were used to determine the special status of biological resources:

Plants

- CNPS 2006. Electronic Inventory of Rare and Endangered Vascular Plants of California. California Native Plant Society, Sacramento, California.
- California Natural Diversity Data Base (CNDDB), January 2006.
- Various Federal Register notices from the USFWS regarding listing status of plant species.

Wildlife

- California Natural Diversity Data Base (CNDDB), January 2006.
- Various Federal Register notices from the USFWS regarding listing status of wildlife species.

Habitats

- California Natural Diversity Data Base (CNDDB), January 2006.

For plants or wildlife, the "potential for occurrence" ranking listed in Appendix D is based on the following criteria:

- **Absent:** Species was not observed during focused surveys conducted at an appropriate time for identification of the species or the species is restricted to habitats that do not occur within the Overlay Zone.
- **Low Potential for Occurrence:** No present or historical records cite the species' occurrence in or near the survey (Plan) area, and the on-site habitat(s) needed to support the species are of poor quality.
- **Moderate Potential for Occurrence:** Either a historical record exists within the immediate vicinity of the Overlay Zone (approximately 5 miles) or the habitat requirements associated with the species occur within the Overlay Zone and are of sufficient size and quality as to support the species.
- **High Potential for Occurrence:** A historical record cites the species in or near the survey (Plan) area, and the habitats strongly associated with that species occur within the Overlay Zone or in its immediate vicinity.
- **Species Present:** The species was observed within the survey (Plan) area at the time of the survey.

Definitions of Special Status Biological Resources

Federal

A federally endangered species is a species facing extinction throughout all or a significant portion of its geographic range. A federally threatened species is one likely to become endangered within the foreseeable future throughout all or a significant portion of its range. The presence of any federally threatened or endangered species on a site generally imposes severe constraints on development;

particularly if development would result in "take" of the species or its habitat. The term "take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, collect, or attempt to engage in such conduct. Harm in this sense can include any disturbance to habitats used by the species during any portion of its life history.

Proposed species are those officially proposed by the USFWS for addition to the federal threatened and endangered species list. Because proposed species may soon be listed as threatened or endangered, these species could become listed prior to or during implementation of a proposed development project.

Federal Species of Concern (a "term of art" for former Category 2 candidates) have an informal designation by the USFWS for some declining species that are not federal candidates for listing at this time. This designation does not provide legal protection but signifies that these species are recognized as special status by the USFWS and thus under CEQA Guidelines (section 15380) potential impacts to these species need to be assessed.

State

California considers an endangered species as one whose prospects of survival and reproduction are in immediate jeopardy, a threatened species as one present in such small numbers throughout its range that it is likely to become an endangered species in the near future in the absence of special protection or management, and a rare species as one present in such small numbers throughout its range that it may become endangered if its present environment worsens. Rare species applies to California native plants. State threatened and endangered species are fully protected against take.

California Species of Special Concern is an informal designation used by the CDFG for some declining wildlife species that are not state candidates. This designation does not provide legal protection but signifies that these species are recognized as special status by the CDFG and thus under CEQA Guidelines (section 15380) potential impacts to these species need to be assessed.

Species that are California fully protected include those protected by special legislation for various reasons, such as the mountain lion and white-tailed kite.

Local

Special Status habitats are vegetation communities, associations, or sub-associations designated by the CDFG and/or CNPS that support concentrations of special status plant or wildlife species, are of relatively limited distribution, or are of particular value to wildlife (CDFG 2006). Although special status habitats are not afforded legal protection unless they support protected species, potential impacts on them may increase concerns and mitigation suggestions by resources agencies.

The CNPS is a local resource conservation organization that has developed an inventory of California's special status plant species (CNPS 2006). This inventory provides the summary of information on the distribution, rarity, and endangerment of California's vascular plants. This rare plant inventory is comprised of four lists. CNPS presumes that List 1A plant species are extinct in California because they have not been seen in the wild for many years. CNPS considers List 1B plants as rare, threatened, or

endangered throughout their range. List 2 plant species are considered rare, threatened, or endangered in California but more common in other states. Plant species for which CNPS needs additional information are included on List 3. List 4 plant species are those of limited distribution in California whose susceptibility to threat appears low at this time. For the purpose of this EIR, only species with CNPS ratings of 1A, 1B or 2 will be assessed, as these species would meet the definition of rare under 2006 CEQA Guidelines.

Threatened or Endangered Species

No State or federally listed threatened or endangered species were observed within the Overlay Zone during EIP's April 2006 survey; however, this survey was not intended to determine the presence/absence of threatened or endangered species, only assess the potential for them to occur based on habitat suitability. Focused surveys to determine presence/absence have not been performed and would be at the discretion of the appropriate State or federal resource agencies.

The Overlay Zone sits near where the corners of the Orange, Anaheim, Tustin, and Newport Beach USGS 7.5-minutes quadrangles meet. Due to the limited habitat and isolation of the Overlay Zone and its surroundings, and lack of wildlife corridors, all species potentially occurring within the Overlay Zone would be listed within the Orange, Anaheim, Tustin, and Newport Beach quadrangles. Ten wildlife and three plant federally/State listed threatened or endangered species were identified as potentially occurring within the Overlay Zone or reported within the USGS's 7.5-minute Orange, Anaheim, Tustin, and Newport Beach quadrangles (Appendix D). Of these, 13 species, all were determined to have little to no potential for occurrence due to lack of suitable habitat.

Santa Ana River Woollystar (*Eriastrum densifolium* ssp. *sanctorum*): is listed as a State and federally endangered species by the CDFG and USFWS. The Santa Ana River woollystar is a perennial herb. It occurs in coastal scrub and chaparral on sandy soils, usually on river floodplains or terraced fluvial deposits in the Santa Ana River area as well as San Bernardino & Riverside Counties. Due to a lack known occurrences within proximity to the Overlay Zone and lack of habitat, the Santa Ana River woollystar has a low potential of occurring within the Overlay Zone.

Salt Marsh Bird's-Beak (*Cordylanthus maritimus ssp. maritimus*): is listed as a State and federally endangered species by the CDFG and USFWS. This species occurs in coastal dunes and coastal salt marshes and swamps along coastal California south to Baja. It flowers from May to October and can be found at elevations up to 100 feet. Due to lack of suitable habitat the salt marsh bird's-beak is absent from the Overlay Zone.

San Fernando Valley Spineflower (*Chorizanthe parryi* var. *Fernandina*): is listed as a State endangered species by the CDFG. The San Fernando Valley spineflower is a member of the buckwheat family, has delicate tiny white flowers, and grows in sandy or gravelly soils along dry washes. It is a member of the coastal sage and alluvial fan scrub communities, and is threatened by loss of this kind of habitat, and competition with exotic invasive plants. It formerly occurred where appropriate habitat existed in San Bernardino, Riverside, Orange, Ventura, and Los Angeles Counties, but is now known from only a few locations where streams have not been channelized. Due to local a occurrence of this species near the Overlay Zone, the San Fernando Valley spineflower has a moderate potential of occurring within the Overlay Zone.

Pacific Pocket Mouse (*Perognathus longimembris pacificus*): is listed as a federally endangered species by the USFWS. The Pacific Pocket Mouse is a small brownish rodent endemic to coastal southwestern California. Historically, the Pacific pocket mouse range once extended from Los Angeles County south to the Mexican border. Pocket mice are only found within 4 kilometers (km) of the coast on fine-grained sandy substrates in coastal sage scrub, coastal strand, and river alluvium. The species remains one of the most endangered animals in the United States. Due to lack of suitable habitat and its isolation to within 4 km of the coast, the pacific pocket mouse is absent from the Overlay Zone.

California Least Tern (*Sterna antillarum browni*): is listed as a State and federally endangered species by the CDFG and USFWS. The California least tern is one of the smallest members of its family, averaging only 23 cm (9 in.) in length. Typically, these terns forage in shallow estuaries and lagoons, diving head first into the water after a wide variety of small fish. Due to lack of suitable habitat the California least tern is absent from the Overlay Zone.

Least Bell's Vireo (*Vireo bellii pusillus*): is listed as a State and federally endangered species by the CDFG and USFWS. The Least Bell's Vireo occurs in moist thickets and riparian areas that are predominantly composed of willow and mule fat. Due to a lack known occurrences within proximity to the Overlay Zone and lack of habitat, the Least Bell's vireo has a low potential of occurring within the Overlay Zone.

Light-Footed Clapper Rail (*Rallus longirostris levipes*): is listed as a State and federally endangered species by the CDFG and USFWS. The light-footed clapper rail is a year-round resident (non-migratory). It inhabits coastal salt and freshwater marshes containing cordgrass, cattails or tules, and rushes. Its population declines were due to habitat loss of floodplain river areas and tidal estuaries. Due to lack of suitable habitat the light-footed clapper rail is absent from the Overlay Zone.

Coastal California Gnatcatcher (*Polioptila californica californica*): is listed as a federally threatened species by the USFWS. The coastal California gnatcatcher is an obligate resident of southern California coastal sage scrub communities near arid hillsides, mesas, and washes. Due to a lack known occurrences within proximity to the Overlay Zone and lack of habitat, the coastal California gnatcatcher has a low potential of occurring within the Overlay Zone.

Belding's Savannah Sparrow (*Passerculus sandwichensis beldingi*): is listed by as a State endangered species by the CDFG. The Belding's Savannah Sparrow is a year-round resident (non-migratory) subspecies that occurs in coastal salt marshes between Goleta Slough, Santa Barbara County, and Bahia de San Quintin

in Mexico. Due to lack of suitable habitat the Belding's savannah sparrow is absent from the Overlay Zone.

California Black Rail (*Laterallus jamaicensis coturniculus*): is listed by as a State threatened species by the CDFG. The California Black Rail is a year-round resident (non-migratory). Its habitat consists of shallow margins of salt, brackish, or freshwater marshes. Due to lack of suitable habitat the California black rail is absent from the Overlay Zone.

Western Snowy Plover (*Charadrius alexandrinus nivosus*): is listed as a federally threatened species by the USFWS. The Western Snowy Plover is a sparrow-sized shorebird that breeds and winters on sandy beaches from Washington to Baja California, Mexico. The vast majority of its population is in California, with large numbers nesting on the Channel Islands and little-visited beaches along the Central Coast. Due to lack of suitable habitat the western snowy plover is absent from the Overlay Zone.

San Diego Fairy Shrimp (*Branchinecta sandiegonensis*): is listed as a federally endangered species by the USFWS. The San Diego fairy shrimp breeds in vernal pools. It takes only two weeks to go from egg to reproductive adult. They are among the most characteristic of the vernal pool invertebrates. Due to lack of suitable habitat the San Diego fairy shrimp is absent from the Overlay Zone.

Santa Ana Sucker (*Catostomus santaanae*): the Santa Ana Sucker is endemic to the Los Angeles basin and southern coastal streams. This species is usually found in fresh water with sand-rubble or boulder bottoms. Due to lack of suitable habitat the Santa Ana sucker is absent from the Overlay Zone.

4.3.2 Regulatory Framework

Federal

Section 404 of the Clean Water Act

Section 404 of the *Clean Water Act* (CWA) requires that a permit be obtained from the U.S. Army Corps of Engineers (USACE) prior to the discharge of dredged or fill materials into any "waters of the United States or wetlands." Waters of the United States are broadly defined in the USACE's regulations (33 CFR 328) to include navigable waterways, their tributaries, lakes, ponds, and wetlands. Wetlands are defined as: "Those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that normally do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas" (Federal Register 1982). Wetlands that are not specifically exempt from Section 404 regulations (such as drainage channels excavated on dry land) are considered to be "jurisdictional wetlands." In a recent Supreme Court Case, the Court acted to limit the regulatory jurisdiction of the USACE under Section 404 of the CWA as it applies to adjacent waters (USSC 2001). Specifically, the Court ruled that waters that are nonnavigable, isolated, and intrastate are not subject to the USACE jurisdiction (Guzy and Anderson 2001). The USACE is required to consult with the U.S. Fish and Wildlife Service, Environmental Protection Agency, and State Regional Water Quality Control Board (among other agencies) in carrying out its discretionary authority under Section 404.

The USACE grants two types of permits, individual and nationwide. Project-specific individual permits are required for certain activities that may have a potential for more than a minimal impact and necessitate a detailed application. The most common type of permit is a nationwide permit. Nationwide permits authorize activities on a nationwide basis unless specifically limited, and are designed to regulate with little delay or paperwork certain activities having minimal impacts. Nationwide permits typically take two to three months to obtain whereas individual permits can take a year or more. To qualify for a nationwide permit, strict conditions must be met. If conditions are met, permittees may proceed with certain activities without notifying the USACE. Some nationwide permits require a 30-day pre-construction notification period before activities can begin. Fill of certain isolated waters or wetlands that affect less than 0.5 acre of impact per project may be permitted with a pre-construction notification.

Migratory Bird Treaty Act of 1918

The *Migratory Bird Treaty Act* (MBTA) makes it unlawful to "take" (kill, harm, harass, etc.) any migratory bird listed in 50 CFR 10, including their nests, eggs, or products. The MBTA provides protection to over 800 species of birds. This list includes some very common species such as the American robin (*Turdus migratorius*), house finch, American crow (*Corvus brachyrhynchos*), and western meadowlark (*Sturnella neglecta*).

Federal Endangered Species Act of 1973

Section 3 of the *Federal Endangered Species Act* (FESA) defines an endangered species as any species or subspecies of fish, wildlife, or plants "in danger of extinction throughout all or a significant portion of its range." A threatened species is defined as any species or subspecies "likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range." Designated endangered and threatened species, as listed through publication of a final rule in the Federal Register, are fully protected from a "take" without an incidental take permit administered by the U. S. Fish and Wildlife Service (USFWS) under Section 10 of the FESA. Take means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct (50 CFR 17.3). The term "harm" in the definition of "take" in the Act means an act which actually kills or injures wildlife. Such act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR 17.3). The term "harass" in the definition of "take" means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering (50 CFR 17.3). Proposed endangered or threatened species are those for which a proposed regulation, but not a final rule, has been published in the Federal Register.

Section 7 of the FESA requires that Federal agencies ensure that their actions are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify its critical habitat. This obligation requires Federal agencies to consult with the USFWS on any actions (issuing permits including Section 404 permits issuing licenses, providing Federal funding) that may affect listed species to ensure that reasonable and prudent measures will be undertaken to mitigate impacts on listed species. Consultation with USFWS can be either formal or informal depending on the likelihood of the action to adversely affect listed species or critical habitat. Once a formal consultation is initiated, USFWS will issue

a Biological Opinion (either a "jeopardy" or a "no jeopardy" opinion) indicating whether the proposed agency action will or will not jeopardize the continued existence of a listed species or result in the destruction or modification of its critical habitat. A permit cannot be issued for a project with a "jeopardy" opinion unless the project is redesigned to lessen impacts.

In the absence of any federal involvement, as in a privately-funded project on private land with no Federal permit, only Section 10(a) of the FESA can empower the USFWS to authorize incidental take of a listed species provided a habitat conservation plan (HCP) is developed. To qualify for a formal Section 10(a) permit, strict conditions must be met including a lengthy procedure involving discussions with USFWS and local agencies, preparation of a HCP, and a detailed Section 10(a) permit application.

State

California Endangered Species Act

The California *Endangered Species Act* (CESA) declares that deserving plant or animal species will be given protection by the state because they are of ecological, educational, historic, recreational, aesthetic, economic, and scientific value to the people of the state. CESA established that it is state policy to conserve, protect, restore, and enhance endangered species and their habitats. Under State law, plant and animal species may be formally designated rare, threatened, or endangered by official listing by the California Fish and Game Commission. Listed species are generally given greater attention during the land use planning process by local governments, public agencies, and landowners than are species that have not been listed.

CESA authorizes that "Private entities may take plant or wildlife species listed as endangered or threatened under the Federal ESA and CESA, pursuant to a federal incidental take permit issued in accordance with Section 10 of the Federal ESA, if the California Department of Fish and Game (CDFG) certifies that the incidental take statement or incidental take permit is consistent with CESA (Fish & Game Code Section 2080.1(a)).

CEQA—Treatment of Listed Plant and Animal Species

Both the federal and state Endangered Species Acts protect only those species formally listed as threatened or endangered (or rare in the case of the State list). Section 15380 of CEQA Guidelines, however, independently defines "endangered" species of plants, fish or wildlife as those whose survival and reproduction in the wild are in immediate jeopardy and "rare" species as those who are in such low numbers that they could become endangered if their environment worsens. Therefore, a project will normally have a significant affect on the environment if it will substantially affect a rare or endangered species or the habitat of the species. The significance of impacts to a species under CEQA must be based on analyzing actual rarity and threat of extinction despite legal status or lack thereof.

State of California—Sections 1600 of the Fish and Game Code

CDFG has direct jurisdiction under Fish and Game Code Section 1600 in regard to any proposed activities that would divert or obstruct the natural flow or change the bed, channel, or bank of any lake or

stream. For activities that could affect a lake or stream bed, it is necessary to enter into a Streambed Alteration Agreement with CDFG.

State of California—Sections 3503, 3503.5, 3800 of the Fish and Game Code

These sections of the Fish and Game Code prohibit the "take, possession, or destruction of birds, their nests or eggs." Disturbance that causes nest abandonment and/or loss of reproductive effort (killing or abandonment of eggs or young) is considered a "take."

Porter-Cologne Water Quality Control Act

The *Porter-Cologne Water Quality Control Act* charges the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB) statewide with protecting water quality throughout California. Typically, the SWRCB and RWQCB act in concert with the USACE under Section 401 of the CWA in relation to permitting fill of federally jurisdictional waters. As discussed above, the Supreme Court Case recently acted to limit the regulatory jurisdiction of the USACE under Section 404 of the CWA (USSC 2001). This action did not limit the state's regulatory jurisdiction over Waters of the State (Guzy and Anderson 2001). Waters of the State are defined in Section 13050(e) of the *Porter-Cologne Water Quality Control Act* as "…any surface water or groundwater, including saline waters, within the boundaries of the state." Currently, an applicant would delineated the wetlands on their property utilizing methodology presented in the *1987 Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the delineation would be verified by the USACE. In cases where an area meets the criteria to be considered a wetland, but the USACE does not have jurisdiction, the applicant is referred to the appropriate RWQCB. In these cases, the project must receive a permit for Waste Discharge Requirements or a Waiver of Waste Discharge Requirements from the RWQCB. Projects that affect Waters of State are required by the RWQCB to incorporate mitigation. Mitigation ratios are determined on a project specific basis during the permitting process and are based on the quality of the wetlands impacted by the project.

Regional

Natural Community Conservation Plan and Habitat Conservation Plan, County of Orange, Central and Coastal Subregion

The preparation of a comprehensive natural resources management conservation plan for Central and Coastal Orange County was completed in 1996. The Central and Coastal Orange County Natural Community Conservation Plan and Habitat Conservation Plan (NCCP/HCP) and the associated Implementation Agreement cover thirteen cities, including Santa Ana. The purpose of the NCCP/HCP is to create a multi-species multi-habitat reserve system and implementation of a long-term management program that will protect primarily coastal sage scrub and the species that utilize this habitat. At the same time that it protects this habitat and species the NCCP/HCP is also intended to allow for economical use of the lands that meet the people's needs.

The NCCP/HCP is intended to focus on multiple species and habitats and address conservation of these species on a regional context. The three main target species are the coastal California gnatcatcher, cactus wren, and orange-throated whiptail. There are twenty-six other species that are also identified and afforded management protection under the NCCP/HCP. An additional ten species of plants and animals that are either federally listed or treated as if they were listed according to FESA Section 10(a) are addressed within the NCCP/HCP.

As the City participated in the funding or development of the NCCP/HCP, the City-owned parcels would fall under the participating landowner system of the NCCP/HCP. However, individual landowners within the City would be considered nonparticipating landowners. The NCCP/HCP provides nonparticipating landowners with different mitigation options than those provided for participating landowners. Nonparticipating landowners may satisfy the requirements of the FESA and CESA in relation to the species covered under the NCCP/HCP one of three ways:

- On-site avoidance of take
- Satisfaction of the applicable FESA and CESA regulations through the regular permitting and consultation process (outside the NCCP/HCP)
- Payment of a mitigation fee to the nonprofit management organization established by the NCCP/HCP

Local

General Plan – Conservation Element

Goal 2: Preserve, maintain, and properly use natural and cultural resources.

Goal 3: Preserve and enhance the aesthetic and environmental quality of the community for the enjoyment of all residents.

Consistency Analysis

As shown above, the General Plan states that natural resources should be preserved and new development should be maintain existing resources. As an amendment to the General Plan, the proposed project would be designed to be consistent with policies contained in the General Plan, including those related to biological resources. As the Overlay Zone is entirely developed/disturbed, the level of biological resources within the Overlay Zone is low and limited to landscaping. The proposed project would increase the level of landscaping within the Overlay Zone and thereby incrementally increase the level of natural resources. Therefore, implementation of the Overlay Zone is consistent with the General Plan as it relates to biological resources.

4.3.3 Project Impacts and Mitigation

Analytic Method

The analysis of significant impacts is based on the literature and field surveys as outlined in Section 4.3.1 (Environmental Setting) of this chapter.

Thresholds of Significance

The criteria for determining significant impacts on biological resources were developed in accordance with state 2006 CEQA Guidelines. Section 15065(a) of the CEQA Guidelines states that a project may have a significant effect on the environment if "the project has the potential to substantially degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of an endangered, rare, or threatened species." An evaluation of whether an impact on biological resources would be substantial must consider both the resource itself and how that resource fits into a regional or local context. Substantial impacts would be those that would diminish, or result in the loss of, an important biological resource or those that would obviously conflict with local, state, or federal resource conservation plans, goals, or regulations. Impacts are sometimes locally adverse, but not significant, because they would result in an adverse alteration of existing conditions, but they would not substantially diminish or result in the permanent loss of an important resource on a population- or region-wide basis.

Based on the Environmental Checklist Form from Appendix G of CEQA, and the assessment in the Initial Study, the Overlay Zone would have a significant effect on biological resources if it results in the following:

- Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service
- Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Game or U.S. Fish and Wildlife Service
- Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means
- Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites
- Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance
- Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan

Effects Found to Have No Impact

Threshold	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified in the Migratory Bird Treaty Act or identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations; or by the California Department of Fish and Game; or by the U.S. Fish and Wildlife Service?

As mentioned in Section 4.3.1 and substantiated by Appendix D, no endangered, rare, threatened, or special status plant species (or associated habitats) or wildlife species designated by the USFWS, CDFG, or CNPS are known to occur or were found within the Specific Plan Area. Therefore, there are ***no impacts*** to special-status species associated with implementation of the proposed project, either directly or indirectly, and no further analysis is required in this EIR.

Threshold	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?

The Overlay Zone and surrounding areas are completely developed and/or disturbed. No riparian habitat or other sensitive natural communities are located in these areas. Therefore, ***no impacts*** to riparian habitat or other sensitive natural communities would occur.

Threshold	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means.

The Overlay Zone is not in proximity to, nor does it contain, wetland habitat or a blueline stream. Therefore, development within the Overlay Zone would have ***no impact*** on federally protected wetlands, as defined by Section 404 of the Clean Water Act.

Threshold	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?

Development within the Overlay Zone would not substantially interfere with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites. The Overlay Zone and surrounding areas are completely developed and/or disturbed. The Overlay Zone is surrounded by urban uses on all four sides, including two highways, and, therefore, does not function as a wildlife movement corridor. There is ***no impact***.

Threshold	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

The City of Santa Ana (City) recognizes that it is located in an urban setting, and has tailored the goals of its conservation element accordingly. To obtain its goals, the City has established objectives that focus on the preservation of open space and cultural resources, and protecting the public's health and welfare. The Overlay Zone does not contain cultural resources, nor is it zoned open space, and as such, the Overlay Zone does not conflict with any local policies or ordinances protecting biological resources. The City's conservation element encourages establishment of mixed-use districts, and the overall visual enhancement of the City, both of which will occur within the Overlay Zone. There is ***no impact***.

Threshold	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?

The Orange County NCCP/NHP, mentioned above in Section 4.3.2 (Regulatory Framework), can be met through observing previously established laws and regulations (FESA and CESA). If a take is unavoidable, then the payment of mitigation fees will be made to the proper non-profit organization. There is ***no impact***.

Effects Found to Be Less Than Significant

Threshold	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified in the Migratory Bird Treaty Act or identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations; or by the California Department of Fish and Game; or by the U.S. Fish and Wildlife Service?

Impact 4.3-1 **Implementation of the proposed project would not result in a potential reduction in nesting opportunities for resident and migratory avian species of special concern. This is considered a *less-than-significant* impact.**

As discussed in Section 4.3.2 (Regulatory Framework), migratory avian species that may use portions of the Overlay Zone for nesting during the breeding season are protected under the MBTA. Construction-related activities, that may include, but are not necessarily limited to, building demolition and/or relocation, grading, materials laydown, access and infrastructure improvements, and building construction, could result in the disturbance of nesting migratory species covered under the MBTA. The most identifiable potential direct impact to migratory species would involve the removal of vegetation (esp. trees) within the Overlay Zone. Although no identifiable habitats exist within the Overlay Zone, this does not preclude the presence of migratory species nesting among the existing landscape vegetation. At this time, the precise number of trees that would be removed or the number of trees that could be indirectly impacted by construction activities, are not known. However, as mentioned above, the MBTA provides for the protection of migratory birds, including the non-permitted take of migratory birds. Implementation of mitigation measure MM-OZ 4.3-1 would reduce this potentially significant impact to

a less than significant level by ensuring that surveys for MBTA species are performed during the appropriate time of year and, if necessary, construction buffer zones are established to protect nesting MBTA species. As such, the following mitigation measure shall be implemented prior to the construction of any project-level development:

MM-OZ 4.3-1 *To ensure that avian species of concern, protected migratory species (e.g., MBTA), or raptors species are not injured or disturbed by construction in the vicinity of nesting habitat, the project applicant shall implement the following measures:*

1. *When feasible, all tree removal shall occur between August 30 and February 15 to avoid the breeding season of any raptor species that could be using the area, and to discourage hawks from nesting in the vicinity of an upcoming construction area. This period may be modified with the authorization of the DFG; or if it is not feasible to remove trees outside this window then, prior to the beginning of mass grading, including grading for major infrastructure improvements, during the period between February 15 and August 30, all trees within 350 feet of any grading or earthmoving activity shall be surveyed for active raptor nests by a qualified biologist no more than 30 days prior to disturbance. If active raptor nests are found, and the site is within 350 feet of potential construction activity, a fence shall be erected around the tree(s) at a distance of up to 350 feet, depending on the species, from the edge of the canopy to prevent construction disturbance and intrusions on the nest area. The appropriate buffer shall be determined by the City in consultation with CDFG.*
2. *No construction vehicles shall be permitted within restricted areas (i.e., raptor protection zones), unless directly related to the management or protection of the legally protected species.*
3. *In the event that a nest is abandoned, despite efforts to minimize disturbance, and if the nestlings are still alive, the developer shall contact CDFG and, subject to CDFG approval, fund the recovery and hacking (controlled release of captive reared young) of the nestling(s).*
4. *If a legally protected species nest is located in a tree designated for removal, the removal shall be deferred until after August 30th, or until the adults and young of the year are no longer dependent on the nest site as determined by a qualified biologist.*

Implementation of mitigation measure MM-OZ 4.3-1 would reduce the effects to migratory avian species to a ***less than significant*** level by identifying occupied nests, delaying construction if necessary, and providing a buffer zone around occupied nests to ensure that no take or destruction of nests or eggs occurs.

4.3.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less than significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The cumulative effects of the Overlay Zone are extremely limited due to its current state. The Overlay Zone has been developed, paved, landscaped and/or graded, and supports largely non-native plant species. The only cumulative impacts the Overlay Zone could have would be on migratory birds that are currently protected under the MBTA. Removal of vegetation within the Overlay Zone could result in the loss of nesting or roosting habitat. Implementation of mitigation measure MM-OZ 4.3-1 would ensure

that no significant impacts occur. Further, since implementation of the Overlay Zone also involves a landscape plan which would largely replace any vegetation removed during building construction, the Overlay Zone would not be cumulatively considerable, and cumulative impacts of the Overlay Zone would be ***less than significant***.

4.3.5 References

Abrams, 1923, L.. *Illustrated Flora of the Pacific States*, Volumes. I, II, and III, Stanford University Press, Stanford, CA.

———, 1960, *Illustrated Flora of the Pacific States*, Volume IV, Stanford University Press, Stanford, CA.

California Department of Fish and Game, January 2006, *California Natural Diversity Data Base, List of special plants*, Heritage Section.

———, 2005, *Fish and Game Code of California.*

California, State of, 1998, *Porter-Cologne Water Quality Control Act.*

——— *California Environmental Quality Act, Statutes and Guidelines*, 2005, Governor's Office of Planning and Research, Sacramento, CA.

California Native Plant Society, *Electronic Inventory of Rare and Endangered Vascular Plants of California*, 2006, California Native Plant Society, Sacramento, CA.

California Wilderness Coalition, November 2000, *Missing Linkages: Restoring Connectivity to the California Landscape*.

Garrett, K., and J. Dunn, 1981, *Birds of Southern California: Status and Distribution*, Los Angeles Audubon Soc., Los Angeles, CA.

Holland, V. L., and David J. Keil, 1989, *California Vegetation*, California Polytechnic State University, San Luis Obispo, El Corral Publications, San Luis Obispo, CA

MacArthur, R. H., and E. O. Wilson. 1967, *The Theory of Island Biogeography*, Princeton University Press, Princeton, NJ.

Munz, P.A, 1974, *A Flora of Southern California*, University of California Press: Berkeley, CA.

Sawyer, J. O. and T. Keeler-Wolf, 1995, *A Manual of California Vegetation*, California Native Plant Society, Sacramento, CA.

Stebbins, R. C., 1985, *A Field Guide to Western Reptiles and Amphibians*, 2nd ed., Houghton-Mifflin Company, Boston, MA.

U.S. Army Corps of Engineers and California Department of Fish & Game, 1998, Section 404 Permit and Section 1603 Streambed Alteration Agreement for Portions of the Santa Clara River and its Tributaries, Los Angeles County, Final Environmental Impact Statement/Environmental Impact Report.

4.4 CULTURAL RESOURCES

This section describes the cultural and historical resources present within the Overlay Zone and evaluates the potential impacts of the proposed project on these resources, as well as identifying available mitigation measures. Significant historical resources in the project area include buildings and municipal structures which could be considered eligible for listing on the National Register of Historic Places (NRHP) or the California Register of Historic Resources (CRHR). This analysis also addresses the potential for other cultural resources to be present within the Overlay Zone, including archaeological and paleontological resources and human burials, as well as the potential effects of the project on these resources. Data from various sources was used for the preparation of the section, including the City of Santa Ana's *Land Use Element EIR* (dated February 1998) and a cultural records search for the entire Overlay Zone, which includes information obtained from the South Central Coastal Information Center (SCCIC) through the California Historical Resources Information System (CHRIS).

One comment letter pertaining to Cultural Resources was received during the March 9, 2006 IS/NOP public scoping period. The letter from the Tustin Preservation Conservancy requested that the EIR address the potential impact that the proposed Overlay Zone would have on the historic resources in the City of Tustin. The comment letters from both public review periods for the IS/NOP are included in Appendix A, and their respective concerns and issues are addressed within this section. Full bibliographic entries for all reference material are provided in Section 4.4.5 (References) of this section.

4.4.1 Environmental Setting

Cultural resources are frequently defined in terms of tangible materials attributed to a culture. These include districts, sites, structures, networks, artifacts, and other evidence of human use considered important to a culture or community for scientific, traditional, religious, or other reasons. These resources may be historical, archaeological, architectural, or archival in nature.

The study area for cultural resources includes the area covered by the Overlay Zone, which consists of approximately 200 acres located in the southeastern portion of Santa Ana, California, as well as an additional 1/2-mile "buffer zone" area beyond the Overlay Zone boundaries. As illustrated in Figure 3-1 (Regional Location Map), the Overlay Zone area is generally bounded to the north by East Sixth Street, to the south and west by I-5, and to the east by Tustin Avenue.

Overview of the Project Area Historical Setting

Founded in 1869 by William Spurgeon, the City of Santa Ana originally consisted of approximately 43 acres that included 24 city blocks with 10 lots on each block. Commercial uses and a post office initially made up the city's center. Agricultural uses within and surrounding the City primarily consisted of citrus and walnuts. The expansion of rail lines in the area led to the expansion and growth of the City. In 1878, when the City had a population of 711 residents, Southern Pacific Railroad (SPRR) extended railroad ties through the area. By 1886 (the year the City incorporated), when the Atchison, Topeka & Santa Fe (AT&SF) Railroad was constructed, the City's population was 2,000 persons. In 1889, the

Orange County seat was re-established in Santa Ana, and a downtown area was established at Main and Broadway between First and Fourth Streets.

Turn of the century neighborhoods in the City include French Park, North Broadway, and Heninger Park. In the early part of the 1900's, large custom homes were built in the North Central, northeast, Floral Park, and Wilshire Square neighborhoods. By 1910, the City's population had grown to 8,429 persons and was the largest city in Orange County.

A review of historic maps (Anaheim 1896 and 1942 15' USGS) indicates that in 1896, a network of improved roads, scattered structures, the SPRR (Santa Ana, Tustin, Los Angeles and San Diego Branches), the AT&SF Railroad (San Diego and San Bernardino Branch) were present. By 1942, roads increased, structures increased, and only the SPRR (Santa Ana Branch and Los Angeles and San Diego Branch) remained. The City experienced a building boom for residential and public buildings in 1945.

The City has designated a number of historic districts within the City. These include Downtown Santa Ana, French Park (with 158 historic structures that have been included in the national Register of Historic Places), North Broadway, Heninger Park, Floral Park, North Central, Northeast, and Wilshire Square neighborhoods.

Definitions of Historical Resources

The *National Historic Preservation Act* established the NRHP to recognize resources associated with the country's history and heritage. Structures and features generally must be at least 50 years old to be considered for listing on the NRHP, barring exceptional circumstances. Criteria for listing on the NRHP, which are set forth in Title 26, Part 60 of the Code of Federal Regulations (36 CFR Part 60), are significance in American history, architecture, archaeology, engineering, and culture as present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and that meet any of the following criteria:

a. Associated with events that have made a significant contribution to the broad patterns of our history
b. Associated with the lives of persons significant in our past
c. Embody the distinctive characteristics of a type, period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction
d. Have yielded, or may be likely to yield, information important in prehistory or history. (See 36 CFR § 60.4)

The California Register of Historical Resources (CRHR) was created to identify resources deemed worthy of preservation on a State level and was modeled closely after the NRHP. The criteria are nearly identical to those of the NRHP, but focus upon resources of statewide significance. The criteria are set forth in Section 15064.5(a)(3) of the CEQA Guidelines, and are defined as any resource that does any of the following:

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

b. Is associated with lives of persons important in our past

c. 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

d. Has yielded, or may be likely to yield, information important in prehistory or history

The CRHR includes resources listed on the NRHP.

In addition, the CEQA Guidelines, Section 15064.5(a)(4) states:

> The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to Section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in Section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code Section 5020.1(j) or 5024.1

In addition, within the City and as established by the City Council, the Santa Ana Historic Resources Commission (HRC) maintains the Santa Ana Register of Historical Properties. The Santa Ana Register of Historical Properties lists those properties which were deemed to be locally historically significant per Chapter 30 of the City's municipal code. The criteria for determining a locally significant historical structure are explained in further detail under Section 4.4.2 below.

Identification of Historical Resources within the Overlay Zone

An archival records check for historic sites was made at the SCCIC for a study area encompassing the Overlay Zone and an additional ½-mile "buffer zone" beyond the Overlay Zone boundaries (SCCIC 2006). The records search includes a review of all study area cultural resource reports on file and historic maps for the Tustin and Orange, CA USGS quadrangle. Also, the California Points of Historical Interest (PHI), the California Historical Landmarks (CHL), the California Register of Historical Places (CR), the National Register of Historic Places (NR), and the California State Historic Resources Inventory (HRI) listings were reviewed for the project area. Additional historic records databases consulted for this analysis include the City of Santa Ana Register of Historic Properties (December 2005) and the City of Tustin Historical Survey (2002).

Refer to Appendix E of this EIR for the detailed results of the SCCIC records check and for a figure detailing the location of any known historical resources in relation to the Overlay Zone. According to the report, the California State HRI (2006) lists 119 properties that have been evaluated for historical significance within the study area. Among these properties that have been formally evaluated for historical significance, no historic resources are located within the Overlay Zone, but a total of fifteen historic resources have been identified within ½-mile of the Overlay Zone boundaries. The California PHI (2006) and the CHL (2006) have no properties listed within the study area. Both the CR (2006) and the NR (2006) list no properties within the Overlay Zone. However, two properties located within a ½-mile radius of the Overlay Zone boundaries (the Artz Building and the Sherman Stevens House) are

currently listed in the NR and CR with a Level 1 status, as noted in Table 4.4-1 (Significant Historical Resources within the Study Area).

The Santa Ana Register of Historical Properties (SARHP, 2006) is a listing of significant historical resources within the City of Santa Ana. A copy of the SARHP and accompanying map is included in Appendix E of this EIR. No properties included in the SARHP occur within the Overlay Zone. Two properties (the Safely House and the Quick-Watts House) occur within ½-mile of the Overlay Zone boundaries, as noted in Table 4.4-1. In addition, none of the City-designated historic districts noted above (e.g., Downtown Santa Ana, French Park, North Broadway, Heninger Park, Floral Park, North Central, Northeast, and Wilshire Square) occur within or within ½-mile of the Overlay Zone.

The City of Tustin Historical Survey (THS, 2006) is a listing of locally- and nationally-significant historical resources within the City of Tustin. A copy of the THS is included in Appendix E of this EIR. No properties included in the THS occur within the Overlay Zone. One property (Spanish Colonial Revival at 220 Tustin Avenue) occurs immediately adjacent to the Overlay Zone's eastern boundary, as noted in Table 4.4-1.

Table 4.4-1 Significant Historical Resources within the Study Area

Property ID #	*Address*	*Name/Description*	*Year Built*	*National and California Register Status*	*Within Overlay Zone?*
30-162095	150-158 W. Main Street, Tustin	Artz Building	1914	1S = Listed in NR and CR as an individual property	No
30-160206	228 W. Main Street, Tustin	Sherman Stevens House	1887	1S = Listed in NR and CR as an individual property	No
SOURCE: South Central Coastal Information Center - Records Search (2006)					
81	1541 East Fourth Street, Santa Ana	Safley House (Contributive)	Unknown; No Date Listed	Not included / local significance only	No
326	1602-1604 East Fourth Street, Santa Ana	Quick-Watts House (Landmark)	1911	7N = Needs to be reevaluated (not formally listed)	No
Source: Santa Ana Register of Historical Properties (2005)					
N/A	220 Tustin Avenue, Tustin	Spanish Colonial Revival	1929	Not included / local significance only	No
SOURCE: City of Tustin Historical Survey (2006)					

Archaeological Resources

According to the *City of Santa Ana Land Use Element EIR* (City of Santa Ana, 1997), an archaeological records search at the UCLA Institute of Archaeology indicated there is a single recorded prehistoric site within the City. The site, near Santiago Creek in the northwest section of the City, contained grinding stones and was disturbed by the development of a residential subdivision in 1965. An additional six prehistoric sites are located within one mile of the City boundaries. Eighteen post contact (following European contact) archaeological sites have also been identified in the City. None of these known

archaeological resources occur within the Overlay Zone boundaries. However, the presence of historic and archaeological sites in the City indicates that the City (including the Overlay Zone) has a potential for archaeological and historical resources and the resources of prehistoric and historic cultures may still be intact beneath existing developments.

An archival records search for known archaeological sites was made at the SCCIC for a study area encompassing the Overlay Zone and an additional ½-mile "buffer zone" beyond the Overlay Zone boundaries (SCCIC 2006). A copy of the records search is contained in Appendix E of this EIR. The records search includes a review of all recorded archaeological sites within the study area, as well as a review of cultural resource reports on file. According the SCCIC records search, no archaeological sites have been identified within the Overlay Zone or within the ½-mile radius beyond the Overlay Zone included in the study area. This does not preclude the potential for archaeological sites to be identified during future ground-disturbing construction activities.

Further, it should be noted that the Native American Heritage Commission was consulted with regard to the Overlay Zone and no known Native American cultural resources are know to occur in the area.

Paleontological Resources

Paleontological resources include fossil remains, fossil localities, and formations that have produced fossil material in other nearby areas. These resources are limited, nonrenewable, sensitive scientific and educational resources protected by federal environmental laws and regulations. As recognized here, paleontological resources include fossils preserved either as impressions of soft (fleshy) or hard (skeletal) parts, mineralized remains of skeletons, tracks, or burrows; other trace fossils; coprolites (fossilized excrement); seeds or pollen; and other microfossils from terrestrial, aquatic, or aerial organisms. Paleontological resources are generally found within sedimentary rock formations.

Within the Overlay Zone, there is a potential for undiscovered paleontological resources to occur, although the likelihood of occurrence is considered low. According to the *City of Santa Ana Land Use Element EIR* (City of Santa Ana, 1997), the majority of the City is disturbed and developed and thus, unlikely to contain intact paleontological resources.

4.4.2 Regulatory Framework

The treatment of cultural resources is governed by federal and state laws and guidelines. There are specific criteria for determining whether prehistoric and historic sites or objects are significant and/or protected by law. Federal and state significance criteria generally focus on the resource's integrity and uniqueness, its relationship to similar resources, and its potential to contribute important information to scholarly research. Some resources that do not meet federal significance criteria may, nevertheless, be considered significant by state criteria. The laws and regulations that seek to address and/or mitigate impacts on significant prehistoric or historic resources are summarized below.

Federal

The National Historic Preservation Act of 1966

The *National Historic Preservation Act of 1966* established the NRHP as the official federal list of cultural resources that have been nominated by state offices for their historical significance at the local, state, or national level. Properties listed in the NRHP, or "determined eligible" for listing, must meet certain criteria for historical significance and possess integrity of form, location, and setting. Significance is determined by four aspects of American history or prehistory recognized by the NRHP Criteria, which are listed below.

a. Associated with events that have made a significant contribution to the broad patterns of our history

b. Associated with the lives of persons significant in our past

c. Embody the distinctive characteristics of a type; period, or method of construction; represent the work of a master; possess high artistic values, represent a significant and distinguishable entity whose components may lack individual distinction

d. Have yielded, or may be likely to yield, information important in prehistory or history. (See 36 CFR §60.4)

Eligible properties must meet at least one of the criteria and exhibit integrity. Historical integrity is measured by the degree to which the resource retains its historical properties and conveys its historical character, the degree to which the original fabric has been retained, and the reversibility of changes to the property.

State

The California Register of Historic Resources (Public Resources Code Section 5020 et seq.*)*

The State Historic Preservation Office (SHPO) maintains the CRHR. Properties listed, or formally designated as eligible for listing, on the NRHP are automatically listed on the CRHR, as are State Landmarks and Points of Interest. The CRHR also includes properties designated under local ordinances or identified through local historical resource surveys.

State law seeks to protect cultural resources by requiring evaluations of the significance of prehistoric and historic resources in CEQA documents. A cultural resource is an important historical resource if it meets any of the criteria found in Section 15064.5(a)(3) of the CEQA Guidelines. These criteria, which are nearly identical to those for the NRHP, are listed below.

a. Is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage

b. Is associated with lives of persons important in our past

c. 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

d. Has yielded, or may be likely to yield, information important in prehistory or history

CEQA Guidelines, Section 15064.5(a)(4) also affords a lead agency the ability to determine whether a resource may be an historical resource without it being listed in the CRHR. Section 15064.5(a)(4) states:

> The fact that a resource is not listed in, or determined to be eligible for listing in the California Register of Historical Resources, not included in a local register of historical resources (pursuant to section 5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in section 5024.1(g) of the Public Resources Code) does not preclude a lead agency from determining that the resource may be an historical resource as defined in Public Resources Code section 5020.1(j) or 5024.1

California Health and Safety Code Sections 7050.5, 7051, and 7054

These sections collectively address the illegality of interference with human burial remains, as well as the disposition of Native American burials in archaeological sites. The law protects such remains from disturbance, vandalism, or inadvertent destruction, and establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project, including the treatment of remains prior to, during, and after evaluation, and reburial procedures.

California Public Resources Code Section 15064.5 (e)

This law addresses the disposition of Native American burials in archaeological sites and protects such remains from disturbance, vandalism, or inadvertent destruction. The section establishes procedures to be implemented if Native American skeletal remains are discovered during construction of a project and establishes the Native American Heritage Commission as the entity responsible to resolve disputes regarding the disposition of such remains.

Local

Santa Ana Municipal Code

The City of Santa Ana Historical Resources Commission (HRC), as established by Santa Ana Municipal Code Division 2.5, is a panel of nine members who are responsible for the local designation, by resolution and at a noticed public hearing, of a building or part thereof, object, structure, or site as having importance to the history or architecture of the City. To be eligible for a designation as a locally historic resource by the HRC, a historical resource must be 50 or more years old and satisfy one or more of the following conditions:

a. Buildings, structures, or objects with distinguishing characteristics of an architectural style or period, that exemplify a particular architectural style or design feature;

b. Works of notable architects, builders, or designers whose style influenced architectural development;

c. Rare buildings, structures, or objects or original designs;

d. Buildings, structures, objects, or sites of historical significance which include places:
   - Where historical 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.

e. Sites of archaeological importance; or

f. Buildings or structures that were connected with a business or use which was once common, but is now rare.

4.4.3 Project Impacts and Mitigation

Analytic Method

Significant effects upon historic structures or features are evaluated by determining the presence or absence of historic status with respect to the feature in question, and then determining the potential for the proposed development to affect the structure or feature if it possesses historic status. The likelihood that any of the new development would affect historical resources is dependent upon the proximity of the proposed development to identified historical resources within or adjacent to the Overlay Zone. Any future development project that is located on or in the proximity of any identified historical resources located within the Overlay Zone would have the potential to result in a significant impact to historical resources. Any future development project within the Overlay Zone that would cause a substantial adverse change in the significance of an historical resource would represent a significant impact related to historical resources.

In determining potential impacts, a "substantial adverse change" means "demolition, destruction, relocation, or alteration of the resource such that the significance of an historical resource would be materially impaired." (California Public Resources Code 5020.1(q).) The setting of a resource should also be taken into account in that it too may contribute to the significance of the resource, as impairment of the setting could affect the significance of a resource. Material impairment occurs when a project:

- Demolishes or materially alters in an adverse manner those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion in, or eligibility for, inclusion in the California Register of Historical Resources; or
- Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register of historical resources pursuant to Section 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code, unless the public agency reviewing the effects of the project establishes by a preponderance of evidence that the resource is not historically or culturally significant; or
- Demolishes or materially alters in an adverse manner those physical characteristics of a historical resource that convey its historical significance and that justify its eligibility for inclusion in the California Register of Historical Resources as determined by a lead agency for purposes of CEQA.(18 State CEQA Guidelines, 15064.5(b)(2)).

CEQA regulations further identify 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 Buildings (1995), Weeks and Grimmer, as the measure to be used in determinations of whether or not a project of new development or rehabilitation adversely impacts an "historical resource." Section 15064.5(b)(3) states:

> Generally, a project that follows 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 Buildings (1995), Weeks and Grimer, shall be considered as mitigated to a level of less than a significant impact on the historical resource.

Typical project impacts that may "disrupt or adversely affect...a property of historic or cultural significance" or cause a "substantial adverse change in the significance of an historical resource" may include the following:

- Demolition or substantial alteration without consideration of historic features;
- Incompatible massing, size, scale or architectural style of new development on adjacent properties;
- Obstruction or extensive shading of significant views to and from the property by new development;
- Incompatible use of an existing structure;
- Disruption of integrity of setting; or
- Long-term loss of access to the property.

The level of significance for an effect is dependent upon the existing integrity and nature of contributing elements to its historic or cultural significance, and the sensitivity of the current or historic use of the resource.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2005 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on cultural resources if it would result in any of the following:

- Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines
- Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines
- Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature
- Disturb any human remains, including those interred outside of formal cemeteries

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to cultural resources.

Effects Found to Be Less Than Significant

Threshold	Cause a substantial adverse change in the significance of a historical resource as defined in Section 15064.5 of the CEQA Guidelines

Impact 4.4-1 **Redevelopment of sites within the Overlay Zone could result in the demolition or major modification of historically-aged structures which have not yet been evaluated to determine their significance as defined by Section 15064.5 of the CEQA Guidelines, and this would be considered a significant impact. Compliance with the identified mitigation measure would reduce this impact to *less than significant*.**

As noted in Table 4.4-1 above, there are no documented significant historical resources (i.e., buildings, structures, landmarks, or historic districts) within the Overlay Zone, although five historically significant structures occur within ½-mile of the Overlay Zone boundaries. Therefore, impacts to existing formally-documented historic resources would be ***less than significant***, as no direct impacts would occur to any historic structures. Potential indirect impacts could occur to those structures located outside of the Overlay Zone in the form of shade/shadow impacts. Refer to Section 4.1 for a description of shade/shadow impacts.

However, it is expected that multiple structures within the Overlay Zone are currently 50+ years of age, or will be 50+ years of age in the future when actual redevelopment projects may be proposed. As such, redevelopment of sites within the Overlay Zone could result in the demolition or major modification of historically-aged structures which have not yet been evaluated to determine their cultural and/or architectural significance. Because of the site-specific nature of the historically-aged structures in relation to potential (not yet defined) future redevelopment, it is difficult to determine if actual adverse impacts will occur. Such impacts can only be determined once project sites have been chosen, development projects are designed, and affected 50+ year-old structures in the vicinity of the proposed project footprints are formally evaluated to determine their cultural significance.

If it is determined in the future that any existing historically-aged (50+ years old) structures in the Overlay Zone have cultural significance, and proposed future development would ultimately affect those structures, then potentially significant impacts would occur. Implementation of mitigation measure MM-OZ 4.4-1 would reduce potential impacts to a level that is ***less than significant***.

MM-OZ 4.4-1 *The City of Santa Ana shall require as part of the environmental review of development projects within the Overlay Zone that impacts to potentially significant historic resources be considered. If any existing structures on a proposed development site are at or approaching 50+ years of age at the time of CEQA review, the City shall retain the services of a qualified architectural historian to conduct a field survey of the structure in question and technical study to determine its potential historical significance and develop mitigation measures as necessary.*

Threshold	Cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines

Impact 4.4-2 **Implementation of the proposed project has the potential to cause a substantial adverse change in the significance of an archaeological resource pursuant to Section 15064.5 of the CEQA Guidelines, and this would be considered a significant impact. Compliance with the identified mitigation measure would reduce this impact to *less than significant*.**

As stated above, no known archaeological resources exist within the Overlay Zone, but archaeological resources have been documented within and near the City of Santa Ana. In addition, the Overlay Zone has already been subject to extensive disruption from previous development and may contain artificial fill materials. As such, any archaeological resources which may have existed within the Overlay Zone have likely been disturbed. While not expected, the remote potential exists that construction activities associated with ground disturbance within the Overlay Zone may unearth undocumented archaeological resources. This could result in a potentially significant impact. Implementation of mitigation measures MM-OZ 4.4-2 and MM-OZ 4.4-3 would reduce any potential impacts to a level that is ***less than significant***.

MM-OZ 4.4-2 *Due to the lack of cultural resource studies for the project site and in order to avoid damaging any unidentified cultural resources, a qualified archaeologist should be retained to monitor any significant ground-disturbing activities in undeveloped areas within the Overlay Zone, and any deep (10' or deeper) ground-disturbing activities in all areas of the Overlay Zone.*

MM-OZ 4.4-3 *In the event that archeological resources are unearthed during project subsurface activities, all earth-disturbing work within a 100-meter radius must be temporarily suspended or redirected until an archeologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.*

Threshold	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature

Impact 4.4-3 **Implementation of the proposed project has the potential to directly or indirectly destroy a unique paleontological resource or site, or unique geologic feature and this would be considered a significant impact. Compliance with the identified mitigation measure would reduce this impact to *less than significant*.**

The Overlay Zone area is not known to contain documented paleontological resources. Plant and animal fossils are typically found within sedimentary rock deposits. Given the geology of the project area, it is unlikely that unknown paleontological resources would exist within the Overlay Zone. In addition, the Overlay Zone area has already been subject to extensive ground disturbance and development. Any superficial paleontological resources that could have existed at one time have likely been previously unearthed by past development activities. While not anticipated, the remote potential remains for intact paleontological resources to exist at deep levels. If unanticipated paleontological resources are encountered and disturbed during construction-related ground disturbance, then impacts would be

potentially significant. Implementation of the following mitigation measure MM-OZ 4.4-4 would reduce any potential impacts to ***less-than-significant*** levels.

MM-OZ 4.4-4 *In the event that paleontological resources are unearthed during subsurface construction activities, all earth-disturbing work within a 100-meter radius of the find must be temporarily suspended or redirected until a paleontologist has evaluated the nature and significance of the find. After the find has been appropriately mitigated, work in the area may resume.*

Threshold	Disturb any human remains, including those interred outside of formal cemeteries

Impact 4.4-4 **Construction activities under the proposed project could result in the disturbance of human remains interred outside of formal cemeteries. However, compliance with the identified mitigation measures would ensure that this impact remains *less than significant*.**

No formal cemeteries are known to have occupied any portion of the Overlay Zone, so any human remains encountered would likely come from archaeological or historical archaeological contexts. Human burials, in addition to being potential archaeological resources, have specific provisions for treatment in Section 5097 of the California Public Resources Code (PRC) and Sections 7050.5, 7051, and 7054 of the California Health and Safety Code (HSC). Because no know archaeological sites are present in the project area and the area is underlain by disturbed soils, the presence of human remains is remote. However, if remains are encountered, disturbing these remains could violate PRC and HSC provisions, as well as destroy the resource. Implementation of MM-OZ 4.4-5 would ensure that this impact remains ***less than significant*** by ensuring appropriate examination, treatment, and protection of human remains, if any are discovered.

MM-OZ 4.4-5 *If human remains are unearthed, State Health and Safety Code Section 7050.5 require that no further disturbance shall occur until the County coroner has made the necessary findings as to origin and disposition pursuant to Public Resources Code Section 5097.98. If the remains are determined to be of Native American descent, the coroner has 24 hours to notify the Native American Heritage Commission (NAHC). The NAHC will then contact the most likely descendant of the deceased Native American, who will then serve as consultant on how to proceed with the remains.*

4.4.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

Because no actual construction is proposed as part of the Overlay Zone, implementation of the project would not directly contribute to any cumulative disturbances of historic resources within the Overlay Zone and the project's contribution to cumulative impacts is considered ***less than significant***. There are no existing formally-documented significant historic resources within the Overlay Zone. Because of the site-specific nature of historically-aged structures in relation to potential (not yet defined) future

redevelopment within the Overlay Zone, it is impossible to determine if actual adverse cumulative impacts to historic resources would occur. Such impacts can only be determined once project sites within the Overlay Zone have been chosen, development projects are designed, and affected 50+ year-old structures in the vicinity of the proposed project footprints are formally evaluated to determine their cultural significance.

Because no actual construction is proposed as part of the Overlay Zone, implementation of the project would not directly contribute to any cumulative disturbances of archaeological or paleontological resources within the Overlay Zone and the project's contribution to cumulative impacts is considered ***less than significant***. Potential (not yet defined) future redevelopment within the Overlay Zone could lead to cumulative impacts to unknown/undiscovered archaeological and paleontological resources, although such impacts would be ***less than significant*** due to the low likelihood of intact, undiscovered resources being present within the highly-developed and disturbed Overlay Zone.

4.4.5 References

Native American Heritage Commission, 2006. *Cultural Resource Identification Study/Sacred Lands File Search for Proposed Metro East Mixed Use Overlay Zone Project in Santa Ana (EIP Project #D20950.01): Orange County, California*. December 14.

Santa Ana, City of. 2005a. *Shea Homes Residential Project Focused EIR*. State Clearinghouse #2005041176. August.

_____. 2005b. *Santa Ana Register of Historical Properties*. December.

_____. 2004. *City of Santa Ana Historic Resources Map*. Updated December 31.

_____. 1997. *Draft EIR No. 97-01, Draft Land Use Element*. State Clearinghouse #97071058, prepared by Blodgett/Cunningham & Associates. October 16.

South Central Coastal Information Center. 2006. California Historical Resources Information System records search #6486.3700. May 2.

Tustin, City of. 2006. *City of Tustin Historical Survey*.

4.5 GEOLOGY AND SOILS

This section of the EIR describes the existing geology, soils, and seismic conditions in the Overlay Zone and analyzes the potential physical environmental effects related to seismic hazards and erosion. Data for this section were obtained from the City's General Plan and previous environmental documentation prepared for the City and nearby project sites.

No comment letters related to geology and soils were received in response to the September 5, 2006, Initial Study/Notice of Preparation (IS/NOP) circulated for the project. Full bibliographic entries for all reference material are provided in Section 4.5.5 (References) of this section.

4.5.1 Environmental Setting

Regional Geology

The Overlay Zone is situated in the Peninsular Ranges geomorphic province of California. The province is characterized by fault block northwest-trending mountain ranges with intervening valleys, plains, and basins. This province continues to the south well into Mexico.[4]

The general vicinity of the Overlay Zone is situated within the Santa Ana Coastal Plain, which is bound by the Santa Ana Mountains to the northeast, and the Chino Hills, Norwalk Hills, and Puente Hills to the north and northwest. The main fluvial bodies within this coastal plain, which account for most of the younger alluvial deposits, include the Santa Ana River, with headwaters in the San Bernardino Mountains; and Santiago Creek, El Modeno Creek, and Peters Canyon Wash, with headwaters in the Santa Ana Mountains.[5]

Major topographical features in the vicinity of the City include the Santa Ana River along the western section of the City, the Santa Ana Mountains to the northeast and east, the San Joaquin Hills to the southeast, and the Pacific Ocean to the south. South and west of the City are low hills and mesas along the coast which represent uplifts of the Newport-Inglewood fault zone. The topography in Santa Ana is generally flat with a slight slope of 0.5 percent from the northeast to the southwest.[6]

Local Geology

The Land Use Element of the Santa Ana General Plan identifies the soil association in the Overlay Zone as San Emigdio Fine Sandy Loam throughout the southern and eastern boundaries, and Mocho Loam in the central and western portions of the Overlay Zone. Both identified soil series in the Overlay Zone typically have a bedrock depth of greater than 60 feet with a low shrink/swell potential, and a high corrosion potential for uncoated steel but a low corrosion potential for concrete. The Overlay Zone is

[4] NDC Development, Preliminary Geologic/Geotechnical Investigation, 2006.
[5] NDC Development, Preliminary Geologic/Geotechnical Investigation, 2006.
[6] Santa Ana, Draft EIR 97-01 for Draft Land Use Element, 1997.

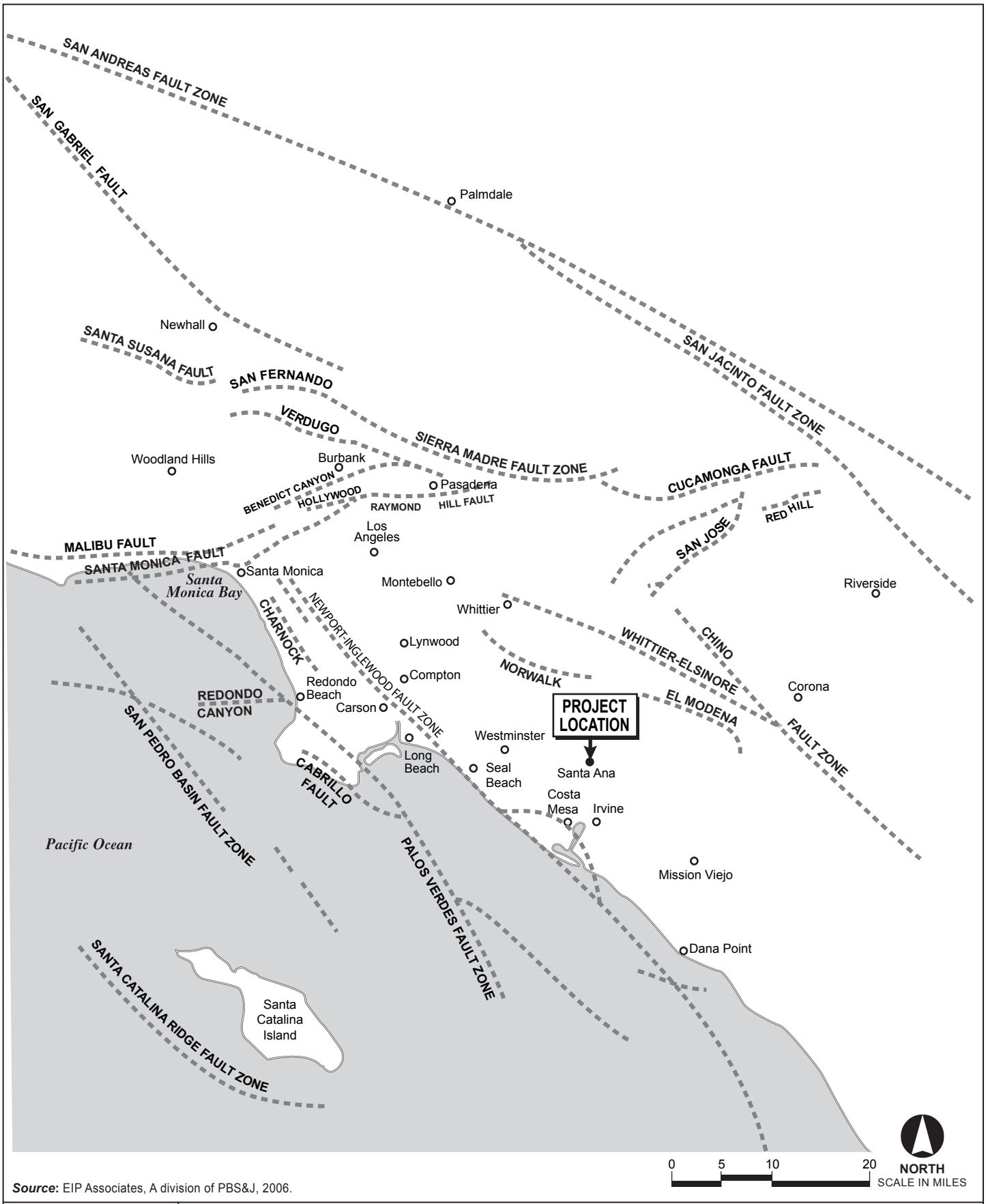
presently nearly fully developed with commercial and office uses and is characterized by a relatively flat terrain.

Faulting

An active fault is defined by the State of California as a well-defined fault that has exhibited surface displacement during the Holocene time (to about 11,000 years ago) and a potentially active fault is defined as having a history of movement within the Quaternary – Pleistocene Epoch (11,000 to 1.6 million years ago.)

The City of Santa Ana is located in the northern part of the Peninsular Ranges Province in the Tustin Plain portion of the Orange County Coastal Plain, an area that is exposed to risk from multiple earthquake fault zones. No faults, active, potentially active, or inactive are known to exist in Santa Ana. However, the City is in close proximity to two major faults: the Newport-Inglewood Fault Zone and the Whittier-Elsinore Fault Zone. The San Andreas and Raymond Faults are also proximate to Santa Ana. Of these faults, the Newport-Inglewood Fault Zone should be considered the most likely source for future earthquakes. Figure 4.5-1 (Regional Fault Map) illustrates the major regional faults in the vicinity of the City of Santa Ana and Table 4.5-1 outlines the probability of earthquakes along the various faults in the region.

- The Whittier fault zone extends along the southwestern base of the Puente Hills and has trapped migrating oil. The Whittier fault joins the Chino fault near Prado Dam, and they merge into the Elsinore fault zone which trends along the eastern base of the Santa Ana Mountains. The Elsinore and Whittier Fault zones have been grouped together by some scientists into the Whittier-Elsinore Fault Zone. No moderate or major earthquakes have been historically noted on this zone; however, much data has been developed indicating these fault zones to be active. The October 1 and 4, 1987 and February 19, 1988 earthquakes of M5.9, M5.3, and M5.0 respectively, were centered in the Whittier area, but did not occur on the Whittier Fault. The Whittier-Elsinore Fault Zone is located as close as approximately 12 miles to the northeast of the project site.
- The Newport-Inglewood fault zone extends northwest from offshore Newport Beach (where it continues southerly for an unclear distance as a series of deformation and fold zones) to Inglewood (a distance of over 40 miles) and, like the Whittier fault, has warped and fault marine sediments into ideal oil traps. Because the Newport-Inglewood is a broad zone of up to 3.5 miles wide (in Costa Mesa/Newport), it is referred to as the "Newport-Inglewood Structural Zone." This zone consists of discrete faulting, deformation, enechelon faults and northwesterly trending fold belts and hills. Significant study and data indicate this zone to be seismically active with numerous recorded earthquakes of generally small size. The most famous and documented earthquake in historic time on the Newport-Inglewood was the 1933 Long Beach Earthquake, which recorded a M6.3 event. The Newport-Inglewood Fault Zone is located as close as approximately nine to 11 miles to the south, with the offshore portion being as close as 12 miles south.



***Source*:** EIP Associates, A division of PBS&J, 2006.

EIP ASSOCIATES

A division of PBS&J

FIGURE **4.5-1**

Regional Fault Map

Table 4.5-1 Seismic Parameters for the City of Santa Ana

Potential Causative Earthquake Fault	Greatest Distance from Fault to City	Length of Fault	Maximum Credible Event	
			Richter Magnitude	Bedrock Acceleration at Site (Fraction of Gravity)
San Andreas Fault (South of Garlock Fault)	64 km 40 miles	500 km 310 miles	8.25	.20
Raymond Fault	48 km 30 miles	26 km 16 miles	6.8	.15
Whittier-Elsinore Agua Caliente Fault	20 km 12.5 miles	260 km 162 miles	7.1	.33
Newport-Inglewood Fault	13 km 8 miles	80(+) km 50(+) miles	7.1	.42

SOURCE: Santa Ana, City of. General Plan Safety Element – Seismic Chapter.

Other major regional active fault zones in the Southern California area include the San Andreas, the San Jacinto, and faults associated with the Transverse Ranges and Mojave Desert Geologic Provinces.

- The San Andreas is probably the best known of all fault systems in California, both because of its intense historic activity and destruction potential, as well as because it is a transform boundary between portions of the North American and Pacific crustal plates. The San Andreas is considered active along the majority of its length, owing to it being the main tectonic transform boundary between the Pacific Plate and North American Plate in the area. In addition to the segment which experienced creep in 1986 near North Palm Springs, some of the largest historic earthquakes in southern California have occurred on the San Andreas Fault north of Cajon Pass in 1812 and 1857. On the southerly segment of San Andreas, in the area of Indio and the Salton Sea, activity has been recorded several times historically, with surface expressions being produced by fault activity in 1968 and 1979. The San Andreas System passes as close as approximately 40 miles to the northeast.
- The San Jacinto fault is similar in character to the southerly portion of the San Andreas, and in fact joins up with the San Andreas in the vicinity of the south side of Cajon Pass. This fault zone extends from the Cajon Pass area, south to the Colorado River Delta area. Several historic earthquakes have occurred on the San Jacinto and related ancillary system faults, with nine notable occurrences between 1812 and 1968. The San Jacinto Fault Zone is located as close as approximately 38 miles to the northeast of the project site.
- Faults and blind thrust systems of the Transverse Ranges have also generated several large earthquakes, which have affected the San Ana historically. These events include the 1992 Big Bear (6.4M), 1972 Sylmar (M6.6), and 1994 Northridge (M6.8). These zones are generally over 30 to 50 or more miles north to northwest of the project site.
- Similarly, the large fault systems of the Mojave Desert Province have produced historical activity, and have been responsible for some of the largest earthquake activity in recent history in California. These include the 1992 Landers (M7.3), which involved major ground rupture along several fault zones; and the Hector Mine earthquake of 1999 (M7.1). These fault systems are all located over 65 miles away from the project site to the northeast.

- The El Moreno Fault complex located approximately 5 to 6 miles north of the project site near the Santiago Reservoir is shown on the 1994 California Division of Mines and Geology (CDMG) (*now California Geologic Survey, CGS)* "Fault Activity Map…" This fault zone is not considered active by the State; however, it is indicated as a Quaternary aged fault zone with some areas of Late Quaternary, but not Haloene, movement inferred.

Of all the fault zones listed, the Newport-Inglewood and the Whittier-Elsinore are considered to present the major deterministic seismic hazard due to both their proximity and maximum credible rupture potential. For "soft rock" conditions, a peak acceleration of 0.33g was determined. For alluvial conditions, considered to be more representative of the project site, a 0.36g acceleration was determined. A "Predominant Earthquake" of Moment Magnitude[7] (M_W) 6.8 was determined with a distance of 17km.

Seismic Hazards

Ground Rupture

Ground rupture, due to seismic activity and faulting, is not considered to be a high risk hazard to the area owing to the lack of known active fault traces crossing the Overlay Zone or in the near vicinity.

Groundshaking

The major cause of structural damage from earthquakes is groundshaking. The intensity of ground motion expected at a particular site depends upon the magnitude of the earthquake, the distance to the epicenter, and the geology of the area between the epicenter and the property. Greater movement can be expected at sites on poorly consolidated material, such as alluvium, within close proximity to the causative fault, or in response to an event of great magnitude.

Seismically Induced Settlement

Settlement occurs in areas prone to different rates of ground surface sinking and densification (differential compaction), and are underlain by sediments that differ laterally in composition or degree of existing compaction. Differential settlement can damage structures, pipelines and other subsurface entities.

Strong groundshaking can cause soil settlement by vibrating sediment particles into more tightly compacted configurations, thereby reducing pore space. Unconsolidated, loosely packed alluvial deposits and sand are especially susceptible to this phenomenon. Poorly compacted artificial fills may experience seismically induced settlement.

[7] Moment Magnitude is a logarithmic scale is to measure the total amount of energy released by an earthquake. For the purposes of describing this energy release, the moment magnitude (M_W) of the characteristic earthquake for that segment has replaced the concept of a maximum credible earthquake of a particular Richter magnitude.

Liquefaction

Liquefaction may occur when loose, unconsolidated, saturated fine- to medium-grained sandy soils are subjected to ground vibrations during a seismic event. This occurs in areas where the groundwater table is within 50 feet of the ground surface, and is generally associated with uncompacted, saturated or nearly saturated, non-cohesive sandy and silty soils. When loose soil sediments are shaken, a sudden increase in pore water pressure causes the soils to lose strength and behave as a liquid. If the liquefying layer is near the ground surface, the effects may resemble those of quicksand. If the layer is deep below the ground surface, it may provide a sliding surface for the material above it and/or cause differential settlement of the ground surface, which may damage building foundations by altering weight-bearing characteristics.

The City of Santa Ana is located in an area with relatively high groundwater, ranging from approximately 5 feet to 150 feet. However, according to the City's General Plan Seismic Safety Element, the Overlay Zone is identified as having a very low to low potential for liquefaction hazards.

Lateral Spreading

Lateral spreading involves the lateral displacement of surficial blocks of sediment (e.g., alluvium, terrace sands) as a result of liquefaction in a subsurface layer. The potential for liquefaction to occur in the Overlay Zone is considered low, and as a result, the potential for lateral spreading is also considered low.

Landslides

Landslides are the downward sliding of a mass of earth and rock. Landsliding is a geological phenomenon that includes a wide range of ground movements, such as rock falls, deep failure of slopes, and shallow debris flows. The project site and surrounding area are relatively flat, making the possibility for landslides extremely remote.

Subsidence and Expansive and Collapsible Soils

Subsidence involves a sudden sinking or gradual settling and compaction of soil and other surface material with little or no horizontal motion. According to Santa Ana's Land Use Element of the General Plan, subsidence hazards are generally associated with the pumping of oil from the Huntington Beach oil fields. Groundwater pumping may also lead to land subsidence. While no oil extraction activities are found in Santa Ana, groundwater extraction from wells used to supply water to development within the City are located throughout the City. According to the City's General Plan Seismic Safety Element, the Overlay Zone is identified as an area of potential subsidence.

Expansive soils have a significant amount of clay particles that can give up water (shrink) or take on water (swell). The change in volume exerts stress on buildings and other loads placed on these soils. The occurrence of these soils is often associated with geologic units having marginal stability. Expansive soils can be dispersed widely, found in hillside areas as well as low-lying areas in alluvial basins. Soils testing to identify expansive characteristics and appropriate mitigation measures are required routinely by grading and building codes.

Collapsible soils undergo a rearrangement of their grains, and a loss of cementation, resulting in substantial and rapid settlement under relatively low loads. Collapsible soils occur predominantly at the base of mountain ranges where Holocene-age alluvial fan and wash sediments have been deposited during rapid run-off events. Soils prone to collapse are commonly associated with man-made fill, wind-lain sands and silts, and alluvial fan and mudflow sediments deposited during flash floods. During an earthquake, even slight settlement of fill materials can lead to a differentially settled structure and significant repair costs. Differential settlement of structures can occur when heavily irrigated landscape areas are near a building foundation. Examples of common problems associated with collapsible soils include tilting floors, cracking or separation in structures, sagging floors, and nonfunctional windows and doors.

Soil Erosion

Soil erosion is the process by which soil particles are removed from a land surface by wind, water, or gravity. Most natural erosion occurs at slow rates; however, the rate of erosion increases when land is cleared or altered and left in a disturbed condition. Erosion can occur as a result of, and can be accelerated by, site preparation activities associated with development. Vegetation removal in previously landscaped areas could reduce soil cohesion, as well as the buffer provided by vegetation from wind, water, and surface disturbance, which could render the exposed soils more susceptible to erosive forces.

Additionally, excavation or grading may result in erosion during construction activities, irrespective of whether hardscape previously existed at the construction site, because bare soils would be exposed and could be eroded by wind or water. The effects of erosion are intensified with an increase in slope (as water moves faster, it gains momentum to carry more debris), and the narrowing of runoff channels (which increases the velocity of water). Surface improvements, such as paved roads and buildings, decrease the potential for erosion. Once covered, soil is no longer exposed to the elements.

The majority of the Overlay Zone is presently developed with office and commercial uses, along with associated parking lots and landscaping. However, there are a limited number of existing sites that are undeveloped and could be subject to erosion.

Tsunami and Seiche

The Overlay Zone is located several miles inland and large water bodies are not present in the vicinity. Therefore, the potential for tsunami or seiche at the project site are considered nil.

4.5.2 Regulatory Framework

■ Federal

Uniform Building Code

The Uniform Building Code (UBC) is published by the International Conference of Building Officials. It forms the basis of about half the State building codes in the United States, including California's, and has

been adopted by the State legislature together with Additions, Amendments, and Repeals to address the specific building conditions and structural requirements in California.

State

California Building Code

California Code of Regulations (CCR), Title 24, Part 2, the California Building Code (CBC), provides minimum standards for building design in the State, consistent with or more stringent than UBC requirements. Local codes are permitted to be more restrictive than Title 24, but are required to be no less restrictive. Chapter 16 of the CBC deals with General Design Requirements, including (but not limited to) regulations governing seismically resistant construction (Chapter 16, Division IV) and construction to protect people and property from hazards associated with excavation cave-ins and falling debris or construction materials. Chapters 18 and A33 deal with site demolition, excavations, foundations, retaining walls, and grading, including (but not limited to) requirements for seismically resistant design, foundation investigations, stable cut and fill slopes, and drainage and erosion control. Construction activities are subject to occupational safety standards for excavation, shoring, and trenching as specified in Cal-OSHA regulations (CCR, Title 8).

Among other things, the CBC defines different building regions in the state and ranks them according to their seismic hazard potential. There are four types of these regions: Seismic Zones 1 through 4, with Zone 1 having the least seismic potential and Zone 4 having the highest seismic potential. The Overlay Zone is located in Seismic Zone 4, as is about 45 percent of California. Accordingly, any future development would be required to comply with all design standards applicable to Seismic Zone 4, the most stringent in the state.

Alquist Priolo Earthquake Fault Zoning Act

The state legislation protecting the population of California from the effects of fault-lined ground-surface rupture is the Alquist-Priolo Earthquake Fault Zoning Act. In 1972, California began delineating Earthquake Fault Zones (called Special Studies Zones prior to 1994) around active and potentially active faults to reduce fault-rupture risks to structures for human occupancy. This Act has resulted in the preparation of maps delineating Earthquake Fault Zones to include, among others, recently active segments of the Newport-Inglewood structural zone. The Act provides for special seismic design considerations if developments are planned in areas adjacent to active or potentially active faults. The City of Santa Ana, including the Overlay Zone, is not crossed by any Alquist-Priolo Earthquake Fault Zones.

Seismic Hazards Mapping Act

The *Seismic Hazards Mapping Act* became effective in 1991 to identify and map seismic hazard zones for the purpose of assisting cities and counties in preparing the safety elements of their general plans and to encourage land use management policies and regulations that reduce seismic hazards. The intent of this Act is to protect the public from the effects of strong groundshaking, liquefaction, landslides, ground

failure, or other hazards caused by earthquakes. In addition, CGS's Special Publication 117, Guidelines for Evaluating and Mitigating Seismic Hazards in California, provides guidance for the evaluation and mitigation of earthquake-related hazards for projects in designated zones of required investigations.

National Pollution Discharge Elimination System (NPDES)

NPDES Phase I Permit (General Construction Activity Stormwater Permit)

As discussed in further detail in Section 4.7 (Hydrology and Water Quality), a Stormwater Pollution Prevention Plan (SWPPP) prepared in compliance with an NPDES Phase I Permit describes the project area, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of post-construction sediment and erosion control measures and maintenance responsibilities, and nonstormwater management controls. Dischargers are required to inspect construction sites before and after storms to identify stormwater discharge from construction activity, and to identify and implement controls where necessary.

Local

City of Santa Ana General Plan—Seismic Safety Element

The seismic Safety Element of the Santa Ana General Plan is primarily a vehicle for identifying hazards that must be considered in planning the location, type, and density of development throughout Santa Ana.

Goals

1. Provide a safe environment for all Santa Ana residents and workers.
2. Minimize the effects of natural disasters.

Objectives

1.1 Provide a high level of life safety in structures with high occupancy such as schools and hospitals.

1.2 Reduce risks presented by older structures with inadequate earthquake-resistant design.

1.3 Minimize seismic risk in the construction of new structures.

1.4 Minimize the probability of loss of function of key disaster response facilities in emergencies.

1.5 Minimize adverse impact on individuals and businesses of seismic disasters through assistance in reconstruction.

Implementation Policies

- Use a higher standard for structures with high occupancy than for other structures.
- Require older structures to meet minimum seismic standards within a reasonable time or be vacated.

- Locate and design key public facilities to minimize risk, including communication, command/control and emergency medical facilities.

Consistency Analysis

Future development in the Overlay Zone would be constructed in accordance with applicable provisions of the Santa Ana Building Code regarding seismic hazard and structural design. As discussed below under Impacts and Mitigation, future projects would be required to conduct site-specific geotechnical studies to address all potential geotechnical issues at the site and develop recommendations to prevent or abate any identified hazards. Future projects would incorporate recommendations included in the geotechnical reports. Therefore, implementation of the proposed project would not conflict with these applicable policies.

4.5.3 Project Impacts and Mitigation

Analytic Method

Widely available industry sources were examined to document regional and local geology. Information regarding regional geology and seismically induced hazards was taken from various sources of the CGS and the United States Geological Survey (USGS). Where potential geological hazards are identified, such hazards would be expected to affect any proposed development in the hazard area. Adherence to design and construction standards, as required by state and local regulations, would ensure maximum practicable protection for users of the buildings and associated infrastructure.

Thresholds of Significance

Based on environmental criteria outlined in Appendix G of the 2006 CEQA Guidelines, and in accordance with all applicable state and federal environmental laws, the project would have an adverse effect on the environment if it would:

- Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault
  - Strong seismic groundshaking
  - Seismic-related ground failure, including liquefaction
  - Landslides
- Result in substantial soil erosion or the loss of topsoil
- Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse

- Be located on expansive soil, as defined in Table 18-1-A of the California Building Code (2001), creating substantial risks to life or property
- Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater

Effects Found to Have No Impact

Threshold	Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: ■ Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? ■ Landslides?

As discussed previously there are no active Faults, or currently mapped Earthquake Fault Zone State Special Study Zones (formerly known as Alquist-Priolo Zones) within the Overlay Zone that would cause a fault rupture. The Overlay Zone is also not located within any currently mapped Seismic Hazard Zone, where a site-specific investigation to determine the location of any faults would be required. Additionally, the project site and surrounding area are relatively flat, making the possibility for landslides extremely remote. Consequently, there is no potential for landslides to occur on or near the proposed project site as a result of the proposed development. In summary, the proposed project would have ***no impact*** associated with exposing people or structures to rupture of a known earthquake fault or landslides and no further analysis is required in this EIR.

Threshold	Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

The City of Santa Ana is almost entirely built out with established utility services and new development would not require the use of septic tanks. For this reason, there would be ***no impact*** related to the capacity of soils to support septic tanks or other alternative waste water disposal systems. No further analysis of this issue is required in this EIR.

Effects Found to Be Less Than Significant

Threshold	Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: ■ Strong seismic groundshaking?

Impact 4.5-1 **Implementation of the proposed Overlay Zone could expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving strong seismic groundshaking. However, implementation of mitigation measure MM-OZ 4.5-1 would reduce this to a *less-than-significant* level.**

The Overlay Zone is located in close proximity to two major fault zones, including the Newport-Inglewood fault zone and the Whittier-Elsinore fault zone, each with the potential to cause moderate to large earthquakes that would cause ground shaking in Santa Ana and nearby communities. Consequently, the proposed project would expose on-site structures and people to substantial seismic hazards if an intense earthquake occurred along any of the major faults in the area. Active and potentially active faults in the Santa Ana area are capable of producing seismic shaking at the project site. Additionally, it is anticipated that the project site would experience ground acceleration caused by small and moderate magnitude earthquakes on distant active faults.

In order to reduce the risks associated with seismically induced groundshaking, it is necessary to take the location and type of subsurface materials into consideration when designing or retrofitting foundations and structures for a particular project site. Because the Overlay Zone site is in Seismic Zone 4, as is most of Southern California, structures are required to be designed in accordance with applicable parameters of the current CBC. Specific engineering design and construction measures as required by CBC for the construction of new buildings and/or structures would be implemented to anticipate and avoid the potential for adverse impacts to human life and property caused by seismically induced groundshaking. In addition, adherence to mitigation measure MM-OZ 4.5-1 would further ensure that site-specific construction measures would be implemented to reduce any additional geotechnical hazards, including groundshaking.

Following the proper design guidelines and construction measures outlined in the CBC and as required by mitigation measure MM-OZ 4.5-1 would reduce this risk to a ***less-than-significant*** level.

MM-OZ 4.5-1 *During project-specific building design of future development in the Overlay Zone, site-specific geotechnical studies shall be conducted under the direct supervision of a California Registered Engineering Geologist or licensed geotechnical engineer to assess detailed seismic, geological, soil, and groundwater conditions at each construction site and develop recommendations to prevent or abate any identified hazards. The report shall specify foundation recommendations to ensure issues associated with underlying soils are addressed. Construction of the project shall comply with all recommendations in the geotechnical report. The study shall follow applicable recommendations of CDMG Special Publication 117 where applicable and shall include, but not necessarily be limited to*

- *Determination of the locations of any suspected fault traces and anticipated ground acceleration at the building site*
- *Potential for displacement caused by seismically induced shaking, liquefaction, differential soil settlement, expansive and compressible soils, or other earth movements or soil constraints*
- *Evaluation of depth to groundwater*

Threshold	Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving: ■ Seismic-related ground failure, including liquefaction?

Impact 4.5-2 **Implementation of the proposed project could expose people or structures to potential substantial adverse effects, including the risk of loss, injury or death involving seismic-related ground failure, including liquefaction. However, implementation of mitigation measure MM-OZ 4.5-1 would reduce this impact to a *less-than-significant* level.**

The Overlay Zone is located in a low potential liquefaction hazard area as identified in the City's Seismic Safety Element of the General Plan. Despite being in a low hazard area for liquefaction, the City requires compliance with the CBC and all provisions related to construction and design guidelines which prevent injury or other adverse effects potentially caused by liquefaction. Among the provisions of the CBC that would be implemented by the proposed project would be the conformance of all proposed facilities at the project site to the seismic-resistant design standards designated for Seismic Zone 4, and the incorporation of additional seismic-resistant earthwork and construction design criteria as recommended by project-specific geotechnical reports with implementation of mitigation measure MM-OZ 4.5-1. Adherence by the proposed development structures to CBC guidelines and geotechnical reports would ensure that proper foundations would be designed to safeguard against the potential risks associated with liquefaction. This impact is considered ***less than significant*** and no additional mitigation is required.

Threshold	Would the project result in substantial soil erosion or the loss of topsoil?

Impact 4.5-3 **Implementation of the Overlay Zone could result in soil erosion and the loss of topsoil. However, compliance with applicable regulations would ensure that this impact remains *less than significant*.**

Topsoil is the uppermost layer of soil, usually the top 6 to 8 inches. It has the highest concentration of organic matter and microorganisms, and is where most biological soil activity occurs. Plants generally concentrate their roots in, and obtain most of their nutrients from, this layer. Topsoil erosion is of concern when the topsoil layer is blown or washed away, which makes plant life or agricultural production impossible. Much of the Overlay Zone is built out and topsoil erosion is, thus, not an issue for the majority of the area. However, there are limited undeveloped areas that could be affected by loss of topsoil if developed.

Future development under the proposed project could involve the demolition of existing structures, followed by grading and excavation activities prior to the construction of new development. The

uncovered on-site soil would be exposed to erosional processes during these phases of construction. However, operational activities such as the addition of paved and landscaped areas would, over the long term, decrease the potential for erosion, particularly on the existing limited undeveloped sites, because less exposed soil would exist in the Overlay Zone.

Specific erosion impacts would depend largely on the areas affected and the length of time soils are subject to conditions that would be affected by erosion processes. All demolition and construction activities within the City would be required to comply with CBC Chapter 70 standards, which would ensure implementation of appropriate measures during grading activities to reduce soil erosion. In addition, all construction activities would comply with Chapter 33 of the CBC, which regulates excavation activities and the construction of foundations, and Appendix Chapter 33 of the CBC, which regulates grading activities, including drainage and erosion control.

Further, all new development would also be subject to regional and local regulations pertaining to construction activities. Specifically, development that is greater than 5 acres would be required to comply with the provisions of the General Construction Activity Stormwater Permit adopted by the State Water Resources Control Board (SWRCB), which would require the employment of Best Management Practices (BMPs) to limit the extent of eroded materials from a construction site. All development that is between 1 and 5 acres would be required to comply with the provisions of the NPDES Phase II regulations concerning the discharge of eroded materials and pollutants from construction sites.

Compliance with the CBC and the NPDES permits would minimize effects from erosion and ensure consistency with the RWQCB Water Quality Control Plan. In view of these regulations, implementation of the Overlay Zone would have a ***less than significant*** impact associated with soil erosion or topsoil. No mitigation is required.

Threshold	Would the proposed project be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?

Impact 4.5-4 **Implementation of the proposed project could subject people and structures to hazards associated with lateral spreading, subsidence, or collapse. However, adherence to MM-OZ 4.5-1 and the CBC would ensure that this impact would be *less than significant*.**

Impacts related to landslides are addressed under the Effects Not Found to Be Significant section, and impacts related to liquefaction are addressed in Impact 4.5-2.

Using unsuitable soils would have the potential to create future lateral spreading, subsidence, or collapse problems leading to building settlement and/or utility line disruption. When weak soils are re-engineered specifically for stability prior to use, these potential effects can be reduced or eliminated. An acceptable degree of soil stability would be achieved for expansive, liquefaction-prone, and compressible soils by the incorporation of soil treatment programs (replacement, grouting, compaction, drainage control, etc.) in the excavation and construction plans to address site-specific soil conditions. A site-specific evaluation of soil conditions is required by mitigation measure MM-OZ 4.5-1 and must contain recommendations for

ground preparation and earthwork specific to the site, that become an integral part of the construction design.

As part of the construction permitting process, future developers in the Overlay Zone would be required to prepare geotechnical reports to identify potentially unsuitable soil conditions including liquefaction, subsidence, and collapse. The evaluations must be conducted by registered soil professionals, and measures to eliminate inappropriate soil conditions must be applied, depending on the soil conditions. Adherence to mitigation measure MM-OZ 4.5-1 as well as specified design provisions in the CBC would ensure the maximum practicable protection available for users of buildings and infrastructure and associated trenches, slopes, and foundations. This impact is considered ***less than significant***, no additional mitigation is required.

Threshold	Would the proposed project be located on expansive soil, as defined in Table 18-1-B of the uniform Building Code (1994), creating substantial risks to life or property?

Impact 4.5-5 **Future development under the proposed Overlay Zone could be located on expansive soil. However, implementation of MM-OZ 4.5-2 would reduce this impact to a *less-than-significant* level.**

The Overlay Zone is greater than 200 acres in size, and as such, does not contain uniform soil types throughout the project area. In addition, because implementation of the proposed project does not identify specific development projects within the Overlay Zone (other than the NDC development, which is analyzed separately in Volume II of this EIR), it would be inconclusive to classify the entire Overlay Zone as having a particular expansive soil potential because different soil types have varying degrees of expansion potential. Consequently, additional tests should be conducted at each future project site to determine the expansion potential of the near surface materials that may influence the structural elements of the projects. Final design recommendations should be based on the results of those tests.

MM-OZ 4.5-2 *Developers within the Overlay Zone shall conduct expansion index tests in accordance with UBC Standard 18-2 prior to project construction. The design of structural elements of future projects shall include recommendations set forth by the expansion index tests.*

With implementation of mitigation measure MM-OZ 4.5-2, appropriate construction standards would ensure that impact of expansive soils on future development would be ***less than significant***.

4.5.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less than significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of impacts resulting from geologic hazards generally is site-specific, rather than cumulative in nature, because each project site has a different set of geologic considerations that would be subject to specific site development and construction standards. As such, the potential for cumulative impacts to occur is limited.

Impacts associated with potential geologic hazards related to soil or other conditions would occur at individual building sites. These effects are site-specific, and impacts would not be compounded by additional development. Buildings and facilities in the City of Santa Ana would be sited and designed in accordance with appropriate geotechnical and seismic guidelines and recommendations, consistent with the requirements of the UBC. Adherence to all relevant plans, codes, and regulations with respect to project design and construction would provide adequate levels of safety, and the cumulative impact would be less than significant. Such adherence would ensure that the proposed Overlay Zone would not result in a cumulatively considerable contribution to cumulative impacts regarding seismic groundshaking or expansive soils, and, therefore, the cumulative impact of the project would be ***less than significant***.

Impacts from erosion and loss of topsoil from site development and operation can be cumulative in effect within a watershed. The San Diego Creek Watershed[8] forms the geographic context of cumulative erosion impacts, and includes portions of the cities of Costa Mesa, Irvine, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana, and Tustin. Impacts associated with potential geologic hazards related to erosion or the loss of topsoil occurs in areas with exposed undeveloped land. Development throughout watershed, which covers central Orange County, is subject to state and local runoff and erosion prevention requirements, including the applicable provisions of the general construction permit, BMPs, and Phases I and II of NPDES permit process. These measures are implemented as conditions of approval of project development and subject to continuing enforcement. As a result, it is anticipated that cumulative impacts on the San Diego Creek Watershed due to runoff and erosion from cumulative development activity would be less than significant. Because the Overlay Zone would not increase the amount of exposed soil which could result in erosion of the loss of topsoil and all construction resulting from the Overlay Zone would be regulated in regards to erosion impacts, the cumulative impact would be less than significant. The proposed Overlay Zone would not result in a cumulatively considerable contribution to cumulative impacts regarding erosion and the loss of topsoil and, therefore, would be considered ***less than significant***.

4.5.5 References

California Geologic Survey. Earthquakes.
http://www.conservation.ca.gov/CGS/geologic_hazards/earthquakes/index.htm . Accessed 4-2-06.

Santa Ana, City of. 1982. General Plan, Seismic Element. September.

Southern California Earthquake Data Center. Fault Map of Southern California.
http://www.data.scec.org/index.html. Accessed 4-2-06.

United States Geologic Survey. Earthquake Hazards Program. http://earthquake.usgs.gov/. Accessed 4-2-06.

[8] Orange County Watershed & Coastal Resources website: http://www.ocwatersheds.com/watersheds/intro_aerial.asp, accessed October 4, 2006.

4.6 HAZARDS AND HAZARDOUS MATERIALS

This section describes the potential adverse impacts of the proposed project on human health or the environment due to exposure to hazardous materials or conditions within the Overlay Zone. Hazardous materials include, but are not limited to, hazardous substances, hazardous wastes, and any material that a business or local implementing agency has a reasonable basis for believing would be injurious to the health and safety of persons, or harmful to the environment if released. Data used to prepare this section were taken from various sources, including the Environmental Data Resources (EDR) Report (Appendix F) as well as other environmental documents prepared for the City.

No comment letters related to hazards and hazardous materials were received in response to the September 5, 2006, Initial Study/Notice of Preparation (IS/NOP) circulated for the project. However, two comment letters were received during the first IS/NOP scoping period (originally filed March 9, 2006 and was subsequently re-circulated on September 5, 2006 due to a change in the project). One comment letter was from the Airport Land Use Commission (ALUC) for Orange County John Wayne Airport (JWA) and the other was from the Department of Toxic Substances. Both comment letters are included in Appendix A, and their respective concerns and issues are addressed within this section. Full bibliographic entries for all reference material are provided in Section 4.6.5 (References) of this section.

4.6.1 Environmental Setting

Definitions

Chapter 6.5 of the *California Health and Safety Code* sets forth definitions and regulations related to hazardous materials management and disposal. This EIR uses the definition given in this chapter, which defines a hazardous material as:

> Any material that, because of its quantity, concentration, or physical or chemical characteristics, poses a significant present or potential hazard to human health and safety or to the environment if released into the workplace or environment. "Hazardous Materials" include but are not limited to, hazardous substances, hazardous waste, and any material which the handler or the administering agency has a reasonable basis for believing that it would be injurious to the health and safety of persons or harmful to the environment of released into the workplace or environment.

A "hazardous waste" for the purpose of this analysis, is any hazardous material that is abandoned, discarded, or recycled, as defined by Section 25124 of the California Heath and Safety Code. The criteria that characterize a material as hazardous include ignitability, toxicity, corrosivity, reactivity, radioactivity, or bioactivity.

Hazardous Materials Use

Hazardous materials in the City are routinely used, stored, and transported in commercial/retail businesses as well as in educational facilities, hospitals, and households. Hazardous materials users and waste generators in the City include businesses, public and private institutions, and households. Federal,

State, and local agency databases maintain comprehensive information on the locations of facilities using large quantities of hazardous materials, as well as facilities generating hazardous waste.

Transportation of Hazardous Materials

As discussed in the City's Public Safety Element of the General Plan, the transportation of hazardous materials through the City is an unavoidable consequence of its location along several major transportation routes—I-5, SR-22, and SR-55, the AT&SF rail line, and Southern Pacific rail line.

The Overlay Zone is bordered between I-5 and SR-55. Due to the volume of traffic and the nature of materials transported on these roadways, there is a heightened risk of a hazardous material leak or spill near the Overlay Zone. The transport of hazardous materials through the City itself is regulated by the California Department of Transportation (Caltrans) and California Highway Patrol (CHP).

Existing Hazardous Materials Sites

Table 4.6-1 (EDR Findings within Overlay Zone) summarizes the existing hazardous materials sites located within the Overlay Zone, as identified in the EDR report prepared for the proposed project.

As shown above in Table 4.6-1, there are 24 existing locations within the Overlay Zone that are listed on government databases associated with hazardous waste. Because specific details about each of these identified sites are unknown, it is possible that remediation or cleanup efforts have already taken place for at least some of these sites. However, the potential for contamination exists in multiple locations. In addition to the identified sites within the Overlay Zone, the EDR report prepared for the project also identified various sites within the surrounding vicinity that were also listed on the various regulatory databases. This information can be found in the EDR report in Appendix F.

Aviation Hazards

The City of Santa Ana borders the northern portion of the John Wayne Airport (JWA). The proposed Overlay Zone is located approximately 6.5 miles northeast of JWA. Accidents resulting in one or more fatalities involving commercial aircraft are rare events. Potential impacts will be significantly reduced by coordinated response operations of all available emergency services. JWA is protected by an on-site airport fire service as required by the Federal Aviation Administration (FAA) regulations. This service is provided by Orange County Fire Station No. 33.

Table 4.6-1 EDR Findings within Overlay Zone			
Name	*Address*	*Database**	*Additional Information (Status / Waste Category/etc)*
Envirotech	1801 E. Park Court Pl., Unit 120	RCRA—SQG	Transporter violation
		FINDS	N/A
Xerox Centre Partners	1851 East First Street	RCRA—SQG	No violation
		FINDS	N/A
		HAZNET	Off-specification, aged, or surplus organics
Xerox Engineering Systems	1851 East First Street	HAZNET	Empty pesticide containers 30 gallons or more; hydrocarbon solvents; off-specification, aged, or surplus organics
Freeway Auto Body	2000 East First Street	RCRA—SQG	No violations found
		FINDS	N/A
		EMI	Total organic hydrocarbon gases tons/yr: 1 Reactive organic gases tons/yr: 1
Santa Ana CHR PLY and Isuzu	2000 East First Street	RCRA - SQG	No violations found
		FINDS	N/A
		CA FID	N/A
		HIST UST	1 tank used for waste
		SWEEPS	Waste oil
		HAZNET	Unspecified oil-containing waste; unspecified aqueous solution; aqueous solution with 10% or more organic residues
Not reported	203 N. Golden Circle Dr	ERNS	N/A
Not reported	2110 East First Street	ERNS	N/A
		CHMIRS	Petroleum/waste oil
American Red Cross	601 Golden Circle	LUST	N/A
		CA FID	N/A
		SWEEPS	M.V. Fuel/Reg Unleaded
		HAZNET	Waste oil and mixed oil
American Red Cross	600 N. Parkcenter Dr.	CA FID	N/A
		SWEEPS	M.V. Fuel/Diesel
		HAZNET	Biological waste other than sewage sludge; unspecified aqueous solution; aqueous solution with 10% or more organic residues
Not reported	1814 East First Street	CA FID	N/A
		HIST UST	Gas station
		SWEEPS	Unknown

Table 4.6-1 EDR Findings within Overlay Zone

Name	Address	Database*	Additional Information (Status / Waste Category/etc)
Honda Santa Ana	2114 East First Street	HIST UST	Two tanks; one with unleaded fuel and the other with waste oil
		SWEEPS	M.V. Fuel/ Reg Unleaded; waste oil
		Orange Co. Industrial Site Cleanup	Waste (or slop) oil, organic compounds
		HAZNET	Aqueous solution with 10% or more total organic residues; unspecified oil containing waste; waste oil and mixed oil; organic liquids (nonsolvents) with halogens
Formerly dry cleaners-FCP PROP	13875 Tustin Avenue	Orange Co. Industrial Site Cleanup	Perchloroethylene, Trichloroethylene. Closed.
Snow White Dry Cleaners	2031 East First Street	Drycleaners	N/A
		HAZNET	Halogenated solvents
		HAZNET	Halogenated solvents
Perfect Dry Cleaners	2031 East First Street	HAZNET	Halogenated solvents; unspecified organic liquid mixture
Signature Services	550 Parkcenter	HAZNET	Polychlorinated byphenyls and material containing PCB's
Signature Services	2030 Fourth Street	HAZNET	Organic liquids (nonsolvents) with halogens
Knox Services	1971 East Fourth Street	HAZNET	Photochemicals/photo processing waste
The Arbors	2101 East Fourth Street	HAZNET	Polychlorinated byphenyls and material containing PCB's
Tustin/Santa Ana Medical Office	1900 East Fourth Street	HAZNET	Metal sludge
Kaiser	1900 East Fourth Street	HAZNET	Tank bottom waste
State Fund Building	1750 East Fourth Street	HAZNET	Latex waste; unspecified solvent mixture waste
US Car Nation	2114 East First Street	HAZNET	Oil/water separation sludge
United Photo Club	1851 East First Street, Unit A	HAZNET	Hydrocarbon solvents
Onan-Cummins Power	601 N. Golden Circle Dr.	EMI	N/A

SOURCE: EDR, EDR Data Map Area Study for the Metro East Mixed Use Overlay Zone. May 10, 2006.

Four locations that were identified on the EDR listed site map were not included within this table because the map locations of the identified sites were not accurate, and were not within the overlay zone.

RCRA-SQG—Resource Conservation and Recovery Act-Small Quantity Generator. Database includes selective information on sites which generate, transport, store, treat, and/or dispose of hazardous waste.

ERNS—Emergency Response Notification System. Records and stores information on reported releases of oil and hazardous substances.

FINDS—Facility Index System. Contains both facility information and "pointers" to other sources of information that contain more detail.

LUST—Leaking Underground Storage Tank. Contain an inventory of reported leaking underground storage tank incidents.

CA FID (UST)—California Facility Index Database. Contains active and inactive underground storage tank locations

HIST UST—Historical UST registered database

SWEEPS—Statewide Environmental Evaluation and Planning System. This underground storage tank listing is no longer updated and maintained.

CHMIRS—California Hazardous Material Incident Report System. Contains information on reported hazardous materials incidents (i.e., accidental releases or spills)

HAZNET—This data is extracted from the copies of hazardous waste manifests received each year by the DTSC

EMI—Emissions Data Inventory. Toxics and criteria pollutant emissions data collected by the ARB and local air pollution agencies

Emergency Response

The Santa Ana Fire Department is responsible for hazardous materials incidents within the City, and they maintain a constantly staffed Hazardous Materials Response Team (Haz-Mat Team) at Fire Station #9. The Haz-Mat Team provides emergency response to any and all incidents, whether accidental or intentional, involving hazardous materials within the City. Through a contractual agreement, they also respond as a mutual-aid resource throughout Orange County.

The Haz-Mat team responds with four personnel (a captain, engineer, two firefighters) and two pieces of apparatus. The main apparatus is the Haz-Mat Squad. The Squad carries state-of-the-art chemical protective clothing, various chemical detection instruments, communication devices and decontamination supplies. The other apparatus, the Transport, carries supplies used mostly in petroleum-based spills.

4.6.2 Regulatory Framework

A number of federal, State, and local laws have been enacted to regulate the management of hazardous materials. Implementation of these laws and the management of hazardous materials are regulated independently of the CEQA process through programs administered by various agencies at the federal, State, and local levels. An overview of the key hazardous materials laws and regulations that apply to the proposed General Plan Update is provided below.

Federal

Several Federal agencies regulate hazardous materials. These include the EPA, the Occupational Safety and Health Administration (OSHA), and the DOT. Applicable Federal regulations are contained primarily in Titles 10, 29, 40, and 49 of the Code of Federal Regulations (CFR). In particular, Title 49 of the CFR governs the manufacture of packaging and transport containers, packing and repacking, labeling, and the marking of hazardous material transport. Some of the major Federal laws and issue areas include the following statutes (and regulations promulgated thereunder):

- Resources Conservation and Recovery Act (RCRA)—hazardous waste management
- Hazardous and Solid Waste Amendments Act (HSWA)—hazardous waste management
- Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)—cleanup of contamination
- Superfund Amendments and Reauthorization Act (SARA)—cleanup of contamination
- Emergency Planning and Community Right-to-Know (SARA Title III)—business inventories and emergency response planning

The EPA is the primary federal agency responsible for the implementation and enforcement of hazardous materials regulations. In most cases, enforcement of environmental laws and regulations established at the Federal level is delegated to State and local environmental regulatory agencies.

In addition, with respect to emergency planning, the Federal Emergency Management Agency (FEMA) is responsible for ensuring the establishment and development of policies and programs for emergency

management at the federal, State, and local levels. This includes the development of a national capability to mitigate against, prepare for, respond to and recover from a full range of emergencies.

State

Primary state agencies with jurisdiction over hazardous chemical materials management are the Department of Toxic Substances Control (DTSC) and the Regional Water Quality Control Board (RWQCB). Other State agencies involved in hazardous materials management are the Department of Industrial Relations (State OSHA implementation), Office of Emergency Services (OES—California Accidental Release Prevention implementation), Department of Fish and Game (DFG), Air Resources Board (ARB), Caltrans, State Office of Environmental Health Hazard Assessment (OEHHA—Proposition 65 implementation) and California Integrated Waste Management Board (CIWMB). The enforcement agencies for hazardous materials transportation regulations are the CHP and Caltrans. Hazardous materials and waste transporters are responsible for complying with all applicable packaging, labeling, and shipping regulations.

Hazardous chemical and biohazardous materials management laws in California include the following statutes (and regulations promulgated thereunder):

- *Hazardous Materials Management Act*—business plan reporting
- *Hazardous Waste Control Act*—hazardous waste management
- *Safe Drinking Water and Toxic Enforcement Act of 1986* (Proposition 65)—releases of and exposure to carcinogenic chemicals
- *Hazardous Substances Act*—cleanup of contamination
- Hazardous Waste Management Planning and Facility Siting (*Tanner Act*)
- Hazardous Materials Storage and Emergency Response
- *California Medical Waste Management Act*—medical and biohazardous wastes

State regulations and agencies pertaining to hazardous materials management and worker safety which are applicable to the City and proposed General Plan Update are described below.

California Environmental Protection Agency

The California EPA (Cal/EPA) has broad jurisdiction over hazardous materials management in the state. Within Cal/EPA, the DTSC has primary regulatory responsibility for hazardous waste management and cleanup. Enforcement of regulations has been delegated to local jurisdictions that enter into agreements with DTSC for the generation, transport, and disposal of hazardous materials under the authority of the Hazardous Waste Control Law.

Along with the DTSC, the RWQCB is responsible for implementing regulations pertaining to management of soil and groundwater investigation and cleanup. RWQCB regulations are contained in Title 27 of the California Code of Regulations (CCR). Additional state regulations applicable to hazardous materials are contained in Title 22 of the CCR. Title 26 of the CCR is a compilation of those sections or titles of the CCR that are applicable to hazardous materials.

Department of Toxic Substances Control

RCRA of 1976 is the principal Federal law that regulates the generation, management, and transportation of hazardous materials and other wastes.

The DTSC regulates hazardous waste in California primarily under the authority of the Federal RCRA, and the California Health and Safety Code. Other laws that affect hazardous waste are specific to handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning. In addition, DTSC reviews and monitors legislation to ensure that the position reflects the DTSC's goals. From these laws, DTSC's major program areas develop regulations and consistent program policies and procedures. The regulations spell out what those who handle hazardous waste must do to comply with the laws. Under RCRA, DTSC has the authority to implement permitting, inspection, compliance, and corrective action programs to ensure that people who manage hazardous waste follow State and Federal requirements. As such, the management of hazardous waste in the Planning Area would be under regulation by the DTSC to ensure compliance with State and Federal requirements pertaining to hazardous waste.

California law provides the general framework for regulation of hazardous wastes by the Hazardous Waste Control Law (HWCL) passed in 1972. DTSC is the State's lead agency in implementing the HWCL. The HWCL provides for State regulation of existing hazardous waste facilities, which include "any structure, other appurtenances, and improvements on the land, used for treatment, transfer, storage, resource recovery, disposal, or recycling of hazardous wastes," and requires permits for, and inspections of, facilities involved in generation and/or treatment, storage and disposal of hazardous wastes.

Tanner Act

Although there are numerous State policies dealing with hazardous waste materials, the most comprehensive is the *Tanner Act* (AB 2948) that was adopted in 1986. The *Tanner Act* governs the preparation of hazardous waste management plans and the siting of hazardous waste facilities in the State of California. The act also mandates that each county adopt a Hazardous Waste Management Plan. To be in compliance with the *Tanner Act*, local or regional hazardous waste management plans need to include provisions that define (1) the planning process for waste management, (2) the permit process for new and expanded facilities, and (3) the appeal process to the State available for certain local decision.

Hazardous Materials Management Plans

In January 1996, Cal EPA adopted regulations implementing a "Unified Hazardous Waste and Hazardous Materials Management Regulatory Program" (Unified Program). The six program elements of the Unified Program are hazardous waste generators and hazardous waste on-site treatment, underground storage tanks, above-ground storage tanks, hazardous material release response plans and inventories, risk management and prevention program, and Uniform Fire Code hazardous materials management plans and inventories. The program is implemented at the local level by a local agency—the Certified Unified Program Agency (CUPA). The CUPA is responsible for consolidating the

administration of the six program elements within its jurisdiction. The CUPA that has jurisdiction in the City of Santa Ana is the Orange County CUPA.

State and Federal laws require detailed planning to ensure that hazardous materials are properly handled, used, stored, and disposed of, and, in the event that such materials are accidentally released, to prevent or to mitigate injury to health or the environment. California's Hazardous Materials Release Response Plans and Inventory Law, sometimes called the "Business Plan Act," aims to minimize the potential for accidents involving hazardous materials and to facilitate an appropriate response to possible hazardous materials emergencies. The law requires businesses that use hazardous materials to provide inventories of those materials to designated emergency response agencies, to illustrate on a diagram where the materials are stored on site, to prepare an emergency response plan, and to train employees to use the materials safely.

California Accidental Release Prevention Program (CalARP)

The CalARP program (CCR Title 19, Division 2, Chapter 4.5) covers certain businesses that store or handle more than a certain volume of specific regulated substances at their facilities. The CalARP program regulations became effective on January 1, 1997, and include the provisions of the Federal Accidental Release Prevention program (Title 40, CFR Part 68) with certain additions specific to the State pursuant to Article 2, Chapter 6.95, of the Health and Safety Code.

The list of regulated substances is found in Article 8, Section 2770.5 of the CalARP program regulations. The businesses that use a regulated substance above the noted threshold quantity must implement an accidental release prevention program, and some may be required to complete a Risk Management Plan (RMP). An RMP is a detailed engineering analysis of the potential accident factors present at a business and the mitigation measures that can be implemented to reduce this accident potential. The purpose of a RMP is to decrease the risk of an off-site release of a regulated substance that might harm the surrounding environment and community. An RMP includes the following components: safety information, hazard review, operating procedures, training, maintenance, compliance audits, and incident investigation. The RMP must consider the proximity to sensitive populations located in schools, residential areas, general acute care hospitals, long-term health care facilities, and child day-care facilities, and must also consider external events such as seismic activity.

Worker and Workplace Hazardous Materials Safety

Occupational safety standards exist in Federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Division of Occupational Safety and Health (Cal/OSHA) is responsible for developing and enforcing workplace safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle. For example, manufacturers are to appropriately label containers, Material Safety Data Sheets are to be available in the workplace, and employers are to properly train workers.

Hazardous Materials Transportation

The California Highway Patrol (CHP) and California Department of Transportation (Caltrans) are the enforcement agencies for hazardous materials transportation regulations. Transporters of hazardous materials and waste are responsible for complying with all applicable packaging, labeling, and shipping regulations. The Office of Emergency Services (OES) also provides emergency response services involving hazardous materials incidents.

Investigation and Cleanup of Contaminated Sites

The oversight of hazardous materials release sites often involves several different agencies that may have overlapping authority and jurisdiction. The DTSC and RWQCB are the two primary State agencies responsible for issues pertaining to hazardous materials release sites. Air quality issues related to remediation and construction at contaminated sites are also subject to Federal and State laws and regulations that are administered at the local level.

Investigation and remediation activities that would involve potential disturbance or release of hazardous materials must comply with applicable federal, state, and local hazardous materials laws and regulations. DTSC has developed standards for the investigation of sites where hazardous materials contamination has been identified or could exist based on current or past uses. The standards identify approaches to determine if a release of hazardous wastes/substances exists at a site and delineates the general extent of contamination; estimates the potential threat to public health and/or the environment from the release and provides an indicator of relative risk; determines if an expedited response action is require to reduce an existing or potential threat; and completes preliminary project scoping activities to determine data gaps and identifies possible remedial action strategies to form the basis for development of a site strategy.

State Aeronautics Act

The State Aeronautics Act is contained in the California Public Resources Code Section 21001, et seq. and is established for several purposes, including encouraging development of private flying and general use of air transportation, fostering and promoting safety in aeronautics, protecting residents in the vicinity of an airport from unreasonable intrusions from airport noise, and establishing regulations for allowing the conduct of aviation activities in a manner not inconsistent with the rights of others.

A key feature of this Act is the establishment of Airport Land Use Commissions (ALUCs) to promote land use compatibility around airports. The Aeronautics Act gives ALUCs two principal responsibilities: 1) ALUCs must prepare and adopt an airport land use compatibility plan based upon a long-range airport master plan that reflects projected growth for 20 years; and 2) they must review the plans, regulations, and other actions of local agencies and airport operators for consistency with that plan. As discussed below in the Local Regulations, the Orange County ALUC is responsible for JWA.

Local

General Plan—Public Safety Element

Goals

1. Preserve a safe and secure environment for all Santa Ana residents and workers.
2. Minimize loss of life and property due to natural and man-made catastrophes.

Objectives

1.2 Effectively manage risks associated with earthquakes, floods, fires and hazardous materials.

2.1 Maintain an effective emergency preparedness plan and program.

Implementation Policies

- Assure acceptable levels of risk to people and property from flooding and toxic materials
- Consider maintenance of emergency preparedness programs as a high municipal investment priority.

Consistency Analysis

Future development projects in the Overlay Zone would not result in land uses that would create a significant hazard to the public or the environment. Compliance with applicable federal, state, and local laws and regulations would ensure that risks associated with hazards and hazardous materials would be minimized to acceptable levels for future development. In addition, as discussed below under Impacts and Mitigation Measures, MM-OZ 4.6-7 would require the City to update their Emergency Preparedness Plan to address changes in the emergency response for accidental release of hazardous materials that may be used, stored, and/or transported at any new facility. As such, future projects would not conflict with the applicable goals and policies of this element.

Santa Ana Municipal Code

Article 1 of Chapter 18 (Health and Sanitation) identifies the regulatory responsibility associated with hazardous waste incidents in the City to the Santa Ana Fire Department.

Airport Environs Land Use Plan for John Wayne Airport

The airport land use compatibility plan adopted in December 2002 by the Orange County Airport Land Use Commission (ALUC) is called the "Airport Environs Land Use Plan for John Wayne Airport" (AELUP). The AELUP serves as a comprehensive land use plan for the orderly growth of each public airport in Orange County and the area surrounding the airport.

The proposed Overlay Zone is not located within Noise Impact Zones, Clear Zone, or Height Restriction Zone for JWA.[9] However, as identified by the ALUC, a height restriction zone of 200 feet

[9] Kari Rigoni. Written communication with ALUC. October 5, 2006.

(above the ground level at a project site) overlays the entirety of Orange County. Thus, even for projects that lie outside of the Clear or Accident Potential Zones and 60 dB CNEL Contours, or other areas of special concern as delineated by the FAA and adopted by the ALUC, local agencies are required to submit only those matters which contemplate structures that would penetrate the imaginary surfaces as defined in Federal Aviation Regulations (FAR) Part 77.13 (Construction or alteration requiring notice), 77.25 (Civil airport imaginary surfaces), or 77.28 (Military airport imaginary surfaces), which have been designated for each individual airport for height restriction.[10] As such, any construction or alteration of more than 200 feet in height above the ground level at its site requires filing with the FAA.[11]

4.6.3 Project Impacts and Mitigation

Analytic Method

The analysis of this section focuses on the use, disposal, generation, transport, or management of hazardous or potentially hazardous materials within the Metro East Overlay Zone. Disposal options, the probability for risk of upset, and the severity of consequences to people or property associated with the increased use, handling, transport, and/or disposal of hazardous materials associated with implementation of the proposed project are also analyzed.

While the proposed project consists of an Overlay Zone to regulate development within the entire overlay site, construction impacts would generally result from demolition of existing (usually older) structures, as well as from disturbance of contaminated soils. Operational impacts would generally be associated with the types of uses proposed and the materials that operation of these uses entails. In determining the level of significance, the analysis assumes that construction and operation of the proposed project would comply with relevant federal and state laws and regulations, as well as the City of Santa Ana Municipal Code and General Plan.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2006 CEQA Guidelines. For purposes of this EIR, implementation of the Metro East Overlay Zone may have a significant adverse impact on hazards and hazardous materials if it would result in any of the following:

- Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials
- Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment
- Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school
- Be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment

[10] AELUP, page 14
[11] FAR Section 77.13 (a)(1)

- For a project located within an airport land use plan or, where such a plan has not been developed, within two miles of a public airport or public use airport, result in a safety hazard for people residing or working in the project site
- For a project within the vicinity of a private airstrip, result in a safety hazard for people residing or working in the project site
- Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan
- Expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands

Effects Found to Have No Impact

Threshold	For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

The Overlay Zone is not located in the vicinity of a private airstrip. As a result, no related safety hazard for people residing or working at the project would occur. Consequently, no further analysis is required in this EIR.

Threshold	Would the project expose people or structures to a significant loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

The Overlay Zone is located in a dense urban environment and is surrounded by existing development. There are no wildland areas, nor wildland interface areas, located in the project vicinity. Consequently, no wildland fires would affect, or be affected by, implementation of the proposed project. Therefore, no further analysis of wildland fires is required in this EIR.

Effects Found to Be Less Than Significant

Threshold	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Impact 4.6-1 **Implementation of the proposed project would not result in a significant hazard to the public or the environment through future development's routine transport, use, or disposal of hazardous materials. This impact would be *less than significant*.**

Presently, the Overlay Zone is characterized by office and commercial facilities. Implementation of the proposed project would introduce residential uses, and create a mixed-use area that is divided into four distinct districts. While the residential, commercial and office mixed-uses that could be developed under proposed project are not expected to introduce any unusual hazardous materials to the area, some hazardous materials would be used in varying amounts during construction and operation of future development and would consist mostly of typical household-type cleaning products as well as

maintenance products (e.g., paints, solvents, cleaning products). Additionally, grounds and landscape maintenance within the development area could also use a wide variety of commercial products formulated with hazardous materials, including fuels, cleaners and degreasers, solvents, paints, lubricants, adhesives, sealers, and pesticides/herbicides.

Exposure of persons to hazardous materials could occur in the following manners: improper handling or use of hazardous materials or hazardous wastes during construction or operation of future developments, particularly by untrained personnel; transportation accident; environmentally unsound disposal methods; or fire, explosion or other emergencies. The types and amounts of hazardous materials would vary according to the nature of the activity. In some cases, it is the type of hazardous material that is potentially hazardous; in others, it is the amount of hazardous material that could present a hazard.

Whether a person exposed to a hazardous substance would suffer adverse health effects depends upon a complex interaction of factors that determine the effects of exposure to hazardous materials: the exposure pathway (the route by which a hazardous material enters the body); the amount of material to which the person is exposed; the physical form (e.g., liquid, vapor) and characteristics (e.g., toxicity) of the material; the frequency and duration of exposure; and the individual's unique biological characteristics, such as age, gender, weight, and general health. Adverse health effects from exposure to hazardous materials may be short-term (acute) or long-term (chronic). Acute effects can include damage to organs or systems in the body and possibly death. Chronic effects, which may result from long-term exposure to a hazardous material, can also include organ or systemic damage, but chronic effects of particular concern include birth defects, genetic damage, and cancer. Implementation of existing hazardous materials regulations were established at the state level to ensure compliance with federal regulations to reduce the risk to human health and the environment from the routine use of hazardous substances.

All new developments that handle or use hazardous materials would be required to comply with existing regulations, standards, and guidelines established by the EPA, State, Orange County, and the City of Santa Ana related to storage, use, and disposal of hazardous materials. Specific requirements for implementation of these statutes are codified in Title 40 of the Code of Federal Regulations (CFR). Additional regulations that apply to workplace safety are contained in CFR Titles 8 and 29. Regulations that pertain to radioactive materials are included in CFR Title 10.

The USDOT Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the *Code of Federal Regulations*, and implemented by Title 13 of the CCR.

Additionally, both the federal and state governments require all businesses that handle more than a specified amount of hazardous materials to submit a business plan to a regulatory agency. Specifically, any new business that meets the specified criteria must submit a full hazardous materials disclosure report that includes an inventory of the hazardous materials generated, used, stored, handled, or emitted; and emergency response plans and procedures to be used in the event of a significant or threatened significant release of a hazardous material. Specific requirements for implementation are codified

primarily in Title 26 of the California Code of Regulations (CCR) and Chapter 6.95 of the California Health and Safety Code.

Hazardous materials are required to be stored in designated areas designed to prevent accidental release to the environment. *California Building Code* (CBC) requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards. Compliance with all applicable federal and state laws related to the storage of hazardous materials would be implemented to maximize containment (through safe handling and storage practices) and to provide for prompt and effective cleanup if an accidental release occurs.

Adherence to existing regulations would ensure compliance with safety standards related to the use and storage of hazardous materials, and the safety procedures mandated by applicable federal, state, and local laws and regulations (RCRA, California *Hazardous Waste Control Law*, and principles prescribed by the California Department of Health Services, Centers for Disease Control and Prevention, and National Institutes of Health), which would ensure that risks resulting from the routine transportation, use, storage, or disposal of hazardous materials or hazardous wastes associated with construction and implementation of the proposed project would be ***less than significant***. No mitigation is required.

Threshold	Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

Impact 4.6-2 **Implementation of the proposed project could result in the exposure of future residents in the Overlay Zone to diesel exhaust emissions, which could pose a significant hazard. However, implementation of mitigation measure MM-OZ 4.6-1 would reduce this impact to a *less-than-significant* level.**

As discussed above in Impact 4.6-1, implementation of the proposed project would not result in land uses that would create a significant hazard to the public or the environment. However, it is possible that existing uses within the vicinity could create a significant hazard to future residents of the area. The Overlay Zone is located directly between two heavily traveled freeways (I-5 and SR-55), which could emit hazardous amounts of diesel exhaust. Due to the proximity of the freeways and the potential increase in residential uses as a result of project implementation, this could pose a potentially significant impact. In order to ensure that existing conditions within the project area do not pose a significant health threat to future uses, compliance with mitigation measure MM-OZ 4.6-1 would be required.

MM-OZ 4.6-1 *For future residential uses that are developed under the Overlay Zone within 500 feet of an existing freeway, a health risk assessment (HRA) for diesel exhaust shall be prepared. Recommendations contained within the HRA shall be implemented in project design.*

Implementation of mitigation measure MM-OZ 4.6-1 would ensure that risks associated with diesel emissions from the nearby freeways would be thoroughly evaluated prior to construction of residential uses. The health risk assessments would identify any unacceptable risk and would provide recommendations to reduce the risk within acceptable limits. Thus, development within the Overlay

Zone would not pose an actual or potential endangerment to future residents. Therefore, this impact would be reduced to a ***less than significant*** level.

Threshold	Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact 4.6-3 **Construction activities associated with implementation of the proposed Overlay Zone could result in the release of hazardous materials to the environment through reasonably foreseeable upset and accident conditions. Compliance with existing regulations and implementation of mitigation measures MM-OZ 4.6-2 and MM-OZ4.6-3 would ensure that this impact would be reduced to a *less-than-significant* level.**

As implementation of the proposed Overlay Zone would primarily result in urban infill and redevelopment with mixed-uses within the project area, existing structures may need to be demolished prior to the construction of new buildings. Demolition of existing structures could result in exposure of construction personnel and the public to hazardous substances such as asbestos or lead-based paints, depending on the age of the structure. In addition, the disturbance of soils and the demolition of existing structures could result in the exposure of construction workers or employees to health or safety risks if contaminated structures and/or soils are encountered during construction. Exposure to contaminated structures or soil could occur from asbestos or lead in older buildings, unknown contaminants that have not previously been identified, or existing contamination present at locations identified in the site records search.

Exposure to hazardous materials during construction activities could occur through any of the following:

- Direct dermal contact with hazardous materials
- Incidental ingestion of hazardous materials (usually due to improper hygiene, when workers fail to wash their hands before eating, drinking, or smoking)
- Inhalation of airborne dust released from dried hazardous materials

Demolition Activities

While specific development projects are not associated with approval of the proposed Overlay Zone (aside from the NDC development, which is addressed separately in Volume II of this EIR), it is assumed that older buildings could be demolished as uses are redeveloped according to the overlay zone. With that activity, construction workers and nearby workers and/or future residents could potentially be exposed to airborne lead-based paint dust, asbestos fibers, and/or other contaminants. In addition, there is the possibility that future development may also uncover previously undiscovered soil contamination as well as result in the release of potential contaminants that may be present in building materials (e.g., mold, lead, etc.). This could result in a potentially significant impact.

Lead and Asbestos

Federal and State regulations govern the renovation and demolition of structures where materials containing lead and asbestos are present. These requirements include: SCAQMD Rules and Regulations pertaining to asbestos abatement (including Rule 1403), Construction Safety Orders 1529 (pertaining to asbestos) and 1532.1 (pertaining to lead) from Title 8 of the California Code of Regulations, Part 61, Subpart M of the Code of Federal Regulations (pertaining to asbestos), and lead exposure guidelines provided by the U.S. Department of Housing and Urban Development (HUD). Asbestos and lead abatement must be performed and monitored by contractors with appropriate certifications from the State Department of Health Services. In addition, Cal/OSHA has regulations concerning the use of hazardous materials, including requirements for safety training, availability of safety equipment, hazardous materials exposure warnings, and emergency action and fire prevention plan preparation. Cal/OSHA enforces the hazard communication program regulations, which include provisions for identifying and labeling hazardous materials, describing the hazards of chemicals, and documenting employee-training programs. All demolition that could result in the release of lead and/or asbestos must be conducted according to Cal/OSHA standards. Adherence to existing regulations, which require appropriate testing and abatement actions for hazardous materials, would ensure that impacts are ***less than significant***.

Soil and Groundwater Contamination

Unknown Contaminated Sites

Aside from the potential release of hazardous materials from demolition of existing structures within the Overlay Zone, grading and excavation of sites for future development resulting from implementation of the proposed project may also expose construction workers and the public to potentially unknown hazardous substances present in the soil or groundwater. If any unidentified sources of contamination are encountered during grading or excavation, the removal activities required could pose health and safety risks such as the exposure of workers, materials handling personnel, and the public to hazardous materials or vapors. Such contamination could cause various short-term or long-term adverse health effects in persons exposed to the hazardous substances. In addition, exposure to contaminants could occur if the contaminants migrated from the contaminated zone to surrounding areas either before or after the surrounding areas were developed, or if contaminated zones were disturbed by future development at the contaminated location. If exposed to hazardous substances, this would result in a significant hazard to the public.

It is also possible that old underground storage tanks (USTs) that were in use prior to permitting and record keeping requirements may be present in the Overlay Zone. If an unidentified UST were uncovered or disturbed during construction activities, it would be closed in place or removed. Removal activities could pose both health and safety risks, such as the exposure of workers, tank handling personnel, and the public to tank contents or vapors. Potential risks, if any, posed by USTs would be minimized by managing the tank according to existing Orange County standards as enforced and monitored by the Department of Environmental Health. The extent to which groundwater may be affected, if at all, depends on the type of contaminant, the amount released, and depth to groundwater at

the time of the release. If groundwater contamination is identified, remediation activities would be required by the Santa Ana Regional Water Quality Control Board (SARWQCB) prior to the commencement of any new construction activities.

Existing Contaminated Sites

Another potential hazard to construction workers and the public could involve construction activities on existing sites that may potentially be contaminated. Existing sites that may potentially contain hazardous materials in the Overlay Zone include the 24 sites that are identified in Table 4.6-1, which includes a range of sites with a variety of potential sources of contamination, including empty pesticide containers, waste oil tanks, other forms of chemical waste, and gas stations. However, any new development occurring on these documented hazardous materials sites would have to be preceded by remediation and cleanup under the supervision of the State Department of Toxic Substance Control (DTSC) before construction activities could begin, if such actions have not already occurred.

In order to address the potential for encountering contamination within the Overlay Zone, mitigation measures MM-OZ 4.6-2 and MM-OZ 4.6-3 would minimize the potential risk of contamination by implementing investigation and remediation efforts at future development sites. As such, the potential impacts associated with unknown contamination would be reduced to a ***less than significant*** level.

MM-OZ 4.6-2 *Prior to the issuance of grading permits on any project site, the site developer(s) shall:*

- *Investigate the project site to determine whether it or immediately adjacent areas have a record of hazardous material contamination via the preparation of a preliminary environmental site assessment (ESA), which shall be submitted to the City for review. If contamination is found the report shall characterize the site according to the nature and extent of contamination that is present before development activities precede at that site.*
- *If contamination is determined to be on site, the City, in accordance with appropriate regulatory agencies, shall determine the need for further investigation and/or remediation of the soils conditions on the contaminated site. If further investigation or remediation is required, it shall be the responsibility of the site developer(s) to complete such investigation and/or remediation prior to construction of the project.*
- *If remediation is required as identified by the local oversight agency, it shall be accomplished in a manner that reduces risk to below applicable standards and shall be completed prior to issuance of any occupancy permits.*

MM-OZ 4.6-3 *In the event that previously unknown or unidentified soil and/or groundwater contamination that could present a threat to human health or the environment is encountered during construction of the proposed project, construction activities in the immediate vicinity of the contamination shall cease immediately. If contamination is encountered, a Risk Management Plan shall be prepared and implemented that (1) identifies the contaminants of concern and the potential risk each contaminant would pose to human health and the environment during construction and post-development and (2) describes measures to be taken to protect workers, and the public from exposure to potential site hazards. Such measures could include a range of options, including, but not limited to, physical site controls during construction, remediation, long-term monitoring, post-development maintenance or access limitations, or some combination*

thereof. Depending on the nature of contamination, if any, appropriate agencies shall be notified (e.g., City of Santa Ana Fire Department). If needed, a Site Health and Safety Plan that meets Occupational Safety and Health Administration requirements shall be prepared and in place prior to commencement of work in any contaminated area.

Compliance with existing regulations and implementation of mitigation measures MM-OZ 4.6-2 and MM-OZ4.6-3 would ensure that construction workers and the general public would not be exposed to any unusual or excessive risks related to hazardous materials during construction activities. As such, impacts associated with the exposure of construction workers and the public to hazardous materials during construction activities would be ***less than significant***.

Threshold	Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

Impact 4.6-4 **Operation of future land uses that could be developed under the proposed project could create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment. Compliance with existing regulations would ensure that this impact is *less than significant*.**

The precise potential future increase in the amount of hazardous materials transported within the Overlay Zone and the City as a whole as a result of implementation of the proposed project cannot be predicted because specific development projects are not identified for the Overlay Zone (except for the NDC development, which is analyzed separately in Volume II of this EIR.) The following discussion focuses on the potential nature and magnitude of risks associated with the accidental release of hazardous materials often used during operations of typical residential, commercial, and office mixed-use development projects.

Off-Site Transportation of Hazardous Materials

The United States Department of Transportation (USDOT) Office of Hazardous Materials Safety prescribes strict regulations for the safe transportation of hazardous materials, as described in Title 49 of the *Code of Federal Regulations*, and implemented by Title 13 of the CCR.

The transportation of hazardous materials can result in accidental spills, leaks, toxic releases, fire, or explosion. It is possible that licensed vendors could bring some hazardous materials to and from new retail-commercial sites in the Overlay Zone as a result of the subsequent projects constructed pursuant to the proposed project. However, appropriate documentation for all hazardous waste that is transported in connection with specific project-site activities would be provided as required for compliance with existing hazardous materials regulations codified in Titles 8, 22, and 26 of the California Code of Regulations, and their enabling legislation set forth in Chapter 6.95 of the *California Health and Safety Code*. In addition, specific project-site developers shall comply with all applicable Federal, State, and local laws and regulations pertaining to the transport, use, disposal, handling, and storage of hazardous waste, including but not limited to, Title 49 of the *Code of Federal Regulations*.

Compliance with all applicable Federal and State laws related to the transportation of hazardous materials would reduce the likelihood and severity of accidents during transit, thereby ensuring that a ***less than significant*** impact would occur. No mitigation is required.

Hazardous Materials Storage

Hazardous materials are required to be stored in designated areas designed to prevent accidental release to the environment. *California Building Code* (CBC) requirements prescribe safe accommodations for materials that present a moderate explosion hazard, high fire or physical hazard, or health hazards. Compliance with all applicable Federal and State laws related to the storage of hazardous materials would be implemented to maximize containment (through safe handling and storage practices described above) and to provide for prompt and effective clean-up if an accidental release occurs, thereby ensuring that a ***less than significant*** impact would occur. No mitigation is required.

Hazardous Materials Use

Hazardous materials use would present a slightly greater risk of accident than hazardous materials storage. However, for those employees who would work with hazardous materials, the amount of hazardous materials that are handled at any one time are generally relatively small, reducing the potential consequences of an accident during handling. Further, specific project-site activities would be required to comply with Federal and State laws to eliminate or reduce the consequence of hazardous materials accidents. For example, employees who would work around hazardous materials would be required to wear appropriate protective equipment, and safety equipment is routinely available in all areas where hazardous materials are used.

The Santa Ana Fire Department Haz-Mat personnel responds to hazardous materials incidents. Major hazardous materials accidents associated with retail-commercial uses are extremely infrequent, and additional emergency response capabilities are not anticipated to be necessary to respond to the potential incremental increase in the number of incidents that could result from implementation of the proposed project. Further, adherence to applicable regulations as discussed above would be required to reduce any potential consequences of a hazardous materials operational accident. Thus, impacts related to the use of hazardous materials would be ***less than significant***.

Summary

Compliance with Titles 8, 22, 26, and 49 of the California Code of Regulations, and their enabling legislation set forth in Chapter 6.95 of the *California Health and Safety Code,* would ensure that this impact is ***less than significant*** by requiring compliance with applicable laws and regulations that would reduce the risk of hazardous materials use, transportation, and handling through the implementation of established safety practices, procedures, and reporting requirements. No mitigation is required.

Threshold	Would the project emit hazardous emissions or result in the handling of acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

Impact 4.6-5 **Implementation of the proposed project could result in the handling of hazardous materials, substances, or waste within one-quarter mile of an existing school. Compliance with existing regulations would ensure this impact would be *less than significant*.**

There are two schools located within one-quarter mile of the proposed Overlay Zone. No additional schools are proposed in the Overlay Zone as part of the proposed project. As discussed previously, limited amounts of some hazardous materials could be used in the construction and operation of new developments in the Overlay Zone, including the use of standard construction materials (e.g., paints, solvents, and fuels), cleaning and other maintenance products (used in the maintenance of buildings, pumps, pipes and equipment), diesel and other fuels (used in construction and maintenance equipment and vehicles), and the limited application of pesticides associated with landscaping around new developments. None of these materials would result in hazardous emissions or are considered acutely hazardous.

Although hazardous materials and waste generated from future development may pose a health risk to nearby schools, all businesses that handle or have on-site transportation of hazardous materials would be required to comply with the provisions of the City's Fire Code and any additional elements as required in the California Health and Safety Code Article 1 Chapter 6.95 for Business Emergency Plan. As described previously, both the federal and state governments require all businesses that handle more than a specified amount of hazardous materials to submit a business plan to a regulatory agency.

The routine transport, use, and disposal of these materials would be subject to a wide range of laws and regulations intended to minimize potential health risks associated with their use or the accidental release of such substances. Compliance with existing regulations would minimize the risks associated with the exposure of sensitive receptors, including schools, to hazardous materials. This impact would be ***less than significant***. No mitigation is required.

Threshold	Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, create a significant hazard to the public or the environment?

Impact 4.6-6 **The Overlay Zone includes sites which are included on a list of hazardous materials sites and as a result, could create a significant hazard to the public or environment. Implementation of mitigation measures MM-OZ 4.6-2 and MM-OZ 4.6-3 would ensure this impact would be reduced to a *less-than-significant* level.**

As shown in Table 4.6-1, the Overlay Zone contains sites that have been identified on various regulatory databases as being contaminated from the release of hazardous substances in the soil, including underground storage tanks and small-quantity generators of hazardous waste. Implementation of the

proposed project could lead to development of these sites. As discussed under Impact 4.6-3, development of these sites would be required to undergo remediation and cleanup before construction activities can begin. If contamination at any specific project site were to exceed regulatory action levels, the proponent would be required to undertake remediation procedures prior to grading and development under the supervision of appropriate regulatory oversight agencies (e.g., Santa Ana Fire Department, Orange County Environmental Health Division, Department of Toxic Substances Control, or Regional Water Quality Control Board), depending on the nature of any identified contamination. Thus, implementation of mitigation measures MM-OZ 4.6-2 and MM-OZ 4.6-3, above, would ensure that contaminated sites undergo remediation activities prior to development activities. Consequently, if future development under the Overlay Zone is located on a site that is included on a list of hazardous materials sites, remediation would ensure that this impact would be reduced to a ***less-than-significant*** level.

Threshold	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

Impact 4.6-7 **Implementation of the proposed project could result in a safety hazard for people residing or working in the project area. Implementation of mitigation measures MM-OZ 4.6-4 would reduce this impact to a *less-than-significant* level.**

JWA

JWA is the nearest public airport, which is located approximately 6.5 miles to the southwest of the Overlay Zone. As discussed previously in the Regulatory Framework, the Overlay Zone is located within a height restriction of 200 feet that overlays the entirety of Orange County. Because land uses that may occur in the Active Urban district under the proposed project could exceed 200 feet in height, any such uses (over 200 feet in height) would subsequently fall within the Airport Planning Area for JWA. Therefore, any construction or alteration of more than 200 feet in height above the ground level at a project site requires filing with the FAA. Projects meeting this threshold must comply with procedures provided by Federal and State law, including filing a Notice of Proposed Construction or Alteration (FAA Form 7460-1). Specifically, filing the FAA Form 7460-1 would be required for any proposed structure that would be greater than 200 feet in height, at which time FAA would conduct an aeronautical study to determine if the structure would have an adverse effect on the airport or on aeronautical operations.[12] Subsequent to the findings of the FAA aeronautical study, the project would be subject to ALUC consistency review.[13]

As mentioned previously, development in the Active Urban district under the proposed Overlay Zone could involve structures that exceed 200 feet in height. Development in the Neighborhood Transitional and Village Center districts would be more restricted in height limitations and would not be expected to exceed 200 feet in height. Because specific development projects are not proposed in the Overlay Zone

[12] AELUP page 14
[13] Lea Umnas. Verbal communication with ALUC. December 15, 2006.

(other than the NDC development which is addressed separately in Volume II of this EIR), it is presently unknown whether future developments would actually be greater than 200 feet.

Additionally, it is possible that during the temporary construction period of projects in the Active Urban district, cranes could be used for a limited time to affix the floors and other appurtenances. The FAA recognizes that construction of structures normally requires the use of temporary construction equipment that is of a greater height than the proposed structure.

Therefore, because future development could exceed 200 feet in height in the Active Urban district, this would be considered a potentially significant impact. Thus, implementation of mitigation measure MM-OZ 4.6-4 would be required for future development that could exceed 200 feet in height, which would require FAA approval to be obtained to ensure that construction and operation of future projects do not present a hazard to air navigation.

MM-OZ 4.6-4 *For development of structures that exceed 200 feet in height above ground level at a development site, Applicants shall file a Notice of Proposed Construction or Alteration with the FAA (FAA Form 7460-1). Following the FAA's nautical evaluation of the project, projects must comply with conditions of approval imposed or recommended by the FAA. Subsequent to the FAA findings, the project shall be reviewed by the ALUC for consistency analysis.*

In addition, due to the fact that buildings within the Active Urban district may exceed 200 feet in height and because of the required City approvals for the proposed project (i.e., General Plan Amendment and Zone change), the City would submit a referral for the Overlay Zone to the ALUC per Public Utilities Code (PUC) Section 21676(b) and the AELUP. Coupled with implementation of mitigation measure MM-OZ 4.6-4, future development in the Overlay Zone would not result in a safety hazard for people residing or working in the project area. This impact would be reduced to a ***less-than-significant*** level.

Heliports

Presently, heliports are not proposed within the Overlay Zone. Due to the potential for an increase in residential uses within the Overlay Zone, it is assumed that heliports would be discouraged for future development because of noise and other safety issues. However, should heliports be proposed in the future within the Overlay Zone, such developments would be required to be submitted through the City to the ALUC for review and action (pursuant to Public Utilities Code Section 2166.5). While not anticipated, any future heliport projects must comply with the state permit procedure provided by law and with conditions of approval imposed or recommended by the FAA, ALUC for Orange County, and by Caltrans/Division of Aeronautics.[14] As such, this impact would be ***less than significant***.

[14] Kari Rigoni. Written communication with ALUC. October 5, 2006.

Threshold	Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

Impact 4.6-8 **Implementation of the Overlay Zone could interfere with an adopted emergency response plan or emergency evacuation plan. Implementation of mitigation measures MM-OZ 4.6-5 through MM-OZ 4.6-7 would reduce this impact to a *less-than-significant* level.**

Construction of future development in the Overlay Zone could result in short-term temporary impacts on street traffic adjacent to the proposed sites during construction activities due to roadway improvements and potential extension of construction activities into the right-of-way. This could result in a reduction in the number of lanes or temporary closure of certain street segments. Any such impacts would be limited to the construction period and would affect only adjacent streets or intersection. However, mitigation measures MM-OZ 4.6-5 and MM-OZ 4.6-6 would be required to ensure that temporary street closures would note affect emergency access in the vicinity of future developments.

Operation of the various residential uses and businesses or facilities developed as part of the Overlay Zone could increase traffic on roads or modify existing transportation routes and could interfere with the response times of emergency vehicles, which would be potentially significant in the case of a hazardous material spill. Implementation of mitigation measure MM-OZ 4.6-7 would require the City to update their Emergency Preparedness Plan to address changes in the emergency response for accidental release of hazardous materials that may be used, stored, and/or transported at any new facility. Furthermore, the haulers and users of hazardous materials would be required to register with the Santa Ana Fire Department and would be regulated and monitored under the auspices of City of Santa Ana.

MM-OZ 4.6-5 *Prior to initiation of construction activities, any development within the Overlay Zone shall have a completed traffic control plan, prepared by the developer, that will be implemented during construction activities. This may include, but is not limited to, the maintenance of at least one unobstructed lane in both directions on surrounding roadways. At any time only a single lane is available, the developer shall provide a temporary traffic signal, signal carriers (i.e., flagpersons), or other appropriate traffic controls to allow travel in both directions. If construction activities require the complete closure of a roadway segment, the developer shall provide appropriate signage indicating alternative routes.*

MM-OZ 4.6-6 *The City Planning Department shall consult with the Santa Ana Police Department and the Santa Ana Fire Department to disclose temporary closures and alternative travel routes in order to ensure adequate access for emergency vehicles when construction of future projects would result in temporary land or roadway closures.*

MM-OZ 4.6-7 *The Santa Ana Fire Department, in consultation with other applicable City Departments (e.g., Police), shall update their Emergency Preparedness Plan prior to occupancy of the first project developed under the Overlay Zone, to address potential for accidental release of hazardous materials that may be used, stored, and/or transported in association with operation of project implementation.*

With implementation of mitigation measures MM-OZ 4.6-5 through MM-OZ 4.6-7, the proposed project would not interfere with any emergency response or emergency evacuation plans and this impact would be ***less than significant***.

4.6.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less than significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the cumulative analysis of hazards and hazardous materials is Orange County, based on the geographic area that could be affected by hazardous materials use or accidental release into the environment. The cumulative context for the hazards analysis includes future development under the Proposed Project, in combination with the development projects listed in the Cumulative Projects list identified in Chapter 3 of this EIR and development of other unrelated projects in Orange County.

Cumulative development within Santa Ana and Orange County would include some industrial and commercial uses, which could involve the use of greater quantities and variety of hazardous products. Commercial, office, retail, and residential development in the area would also increase the use of household-type hazardous materials within the area. Hazardous materials use, storage, disposal, and transport could result in a foreseeable number of spills and accidents. New development in the County would be subject to hazardous materials regulations codified in Titles 8, 22, and 26 of the CCR. Furthermore, all construction and demolition activities in the County would be subject to Cal/OSHA regulations concerning the release of hazardous materials. Compliance with all state, federal and local regulations during the construction and operation of new developments in the County would ensure that there are no cumulatively considerable significant hazards to the public or the environment associated the routine transportation, use, disposal or release of hazardous materials. Similarly, future development within the Overlay Zone would comply with applicable regulations, which would ensure that the project would not have a cumulatively considerable contribution to this effect.

Future projects in the City and County would be regulated to ensure that either new development would not occur on hazardous materials sites, and impacts would be mitigated by appropriate remediation, or that the development would result in no cumulative effects. Mitigation measures identified for the Overlay Zone would ensure that appropriate site investigation and remediation would occur on sites prior to development. This would ensure that development within the Overlay Zone would not make a cumulatively considerable contribution to impacts resulting from development on hazardous materials sites, and the impact would therefore be ***less than significant***.

Construction and demolition activities associated with the Proposed Project and other projects in the county could expose schools to hazardous emissions. Various regulations and guidelines pertaining to abatement of, and protection from, exposure to asbestos and lead have been adopted for demolition activities, and would apply to all new development in the County. All demolition that could result in the release of lead and/or asbestos must be conducted according to Cal/OSHA standards. Compliance with

existing regulations would ensure that schools and the general public would not be exposed to any unusual or excessive risks related to hazardous materials during construction and demolition activities. Therefore, the cumulative impacts associated with the exposure of schools to hazardous emissions would be less than significant. Compliance with existing regulations would similarly ensure that future development within the Overlay Zone would have a less than significant impact associated with the handling of hazardous materials within proximity to schools sites. Therefore, the proposed project would not make a cumulatively considerable contribution to this effect and cumulative impacts would be ***less than significant***.

Cumulative development projects could occur within the John Wayne Airport Land Use Plan. These projects would be subject to discretionary review by the Airport Land Use Commission to ensure compliance with the ALUP. This review would ensure that cumulative impacts from development within the vicinity of an airport would be less than significant. The proposed project is outside of the ALUP area, but some development could be subject to FAA notification requirements, and would comply with any safety restrictions imposed by the FAA. Therefore, the project would not have a cumulatively considerable contribution to cumulative effects, and the impact would be ***less than significant***.

The Proposed Project in combination with development of other projects in the County could result in an increase in traffic on roads and could interfere with the response times of emergency vehicles. A mitigation measure implemented as part of the Proposed Project would require the City to update their Emergency Preparedness Plan to address potential for accidental release of hazardous materials that may be used, stored, and/or transported at any new facility. This mitigation measure would ensure that interference with emergency response plans or emergency evacuation plans would not be cumulatively considerable and therefore, ***less than significant***. Mitigation measures identified for the proposed project would ensure that the project would have a less than significant contribution to this cumulative impact.

4.6.5 References

City of Santa Ana. 1987. *Santa Ana General Plan Airport Environs Element.*

EDR. May 10, 2006. *EDR Data Map Area Study for the Metro East Mixed Use Overlay Zone.*

Orange County Airport Land Use Commission. December 2002. *Airport Environs Land Use Plan for John Wayne Airport.*

4.7 HYDROLOGY AND WATER QUALITY

This EIR section analyzes the potential for adverse impacts on hydrology or water quality resulting from implementation of the proposed Overlay Zone. Data used to prepare this section were taken from the City of Santa Ana's (the City) General Plan. No comment letters associated with hydrology and water quality were received in response to the IS/NOP for the proposed project.

4.7.1 Environmental Setting

Regional Hydrology

The City of Santa Ana (City) is located within the Santa Ana River Basin (SARB), a 2,800-square-mile area located roughly between Los Angeles and San Diego. The SARB is a group of connected inland basins and open coastal basins drained by surface streams flowing generally southwestward to the Pacific Ocean. The SARB can be divided into an upper basin and a lower basin by the Prado flood control dam, which is located at the upper end of the Lower Santa Ana River Canyon. The dam is located on the Santa Ana River in Riverside County, approximately two miles west of the City of Corona. The lower Santa Ana River has been channelized and modified so that in most years flows do not reach the Pacific Ocean but are used to recharge groundwater.

The Overlay Zone is located within the San Diego Creek Watershed, which covers 112.2 square miles in central Orange County. In includes portions of the cities of Costa Mesa, Irvine, Laguna Woods, Lake Forest, Newport Beach, Orange, Santa Ana, and Tustin. Its main tributary, San Diego Creek, drains into Upper Newport Bay. Smaller tributaries include Serrano Creek, Borrego Canyon Wash, Agua Chinon Wash, Bee Canyon Wash, Peters Canyon Wash, Sand Canyon Wash, Bonita Canyon Creek, and the Santa Ana Delhi Channel.[15]

Drainage

Areawide Drainage Facilities

The Orange County Flood Control District (OCFCD) is responsible for the design, construction, operation, and maintenance of regional flood control facilities. The County flood channels are maintained annually, and maintenance includes debris and vegetation removal. The existing storm drainage channels were originally designed to accommodate 25-year flood events or less. However, when the channels were constructed, they were built to accommodate 65 percent of the 25-year flood event. The channels were built with restrictive channel bottoms, which reduce the amount of water the channel could carry, but which slow the flow rate of runoff water while still enabling the system to remove runoff water. The County now uses 100-year flood event standards for new storm drain construction and

[15] Orange County Watershed & Coastal Resources website, http://www.ocwatersheds.com/watersheds/sandiego_creek.asp, accessed October 4, 2006.

drainage improvements, and portions of the channels have been improved to accommodate up to a 100-year storm event.

Local Drainage

As discussed in the City's General Plan, the City of Santa Ana is fully urbanized and there are few areas that have not been modified due to historic development. As a result, the hydrologic characteristics of the City largely reflect past efforts to facilitate drainage and to eliminate any recurring problems with flooding and ponding. The City maintains approximately 1,600 storm drain inlets and 34,000 linear feet of open channels that transport urban runoff generated from nonpoint sources within the City. Runoff transported by these drainage facilities discharges to the Lower Santa Ana River, Newport Bay, and Bolsa Chica water bodies.[16] Major drainage features in the City include the Santa Ana River and Santiago Creek.

A 30-inch Orange County Flood Control (OCFC) reinforced concrete trunk line provides storm drainage for the western portion of the Overlay Zone. This 30-inch trunk line runs in a north-south direction through existing development in between Cabrillo Park Drive and Golden Circle Drive. Storm drainage for the eastern boundary of the Overlay Zone is provided by a local (City-owned) 33-inch reinforced concrete pipe (lateral), which runs down Tustin Avenue. In addition, there is a 42-inch local lateral along Fourth Street, between Cabrillo Park Drive and Parkcenter Drive, which carries flows to the OCFC 30-inch pipe. Flows run in a southerly direction in the Overlay Zone until First Street, where a local 42-inch reinforced concrete pipe (lateral) carries flows westerly. Manholes and catch basins are located throughout the Overlay Zone.

Santa Ana River

The Santa Ana River is the major drainage channel that flows through the City, and many of the major storm drains are connected (directly or indirectly) to the River. Water flows in a general southwest direction from Prado Reservoir, through the City of Santa Ana and into the Pacific Ocean between Huntington Beach and Costa Mesa. The Santa Ana River's drainage basin cover over 3,200 square miles. The River reaches the City near the I-5 Freeway, traveling along the City's northwestern edge. Near Garden Grove Boulevard, the River enters into a western portion of the City at Harbor Boulevard. From there, the River follows the City's southwestern boundary.

In order to increase levels of flood protection along the River, the Santa Ana River Mainstem Project began in 1989 and is scheduled for completion in 2010. The proposed improvements to the system cover 75 miles, from the headwater of Santa Ana River east of the city of San Bernardino, to the mouth of the river at the Pacific Ocean between the cities of Newport Beach and Huntington Beach. The project includes seven independent features: Seven Oaks Dam, Mill Creek Levee, San Timoteo Creek, Oak Street Drain, Prado Dam, Santiago Creek and Lower Santa Ana River.

[16] CDM, City of Santa Ana: GIS Integrated for Drainage Facility Inventory and Analysis, 2005.

Santiago Creek

Santiago Creek is the main tributary to the Santa Ana River. The creek joins the Santa Ana River just south of Garden Grove Boulevard. Improvements to the Santiago Creek Channel included a trapezoidal riprap channel to prevent erosion and to protect surrounding residential neighborhoods. Santiago Creek is one of the last remaining unchannelized drainage areas in the City.

Surface Water Quality

Urban runoff (both dry and wet weather) discharges into storm drains and, in most cases, flows directly to creeks, rivers, lakes, and the ocean. Polluted runoff can have harmful effects on drinking water, recreational water, and wildlife. Urban runoff pollutants include a wide array of environmental, chemical, and biological compounds from both point and nonpoint sources. In the urban environment, stormwater characteristics depend on site conditions (e.g., land use, perviousness, pollution prevention, types and amounts of Best Management Practices [BMPs]), rain events (duration, amount of rainfall, intensity, and time between events), soil type and particle sizes, multiple chemical conditions, the amount of vehicular traffic, and atmospheric deposition (EPA 2000). Major pollutants typically found in runoff from urban areas such as the City include sediment, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic, and bacteria.[17]

Urban runoff can be divided into two categories:

- Dry weather urban runoff occurs when there is no precipitation-generated runoff. Typical sources include landscape irrigation runoff; driveway and sidewalk washing; noncommercial vehicle washing; groundwater seepage; fire flow; potable water line operations and maintenance discharges; and permitted or illegal non stormwater discharges.
- Wet weather urban runoff refers collectively to non-point source discharges that result from precipitation events. Wet weather discharges include stormwater runoff. Stormwater discharges are generated by runoff from land and impervious areas such as paved streets, parking lots, and building rooftops during rainfall and snow events that often contain pollutants in quantities that could adversely affect water quality. Most urban stormwater discharges are considered non-point sources and are regulated by an NPDES Municipal General Permit or Construction General Permit.

Wet- and dry-weather runoff typically contain similar pollutants of concern. However, except for the first flush concentrations following a long dry period between rainfall, the concentrations levels found in wet weather flows are typically lower than levels found in dry weather flows because the larger wet weather flows dilute the amount of pollutants in runoff waters. The following are major types of pollutants in runoff:

- Bacteria. Members of two bacteria groups, coliforms and fecal streptococci, are often used as indicators of possible microbiological contamination. Sources of fecal contamination to surface waters include wastewater treatment plants, on-site septic systems, domestic and wild animal manure, and urban runoff.

[17] CDM, City of Santa Ana: GIS Integrated for Drainage Facility Inventory and Analysis, 2005.

- Pesticides and petroleum hydrocarbons. The intensity of activities, including vehicle traffic, and fueling activities, leaks and spills, and landscaping/gardening activities within an urban setting contribute heavily to the level of these pollutants present in adjacent surface waters. Elevated levels of oil and grease and petroleum hydrocarbons can be found in wet weather runoff, particularly from streets, roads, and other paved surfaces.
- Metals. Heavy metals such as copper, lead, zinc, arsenic, chromium and cadmium may be typically found in urban water runoff. Metals in stormwater may be toxic to some aquatic life and may accumulate in aquatic animals. Sources of metals in stormwater may include automobiles, paints, preservatives, motor oil, and various urban activities including atmospheric deposition from industrial plants and other operations.
- Nutrients. The nutrients most often identified in stormwater runoff are phosphorus and nitrogen. Nitrogen and phosphorus are present in runoff that originates, primarily from irrigation nuisance flows, on-site septic system leakage, and direct deposit of animal waste or other organic debris deposited on impervious surfaces.
- Trash and debris. Significant loads of trash, debris, and coarse solids can be found in wet weather urban runoff. Plant material can be a substantial component of coarse solids.
- Suspended solids. Sediment is often viewed as the largest pollutant load associated with stormwater runoff in an urban setting. This includes coarser to very fine sediments resulting from soil erosion and many other natural and human-activity based sources of sediment. Sediment loads have been shown to be exceptionally high in the case of construction activity.

Runoff Treatment and Best Management Practices

Runoff during storm events is part of the natural hydrologic cycle; however activities such as construction and development can impact stormwater runoff. Federal, state, and local regulatory and management agencies have begun to place emphasis on preventing pollution at the source and implementing treatment of polluted runoff to prevent degradation of water resources. Management strategies known as BMPs are often implemented to provide treatment of runoff in order to eliminate or reduce the discharge of pollutants.

Construction Best Management Practices

Excessive erosion and sedimentation are perhaps the most visible water quality impacts because of construction activities. Erosion control is a source control practice that protects the soil surface and prevents soil particles from being detached by rainfall or flowing water; whereas, sediment control is a practice for trapping soil particles after they have been detached and moved by rain or flowing water (California Stormwater Quality Association [CASQA] 2003). Reduction in sediment transport is often the primary goal of BMPs because sediment can carry other pollutants that are attached to it to surface water resources, including nutrients, trace metals, and hydrocarbons. Therefore, a reduction in the amount of detached or transported sediment will also reduce the amount of other pollutants reaching surface waters. It is recognized that some BMPs provide both erosion and sediment control.

Additionally, the City of Santa Ana is a Co-permittee of the Orange County Drainage Area Master Plan (DAMP), which requires appropriate actions to reduce discharges of pollutants and runoff during each of

the three major phases of urban development, planning, construction, and operation. Examples of BMPs for erosion control include: soil binders, straw mulch, earth dikes and drainage swales, and velocity dissipation devices. Examples of sediment control include: silt fences, sediment traps, fiber rolls, gravel bag berms, and sandbag barriers.

Post-Construction Best Management Practices

Development projects can create long term, post-construction impacts from stormwater runoff depending upon associated land use and other characteristics of the project. Impervious surfaces such as, streets, rooftops, and parking lots prevent infiltration and increase the rate and volume of stormwater runoff. Additionally, various urban activities such as gardening, landscaping, and automobile maintenance activities, in conjunction with increased impervious surfaces, may increase the concentration and/or total load of various pollutants, as well as altering the types of constituents carried in stormwater. Post-construction measures under the Orange County DAMP require the Co-permittees to implement structural and nonstructural BMPs that would mimic pre-development quantity and quality runoff conditions from new development.

There are several management strategies that can be included into site planning and design that can significantly reduce pollutant concentrations in stormwater. A development project can achieve stormwater management goals by incorporating basic elements such as infiltration and biofilters. Several other post-construction water quality BMPs can be included and incorporated in site design and operations. These include disconnected roof drains, rain gardens, minimum required street widths, curb and gutter systems for street sweeping or no curbs and gutters for road-side swales, public education, installation of pet waste stations, proprietary structural devices, and others. Details on several of these can be found in the CASQA Handbooks and local and regional Water Quality Management Plans.

Groundwater

The Orange County Groundwater Basin (Basin) underlies the northern half of Orange County, including the City. The water basin is bordered by the Puente Hills, Chino Hills, and Santa Ana Mountains in the north and east, the Pacific Ocean in the south and southwest, the San Joaquin Hills on the southeast, and the Los Angeles Groundwater Basin on the northwest. The Basin is bisected by the Santa Ana River, which serves as the main source of water used for recharge. Flows in the river come from treated effluent from upstream discharges, stormwater runoff, and imported supplies through the Orange County Water District (OCWD).

Groundwater pumping in the Basin removes groundwater from the aquifers. Removal of pumped groundwater needs to be balanced with refilling the Basin so that the amount of water is sufficient to meet future pumping needs. In addition to natural replenishment processes that refill the Basin, the District maintains programs to enhance recharge. The Basin's primary source of water for groundwater recharge ('recharge water') is the Santa Ana River. River flows are diverted into spreading basins located in the cities of Anaheim and Orange for percolation into the Basin. The District also operates the Talbert Barrier in Fountain Valley and Huntington Beach and participates in the Alamitos Barrier in Seal Beach

and Long Beach. In addition to helping to prevent seawater intrusion, the barriers also help refill the Basin.[18]

Flooding

According to the Land Use Element of the General Plan, the Overlay Zone is not located within a flood hazard area. Rather, the 100-year and 500-year flood hazard zones are located in the western portions of the City, near the Santa Ana River. In addition, the Overlay Zone is also not located in the flood inundation area of the Prado Dam or the Santiago Dam.

However, as discussed in the EIR to the Land Use Element, deficient storm drain facilities have been identified in several areas of the City. Existing structures and residents in these areas may be exposed to street flooding during period of heavy rains. In addition, new development on these streets could exacerbate street flooding if no infrastructure improvements are implemented.

4.7.2 Regulatory Framework

Federal

Clean Water Act (CWA)

The CWA was enacted with the primary purpose of restoring and maintaining the chemical, physical, and biological integrity of the Nation's waters. The EPA has delegated responsibility for implementation of portions of the CWA to the State Water Resources Control Board (SWRCB) and the RWQCB for water quality control planning and control programs, such as the National Pollutant Discharge Elimination System (NPDES) Program.

State

State Water Resources Control Board

The State Water Resources Control Board (SWRCB) was established through the California *Porter-Cologne Water Quality Act of 1969* and is the primary state agency responsible for water quality management issues in California. Specifically the *Porter-Cologne Water Quality Act* authorizes the SWRCB to adopt, review, and revise policies for all waters of the state (including both surface water and groundwater) and directs the RWQCBs to develop regional Basin Plans.

Porter-Cologne Water Quality Control Act

The *Porter-Cologne Water Quality Control Act* establishes the SWRCB and each RWQCB as the principal State agencies for coordinating and controlling water quality in California. Specifically, the *Porter-Cologne Water Quality Control Act* authorizes the SWRCB to adopt, review, and revise policies for all waters of the

[18] OCWD, Groundwater Management Plan, 2004.

state (including both surface and groundwaters) and directs the RWQCBs to develop regional Basin Plans.

National Pollutant Discharge Elimination System Permits

The SWRCB has adopted a statewide Construction General Permit (WQ Order 99-08-DWQ) for stormwater discharges associated with construction activity. These regulations prohibit the discharge of stormwater from construction projects that include one acre or more of soil disturbance. Construction activities subject to this permit include clearing, grading, and other disturbance to the ground, such as stockpiling, or excavation that results in soil disturbance of at least 5 acres of total land area. As required by NPDES, because construction on project sites within the Overlay Zone would occur over an area greater than one acre, individual developers would be required to submit a Notice of Intent (NOI) to the SWRCB for coverage under the permit and would be required to comply with all its requirements.

The NPDES Construction General Permit requires all dischargers to (1) develop and implement a Stormwater Pollution Prevention Plan (SWPPP), which specifies BMPs used during construction of the project; (2) eliminate or reduce nonstormwater discharge to stormwater conveyance systems; and (3) develop and implement a monitoring program of all BMPs specified. The two major objectives of the SWPPP are to (1) help identify the sources of sediment and other pollutants that affect the water quality of stormwater discharges and (2) to describe and insure the implementation of BMPs to reduce or eliminate sediment and other pollutants in stormwater as well as non-stormwater discharges.

Regional

Santa Ana River Basin Plan

Existing water quality issues have been identified in the watershed planning process and are incorporated in the Water Quality Control Plan (WCQP) for the Santa Ana River Basin (Basin Plan). The Basin Plan designates beneficial uses of the waters of the region and specifies water quality objectives intended to protect those uses. The Basin Plan also specifies an implementation plan describing actions that are necessary to achieve and maintain water quality standards, and regulates waste discharges to minimize and control their effects. Dischargers must comply with the water quality standards contained in the Basin Plan.

Orange County Drainage Area Management Plan

The purpose of the DAMP was to satisfy NPDES permit conditions for creating and implementing an Urban Runoff Management Program to reduce pollutant discharges to the maximum extent practicable (MEP) for protection of receiving waterbody water quality and support of designated beneficial uses. The DAMP contains guidances on both structural and nonstructural BMPs for meeting these goals. The DAMP identifies activities required to implement the following six minimum control measures required under the Municipal Permit: public outreach; public involvement; illicit discharge detection and elimination; construction site runoff; new development and redevelopment; and municipal operations.

In order to ensure that construction sites implement the appropriate pollution control measures, the 2003 DAMP details recommended BMPs to be applied to new development and significant redevelopment in Orange County. Projects are identified as either priority projects or non-priority projects. Priority projects include, but are not limited to, residential development of ten units or more; commercial and industrial development greater than 100,000 square feet (sf), including parking area; impervious surface of 2,500 sf or more located within, directly adjacent to (within 200 feet), or discharging directly to receiving waters within Environmentally Sensitive Areas; and parking lots 5,000 sf or more, with 15 parking spaces or more, and potentially exposed to urban stormwater runoff. Some projects developed under the Overlay Zone would be considered priority projects under the 2003 DAMP Model Water Quality Management Plan (WQMP). These regulations require that individual projects incorporate and implement all source control BMPs (routine structural and routine non-structural), unless not applicable to the project due to project characteristics, and document clearly why any applicable source control BMP was not included; incorporate and implement site design BMPs, as appropriate, and document the site design BMPs that are included; and either incorporate and implement treatment control BMPs, by including a selection of such BMPs into the project design; or participate in or contribute to an acceptable regional or watershed-based program.

Projects participating in a regional or watershed program will also implement source control BMPs and site design BMPs consistent with the requirements of the approved regional or watershed-based plan. The combination of source control, site design, and treatment control BMPs or regional or watershed-based programs must adequately address all identified pollutants and hydrologic conditions of concern. These regulations are designed to ensure that stormwater quality management is considered during a project's planning phase, implemented during construction, and maintained for the life of the project.

Routine structural BMPs may function either to minimize the introduction of pollutants into the drainage system or to remove pollutants from the drainage system. Appropriate residential nonstructural BMPs listed in the DAMP that may be used on site to control typical runoff pollutants include homeowner/tenant education, activity restrictions, common area landscape management, BMP maintenance, common area litter and animal waste control, catch basin inspection, employee training, private street/lot sweeping, smart irrigation controllers to avoid over-watering, use of native drought-tolerant landscaping, and designated car washing location on site. BMPs can serve to address bacterial contaminants in addition to other contaminants, although there are no water quality standards set for bacteria levels. Applicable structural and nonstructural BMPs implemented on the site for source control and pollution prevention to minimize the introduction of pollutants into the drainage system depend on the ultimate configuration of the proposed land use.

Orange County Water District Groundwater Management Plan

In 1974, the OCWD proposed a Basin-wide groundwater quality monitoring program, on behalf of Basin Producers, to satisfy the drinking water testing requirements specified in the federal *Safe Drinking Water Act* (SDWA). The OCWD Plan also addresses the requirements of Senate Bill 1938, passed in 2002, which includes a list of issues to be addressed to ensure compliance of groundwater management plans with the California Water Code.

The Plan does not commit the OCWD to a particular program or level of Basin production, but describes the factors to consider and key issues as the Board makes Basin management decisions on a regular basis each year. Potential projects that are conceptually described in the Plan are described in greater detail in the Long-Term Facilities Plan. Two major objectives drive the Plan: protecting and enhancing groundwater quality and cost-effectively protecting and increasing the Basin's sustainable yield.

Local

The *City of Santa Ana General Plan* Public Safety Element contains the following objective and policy applicable to the area of hydrology and water quality relative to the proposed project.

Public Safety Element

Objectives:

1.2 Effectively manage risks associated with earthquakes, floods, fires and hazardous materials. materials.

Implementation Policies:

- Assure acceptable levels of risk to people and property from flooding and from toxic materials.

Consistency Analysis

The Overlay Zone is not located in a flood hazard area, as identified by the City of Santa. In addition, as discussed below under Impacts and Mitigation, adherence to existing regulations (NPDES, Orange County DAMP requirements, and the City's Local Implementation Plan [LIP]) would reduce the potential for increased runoff at project sites and would minimize the alteration of existing drainage patterns. Further, adherence to mitigation measure MM-OZ 4.7-2, as shown below, would ensure that storm drain capacity is adequate for future development in the Overlay Zone, which would reduce the risk of downstream flooding. Consequently, implementation of the proposed Overlay Zone would not conflict with this policy or objective.

4.7.3 Project Impacts and Mitigation

Analytic Method

Potential impacts that could result from implementation of the proposed project were evaluated by comparing current uses to those that are proposed. Impacts to surface and groundwater quality were analyzed by reviewing existing groundwater and surface water quality literature that pertains to the area; identifying existing on-site ground and surface waters, including the depth to groundwater; and evaluating existing and potential sources of water quality pollutants based on the types of land uses and operational activities that occur or could occur on the plan area. Additionally, the applicability of federal and state regulations, ordinances, and/or standards to surface and groundwater quality of the project area

and subsequent receiving waters was assessed. Potential impacts from implementation of the proposed project were determined by evaluating the thresholds of significance outlined below.

Thresholds of Significance

The following thresholds of significance are generally based on Appendix G of the 2006 CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on hydrology and water quality if it would result in any of the following:

- Violate any water quality standards or waste discharge requirements
- Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level that would not support existing land uses or planned uses for which permits have been granted)
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site
- Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site
- Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff
- Otherwise substantially degrade water quality
- Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map
- Place within a 100-year flood hazard area structures, which would impede or redirect flood flows
- Expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam
- Expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow

Effects Found to have No Impact

Threshold	Would the project place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

The proposed Overlay District is not located within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map. The proposed Overlay District is within Zone X on FEMA public flood maps, which is determined to be outside the 0.2% annual chance floodplain.[19] In addition, as shown in the Public Safety Element of the City of Santa Ana General Plan[20], the area is not within the 100-year or 500-year flood hazard area. Thus, implementation of the proposed project would not place housing within a flood hazard area, and there would be ***no impact***, and no further analysis is required.

[19] FEMA. FEMA Map Service Center. Public Flood Map. Map ID: 06059C0277H.
[20] Santa Ana, City of. General Plan Safety Element. Flood and Fire Hazard Areas. Pg. 20.

Threshold	Would the project place within a 100-year flood hazard area structures, which would impede or redirect flood flows?

As stated above, the proposed Overlay District is not within the 100-year flood hazard area, and is outside the 0.2% annual chance floodplain. As there would be no risk of flooding in the proposed Overlay District, there would be ***no impact*** to the placement of structures which would impede or redirect flood flows, and no further analysis is required.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving flooding, including flooding as a result of the failure of a levee or dam?

As discussed previously, the Overlay Zone is not located in the flood inundation area of the Prado Dam or the Santiago Dam. Consequently, implementation of the proposed project would not expose people or structures to a significant risk as a result of the failure of a levee or dam, and there would be ***no impact***. No further analysis is required.

Threshold	Would the project expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche, tsunami, or mudflow?

The proposed Overlay District would not expose people to a significant risk of loss, injury, or death involving inundation by a seiche, tsunami, or mudflow because the project site is not located near a coastal area, large water body, or unstable and exposed hills or slopes. The project site is located approximately 9 miles from the Pacific Ocean and 130 feet above sea level, which is a sufficient distance so as not to be subject to tsunami impacts. No impact associated with tsunamis is anticipated to occur.

The closest enclosed bodies of water that could result in earthquake-induced seiches are the Prado Dam, which is located near the City of Corona to the northwest of the Cleveland National Forest, or the Santiago Dam, which is located approximately 12 miles east of the area in Silverado. The project site is not located within a flood hazard (inundation) area associated with either dam.[21] Therefore, overflow as the result of a seiche would not expose people or structures to a significant risk of loss, injury, or death involving inundation by seiche within the proposed Overlay Zone.

The City of Santa Ana is located on nearly flat surfaces and there are no areas with slopes significant enough to cause mudflows near the proposed Overlay Zone which would expose people or structures to a significant risk of loss, injury, or death. Therefore, no impact associated with mudflows is anticipated to occur.

In summary, there would be ***no impact*** to the exposure of people or structures at the proposed Overlay Zone to a significant risk of loss, injury, or death involving inundation by a seiche, tsunami, or mudflow. No further analysis is required.

[21] Santa Ana, City of. General Plan Safety Element. Flood and Fire Hazard Areas. Pg. 20.

Effects Found to Be Less Than Significant

Threshold	Would the project violate any water quality standards or waste discharge requirements? Would the project otherwise substantially degrade water quality?

Impact 4.7-1 **Implementation of the proposed Overlay Zone would not violate water quality standards, waste discharge, or otherwise substantially degrade water quality. Compliance with mitigation measure MM-OZ 4.7-1 and existing regulations would ensure that this would be a *less-than-significant* impact.**

Construction

Soil disturbance would temporarily occur due to construction of future developments under the proposed project, due to earth-moving activities such as excavation and trenching for foundations and utilities, soil compaction and moving, cut and fill activities, and grading. Disturbed soils are susceptible to high rates of erosion from wind and rain, resulting in sediment transport via stormwater runoff from the project area. Erosion and sedimentation affects water quality through interference with photosynthesis, oxygen exchange, and respiration, growth, and reproduction of aquatic species. Runoff from construction sites would be typical of urban areas, and may include sediments and contaminants such as oils, fuels, paints, and solvents. Additionally, other pollutants such as nutrients, trace metals, and hydrocarbons can attach to sediment and be transported to downstream drainages and ultimately into collecting waterways, contributing to degradation of water quality.

Construction materials and waste handling, and the use of construction equipment, could also result in stormwater contamination and impact water quality. Spills or leads from heavy equipment and machinery could result in oil and grease contamination. The potential demolition of buildings to allow for redevelopment and infill activities, and the removal of waste material during construction could also result in tracking of dust and debris and release of contaminants in existing structures. Staging areas or building sites can also be the source of pollution due to the use of paints, solvents, cleaning agents, and metals during construction. Pesticide use (including herbicides, fungicides, and rodenticides) associated with site preparation is another potential source of stormwater contamination. Larger pollutants, such as trash, debris, and organic matter could also be associated with construction activities. Water quality degradation could result in health hazards and aquatic ecosystem damage associated with bacteria, viruses, and vectors.

Sediments and contaminants may be transported throughout site runoff to downstream drainages and ultimately into the collecting waterways, and potentially into the Pacific Ocean, thereby affecting surface water and off-shore water quality.

Construction activities in the Overlay Zone could include road improvements and realignments, installation and realignment of utilities, demolition of existing structures for new development or replacement and new development. Areas that disturb one or more acres of land surface are subject to

the Construction General Permit, 99-08-DWQ adopted by the State Water Resources Control Board (SWRCB). Preparation of a Stormwater Pollution Prevention Plan (SWPPP) is required for compliance with the NPDES General Construction Stormwater Activity Permit. Compliance with the permit would involve filing a Notice of Intent with the SWRCB and preparing and submitting a SWPPP prior to construction activities. The SWPPP must describe the site, the facility, erosion and sediment controls, runoff water quality monitoring, means of waste disposal, implementation of approved local plans, control of construction sediment and erosion control measures, maintenance responsibilities, and nonstormwater management controls. Inspection of construction sites before and after storms is required to identify stormwater discharge from the construction activity and to identify and implement controls where necessary. The Construction General Permit requirements would need to be satisfied prior to beginning construction on any project located on a site greater than one acre.

Water quality degradation from construction would be specific to each site within the Overlay Zone, and depend largely on the areas affected and the length of time soils are subject to erosion and construction activities on site. All development would be subject to regional and local regulations, including the City's Water Pollution Ordinance, adopted to ensure compliance with federal requirements for the control of urban pollutants to stormwater runoff which enters the network of storm drains throughout the County of Orange. Contractors constructing new development or redevelopment projects are required to comply with the conditions of the City's Local Implementation Plan (LIP) and the DAMP, including the implementation of appropriate BMPs to control stormwater runoff so as to prevent any deterioration of water quality.

Typical BMPs that could be incorporated into the SWPPP would include, but are not limited to, the following:

- Diversion of off-site runoff away from the construction site
- Vegetation of proposed landscaped/grassed swale areas as soon as feasible following grading activities
- Revegetation of exposed soil surfaces as soon as feasible following grading activities
- Perimeter straw wattles to prevent off-site transport of sediment
- Drop inlet protection (filters and sand bags or straw wattles), with sandbag check dams within paved roadways
- Regular watering of exposed soils to control dust during construction
- Specifications for construction waste handling and disposal
- Contained equipment wash-out and vehicle maintenance areas
- Erosion and sedimentation control measures maintained throughout the construction period
- Stabilized construction entrances to avoid trucks from imprinting debris on City roadways
- Training of subcontractors on general site housekeeping

In order to ensure compliance with existing regulations, implementation of mitigation measure MM-OZ 4.7-1 would be required for future development projects in the Overlay Zone.

MM-OZ 4.7-1 *In order to comply with the 2003 DAMP, future development projects in the Overlay Zone shall prepare Storm Drain Plans, Stormwater Pollution Prevention Plans (SWPPP), and Water Quality Management Plans (WQMP) conforming to the current National Pollution Discharge Elimination System (NPDES) requirements, prepared by a Licensed Civil Engineer*

or Environmental Engineer, shall be submitted to the Department of Public Works for review and approval.

(a) A SWPPP shall be prepared and updated as needed during the course of construction to satisfy the requirements of each phase of the development. The plan shall incorporate all necessary Best Management Practices (BMPs) and other City requirements to eliminate polluted runoff until all construction work for the project is completed. The SWPPP shall include treatment and disposal of all dewatering operation flows, and for nuisance flows during construction.

(b) A WQMP shall be prepared, maintained, and updated as needed to satisfy the requirements of the adopted NPDES program. The plan shall incorporate water quality measures for all improved phases of the project.

(c) Location of the BMPs shall not be within the public right-of-way.

Compliance with mitigation measure MM-OZ 4.7-1 and applicable permit requirements for construction conditions would ensure that construction water quality effects for future development in the Overlay Zone would be reduced to the maximum extent practicable and would be considered ***less than significant***.

Operation

Operation of future developments in the Overlay Zone could result in the addition of contaminants into the stormwater runoff entering the City's drainage system. The major source of pollution to runoff and infiltrating groundwater would be contaminants that have accumulated on the land surface over which stormwater passes. Between rainstorms, material would be deposited on the streets, paved areas, roof tops, and other surfaces from debris dropped or scattered by individuals, wastes and dirt from construction and renovation or demolition, fecal droppings from animals, oil and various residues contributed by vehicular traffic, and fallout of air-borne particles.

It is possible that future developments would increase the amount of impervious surfaces within the Overlay Zone, which could potentially increase stormwater runoff. However, because a majority of the Overlay Zone is already built-out, any increase in impervious surfaces is anticipated to be minor in relation to existing conditions. Therefore, the potential for infill development to contribute to polluted runoff would be minimal, and it is assumed that annual pollutant loads would remain similar under future developed conditions compared to existing conditions.

Discretionary projects would require the preparation of a Water Quality Management Plan (WQMP). A WQMP would be specific to the expected pollutants that would be present in the stormwater flow from project sites after completion of construction. The WQMP would incorporate the requirements of DAMP Section 7, including all feasible recommended BMPs. It would include site design, source control, and treatment control BMPs to address the specific pollutants anticipated from the project and project site, and would detail the specific operation and maintenance of each BMP. The WQMP would outline a routine maintenance schedule for each BMP, in compliance with the DAMP and local regulations.

In addition, as discussed previously, developments within the City would be subject to the provisions of the City's Water Pollution Ordinance. Further, as is required for construction activities, operation of new

development or redevelopment projects are required to comply with provisions set forth the City's LIP and the DAMP, including the implementation of appropriate BMPs to control stormwater runoff so as to prevent any deterioration of water quality.

Compliance with mitigation measure MM-OZ 4.7-1, NPDES permits requirements, the Orange County DAMP, and the City's LIP and Municipal Code would reduce the risk of water degradation within the Overlay Zone from the operation of new developments to the maximum extent practicable. Therefore, since violation of waste discharge requirements or water quality standards would be minimized, this impact would be ***less than significant***.

Threshold	Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

Impact 4.7-2 **Implementation of the proposed Overlay Zone would not interfere substantially with groundwater recharge. This is considered a *less-than-significant* impact.**

Construction

Construction activities would primarily occur as part of infill/redevelopment, with the exception of the potential for development on the limited number of vacant sites in the Overlay Zone. According to the City's General Plan, Santa Ana does not serve as the main spreading basin for groundwater recharge. Depending on the groundwater table at particular project sites within the Overlay Zone, pile driving, dewatering, and other construction activities that would encounter groundwater could potentially occur. While the insertion of support and foundation structures in the groundwater may reduce the storage capacity of groundwater, the displaced volume would not be substantial relative to the volume of the Basin. Likewise, while dewatering would remove groundwater, the volume of water removed would not likely be substantial relative to groundwater pumping for water supply. Also, water used during construction for cleaning, dust control, and other uses would be nominal. Thus, construction activities would not substantially deplete groundwater supplies nor interfere substantially with groundwater recharge. This impact is considered ***less than significant***.

Operation

Future development under the Overlay Zone would lead to increases in water consumption, particularly because residential uses typically use more water than commercial and office uses (which presently characterize the area). However, because the majority of the project area is presently developed with existing uses, the potential future development would not substantially reduce areas of ground percolation and recharge because the existing uses would simply be replaced with new uses.

As discussed previously, the City does not serve as the main spreading basin for groundwater recharge. Thus, any development on the limited undeveloped land within the Overlay Zone, groundwater recharge would not substantially affect groundwater recharge.

Therefore, because the majority of the Overlay Zone is already developed and because the project area is not used for groundwater recharge, the operation of future development under the proposed project would not interfere substantially with groundwater recharge. This impact is considered ***less than significant***.

Threshold	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner that would result in substantial erosion or siltation on or off site?

Impact 4.7-3 **Development under the proposed Overlay Zone could alter the existing drainage pattern of the area and potentially result in erosion and siltation. Compliance with mitigation measure MM-OZ 4.7-1 and existing regulations would ensure that this would be a *less-than-significant* impact.**

Construction

Construction activities under the proposed Overlay Zone would involve stockpiling, grading, excavation, paving, and other earth-disturbing activities, which could result in the alteration of existing drainage patterns. These types of activities would constitute a temporary alteration of drainage patterns. However, future development would be required to comply with the 2003 DAMP and the City's corresponding Local Implementation Plan (LIP), which serves as the primary policy and implementation document for compliance with the NPDES Stormwater permits.[22] As described above in Impact 4.7-1, compliance with NPDES regulations and the City's Municipal Code would reduce the risk of short-term erosion resulting from drainage alteration during construction to a ***less-than-significant*** impact.

Operation

The majority of the Overlay Zone is presently developed with office and commercial uses. The introduction of new uses throughout the Overlay Zone is not anticipated to result in substantial changes to the existing drainage patterns because existing drainage facilities would continue to be used and the amount of drainage would remain similar to present levels. However, it is possible that future development in the Overlay Zone could result in minor alterations to drainage, such as changes in ground surface permeability via paving, or changes in topography via grading and excavation.

Impact 4.7-1 discusses applicable regulations that would limit pollutant discharges from future development in the Overlay Zone. In addition, all development in the Overlay Zone would be subject to the provisions of the City's LIP and Orange County DAMP. These regulations include the implementation of appropriate BMPs including a range of methods that could minimize off-site erosion, including but not limited to hydrodynamic devices, swales/biofilters, basins, and various filters.

[22] City of Santa Ana, Local Implementation Plan Executive Summary, 2003

In addition, as required by mitigation measure MM-OZ 4.7-1, future developments would be required to prepare a storm drain plan and WQMP. Implementation of these plans would reduce the volume of sediment-laden runoff discharging from sites within the Overlay Zone. Consequently, because future projects in the Overlay Zone are not anticipated to substantially alter drainage patterns in comparison to existing conditions in the area, and because adherence to existing requirements would reduce erosion and siltation during operation, this impact is considered ***less than significant***.

Threshold	Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site? Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?

Impact 4.7-4 **Future development in the Overlay Zone could alter the existing drainage pattern and potentially result in increased downstream flooding through the addition of impervious surfaces, or exceeding the capacity of existing or planned stormwater drainage systems. Adherence to mitigation measure MM-OZ 4.7-2 would reduce this impact to a *less-than-significant* level.**

Future development in the Overlay Zone would generally result in infill development or redevelopment. As such, most of the future projects would not result in new development that would substantially alter drainage patterns because these areas are already developed with existing uses and impervious surfaces. However, limited development of land that is currently vacant (i.e., agricultural parcels) and covered with permeable surfaces may occur. Although minimal, increased impervious surfaces would increase stormwater runoff in the Overlay Zone. In addition, it is presently unknown whether the existing drainage system throughout the Overlay Zone is adequate.[23] Therefore, in order to provide a conservative assessment, it is possible that this increased runoff could exceed the capacity of existing and planned infrastructure and cause downstream flooding impacts.

Adherence to mitigation measure MM-OZ 4.7-1 would require the preparation of a WQMP and implementation of appropriate BMPs, which could incorporate stormwater detention facilities, and would reduce the volume of runoff generated (and potential for flooding) in the Overlay Zone. However, because the existing capacity of the existing storm drain system in the Overlay Zone is unknown, this is considered a ***potentially significant*** impact. Implementation of mitigation measure MM-OZ 4.7-2 would be required to address these issues.

MM-OZ 4.7-2 *Prior to issuance of grading permits, future development projects in the Overlay Zone shall submit a Hydrology and Hydraulic Study to the Public Works Department for review and approval. If existing facilities are not adequate to handle runoff that may be generated by the proposed development, then the applicant shall propose feasible remedies to assure that adequate drainage facilities will be available prior to issuance of occupancy permits. The applicant may*

[23] Verbal communication with Santa Ana Public Works Department. October 16, 2006.

propose storm drain improvements to be constructed in order to meet project needs. If necessary storm drain upgrades cannot be implemented prior to issuance of occupancy permits, on site detention facilities or other methods acceptable to the City shall be included with new development projects to ensure that post-construction runoff does not exceed pre-development quantities.

Adherence to mitigation measure MM-OZ 4.7-2 would ensure that runoff would not exceed the capacity of storm drain systems, and this impact would be reduced to a ***less-than-significant*** level.

4.7.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

The geographic context for the analysis of cumulative impacts associated with water quality is the San Diego Creek Watershed. Cumulative development would involve construction activities which would result in increases in stormwater runoff from new impervious surfaces. Construction of new development could result in the erosion of soil, thereby cumulatively degrading water quality. In addition, the increase in impermeable surfaces and more intensive land uses may also adversely affect water quality by increasing the amount of stormwater runoff and common urban contaminants entering the storm drain system. However, new development would be required to comply with existing regulations regarding construction practices that minimize risks of erosion and runoff. Among the various regulations that are applicable include the provisions of NPDES permits, implementation of appropriate BMPs, and compliance with local regulations. This would minimize degradation of water quality at individual project construction sites. As such, cumulative impacts would be ***less than significant***, and the proposed project would not have a cumulatively considerable contribution.

The geographic context for the analysis of cumulative impacts associated with groundwater is the area underlain by the Orange County Groundwater Basin. Cumulative development within the Basin could interfere with groundwater recharge. New development occurring in vacant areas that currently serve as groundwater recharge areas would reduce recharge potential within the Basin. The overall growth within the Basin could directly or indirectly result in the loss of groundwater recharge areas. However, this loss would be mitigated by OCWD via operation of the on-going Groundwater Replenishment System (GRS). Ongoing implementation of the GRS would increase groundwater supplies by injecting reclaimed water into the Basin and protecting it against seawater intrusion. Thus, cumulative impacts associated with groundwater would be ***less than significant***. Because the proposed project would not affect groundwater recharge, it would not have a cumulatively considerable contribution to this effect.

Cumulative development could result in the introduction of new structures and impervious surfaces that would increase stormwater runoff, which could subsequently lead to increased flood hazards. Because the existing condition of the storm drain system is unknown, future development could result in a cumulative impact. However, the proposed project would ensure that post-development runoff from future projects within the overlay zone would not exceed storm drain capacity, and thus, the proposed

project's contribution to cumulative impacts associated with flood hazards would be ***less than significant***.

4.7.5 References

CDM. City of Santa Ana: GIS Integrated for Drainage Facility Inventory and Analysis, 2005

City of Santa Ana. Draft EIR No. 97-01 for the Land Use Element, 1997.

City of Santa Ana. Local Implementation Plan Executive Summary, 2003.

City of Santa Ana. General Plan Safety Element, 1982.

FEMA. FEMA Map Service Center. Public Flood Map. Map ID: 06059C0277H.

Orange County. Drainage Area Management Plan, 2003.

Orange County Watershed & Coastal Resources website, http://www.ocwatersheds.com/watersheds/sandiego_creek.asp, accessed October 4, 2006

OCWD. Groundwater Management Plan, 2004

Verbal communication with Santa Ana Public Works Department. October 16, 2006.

4.8 LAND USE AND PLANNING

This section of the EIR describes existing land uses within the Metro East Mixed Use Overlay Zone (Overlay Zone) and in the surrounding area, and evaluates the potential for land use impacts associated with adoption of the Overlay Zone. The analysis focuses on the potential for the Overlay Zone to result in impacts on existing and planned uses within the Overlay Zone boundaries and on adjacent community land uses, and the relationship of the Overlay Zone to relevant planning policies that guide land use decisions. Data used in the preparation of this section was obtained primarily from the Santa Ana General Plan and Zoning Code, and information from City Staff. Two NOP comment letters related to land use were received during the project scoping period. Full bibliographic entries for all reference materials are provided in Section 4.8.5 (References) of this section.

4.8.1 Environmental Setting

Existing Conditions

The Overlay Zone comprises over 200 acres of land abutting the eastern boundary of the City of Santa Ana adjacent to the City of Tustin. The Overlay Zone is located immediately east of the Santa Ana Freeway (I-5) and immediately west of State Route 55 (SR-55), and is comprised of the properties generally bounded by the Santa Ana (I-5) Freeway on the west, Park Court Place and its prolongation to Tustin Avenue on the north, First Street on the south, and Tustin Avenue and the Costa Mesa State Route (SR-55) on the east. The boundaries of the Overlay Zone are depicted in Figure 3-4 (Proposed Overlay Zone Map).

The Overlay Zone is within the regulatory jurisdiction of the City of Santa Ana. Permitted land uses, policies, standards and regulations that are applicable to the proposed Overlay Zone are contained within the Santa Ana General Plan (General Plan), and the Santa Ana Zoning Code (SAZC).

The City's Land Use Element currently designates the Overlay Zone within the Professional and Administrative Office (PAO) land use category. The PAO designation applies to those areas where professional and/or administrative offices are predominant, or where such development is being encouraged. The floor area ratio intensity standard applicable to this land use designation ranges from 0.5 to 1.0 FAR (3.29 FAR is permitted within SD-54). The Land Use Element also designates the area south of Fourth Street within the Overlay Zone as a "major development area", called the *East First Street Corridor*. This area has developed over the years as a prime office corridor and major employment area with high intensity, high quality regional office projects. The PAO designation facilitates the continued development of this area with high intensity, high quality regional office projects.

Under the City's existing zoning, there are six land use zones within the Overlay Zone, as shown in Figure 3-3 (Existing Zoning), which include the following: Professional Zone, Specific Development, Community Commercial, General Commercial, Arterial Commercial, and General Agriculture.

Existing land uses in the Overlay Zone consist of a mix of office, commercial/retail, auto-related retail, motel, and rehabilitation/care land uses, with some surface and garage parking lots. Generally, the entire northern half of the Overlay Zone, north of Fourth Street, is developed with office buildings primarily one-to-two stories in height. South of Fourth Street, land uses include a mix of high and low-rise office buildings, commercial/retail, motel, auto-related retail, and similar land uses, in addition to several vacant properties. Building heights in the Overlay Zone range from one story to high-rise development.

Surrounding Land Uses

The areas immediately surrounding the Overlay Zone include a mix of residential and commercial properties. The Overlay Zone is bordered to the north by a single-family residential neighborhood, to the south by multi-family residential properties and St. Jeanne De Lestonnac School, to the east by primarily commercial land uses, and to the west by the I-5 Freeway, Santa Ana Zoo, and additional commercial properties. Immediately east of the Overlay Zone is the State Route 55 (SR-55), which separates the City of Santa Ana from the City of Tustin.

4.8.2 Regulatory Framework

Federal

There are no federal land use regulations applicable to the Overlay Zone.

State

There are no state land use regulations applicable to the Overlay Zone.

Regional

Southern California Association of Governments (SCAG)

SCAG is the regional clearinghouse responsible for reviewing local plans, projects and programs for consistency with regional plans. SCAG bases its review of such projects on its adopted regional plans, including *Destination 2030: 2004 Regional Transportation Plan*, *1996 Regional Comprehensive Plan and Guide*, and *Compass Growth Vision*. These plans establish goals and policies for the region. The California Environmental Quality Act (CEQA) requires that EIRs discuss any inconsistencies between the proposed plans and applicable general and regional plans. The policies related to land use are listed under Impact 4.8-1 below, for which a consistency analysis is also provided. SCAG will use these criteria in evaluating proposals for development.

Local

Santa Ana General Plan

The Santa Ana General Plan provides long-term guidance and policies for maintaining and improving the quality of life in, and the resources of, the community, both man made and natural. The General Plan provides direction for the City's growth and development. As a policy document, the General Plan serves as a guide to the adoption of laws necessary to execute its intent. The Santa Ana General Plan contains the following chapters:

- Airport Environs (1987)
- Growth Management (1991)
- Education (1988)
- Housing (2000)
- Land Use (1998)
- Circulation (1998)
- Economic Development (1998)
- Urban Design (1998)
- Public Facilities Element (1982)
- Public Safety Element (1982)
- Conservation Element (1982)
- Open Space, Parks and Recreation Element (1982)
- Energy Element (1982)
- Noise Element (1982)
- Seismic Element (1982)

The General Plan Land Use Element designates the proposed Overlay Zone within the Professional and Administrative Office (PAO) land use category, as specified above. Regulations and policies in the General Plan related to land use are listed under Impact 4.8-1 below, for which a consistency analysis is also provided. The City will use these criteria in evaluating proposals for new development.

Redevelopment Plans

An estimated 5,185 acres (8.1 square miles) of land in Santa Ana is currently included in six existing redevelopment project areas. The proposed Overlay Zone is located within the Intercity Redevelopment Plan area. This plan, adopted in 1982, focuses on approximately 525 acres designed to provide for the development of a commuter rail station and to promote supporting uses.

Enterprise Zone

A 7,000 acre portion of the City was designated by the State as a California Enterprise Zone in 1993. The proposed Overlay Zone falls within this area. The Enterprise Zone provides businesses with state tax incentive programs designed to promote new business development, as well as growth or expansion of existing businesses to revitalize the economy of the zone. Tax benefits include sales and use tax credits, hiring credits, business expense deductions, net loss operating carryovers, net interest deductions for lenders, and employee tax credits. The designated area will remain an Enterprise Zone until the year 2008.

Santa Ana Zoning Code

The City's Zoning Code outlines development standards for buildings, site size, height, setbacks, lot coverage, minimum unit sizes, landscaping, parking, signs, fences, and other features. The corresponding zoning districts of the PAO designation include Professional (P) and Specific Development (SD). The current zoning districts within the Overlay Zone area include those prescribed by the General Plan in addition to other zones, including Community Commercial (CC), General Commercial (GC), Arterial Commercial (C5) and General Agricultural (A1). The provisions of the Overlay Zone shall apply to all properties within the Overlay Zone, but do not supersede the underlying zoning districts.

4.8.3 Project Impacts and Mitigation

Analytic Method

The analysis in this section focuses on the compatibility of land uses identified in the proposed Overlay Zone with existing and planned land uses within and adjacent to the Overlay Zone area, as well as consistency with any applicable land use plans, policies, or regulations.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2006 CEQA Guidelines, except where noted. In accordance with the requirements of CEQA and all applicable state and federal environmental laws, implementation of the Overlay Zone may have a significant adverse impact on land use if it would result in any of the following:

- Introduce new land uses that would result in conflicts of use
- Physically divide an established community
- Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.
- Conflict with any applicable habitat conservation plan or natural community conservation plan

Effects Found to Have No Impact

Threshold	Conflict with any applicable habitat conservation plan or natural community conservation plan.

The Overlay Zone is not located within either a natural community plan or applicable habitat conservation plan. The Overlay Zone does not contain any critical or sensitive habitat. Therefore there would be ***no impact***. No mitigation required. Impacts to potential biological resources are addressed in Section 4.1 (Biological Resources).

Effects Found to Be Less Than Significant

Threshold	Introduce new land uses that would result in conflicts of use.

Impact 4.8-1 **The Overlay Zone would not result in conflicts of use. This impact is considered *less than significant*.**

The proposed Overlay Zone would allow for introduction of residential, commercial, and entertainment uses in a largely office-oriented district. The transition of the area from a predominantly office-oriented area to a mixed-use center would occur over time as individual properties are developed under the Overlay Zone standards and guidelines.

Land use incompatibility can occur where differences exist among uses that are near each other. These incompatibilities may result from differences in the physical scale of development, noise levels, traffic levels, hours of operation, and other factors. The potential for conflicts exists in particular where mixed use development occurs. The proposed Overlay Zone adds new mixed use designations to an area that is currently designated primarily as Professional and Commercial uses. Mixed use development would be permissible within the Neighborhood Transitional, Village Center, and Active Urban districts, such that residential uses could be placed in proximity to commercial, office, and entertainment uses, including those in a highly urbanized environment.

Development standards contained in the Overlay Zone provide guidance that would minimize conflicts among uses in mixed use facilities. Principles to minimize conflicts include:

1.2 Objectives

- Achieve the harmonious integration of new mixed-use development within the existing fabric of the mid-rise and high-rise environment

4.2 Development Intensity (FAR)

- The overall scale and massing of development within the Overlay Zone should transition from 2 story scale of the Neighborhood Transitional district to mid-rise development in the Village Center district and high-rises in the Active Urban district adjacent to the Santa Ana Freeway.

  Neighborhood Transitional

  - New development in the Neighborhood Transitional district shall be of a low scale, and should serve as a visual transition between the Village Center and adjacent residential areas to the north.
  - New develop shall be compatible in height, scale, and mass with adjacent residential development to the north, with heights ranging between two and three stories.

  Village Center

  - New development in the Village Center district is more intensive in scale than the Neighborhood Transitional district, and shall serve as a visual transition from the low-intensity development of the Neighborhood Transitional district to the high intensive development in the Active Urban district.

Active Urban

- New development shall relate in similarity of scale, height, and configuration with adjacent buildings.
- New development shall be designed and oriented to promote intensive public activity at the ground level that integrates and establishes a cohesive transition with adjacent districts.

Project-specific features would depend on the types of uses proposed and the specific design of individual projects. Examples of design elements to reduce conflicts include screening of mechanical equipment, and locating these uses away from residential components; specific locations and hours of operation for service deliveries; and separate vehicular entrances for residential and commercial uses. Implementation of Development Standards therefore ensure that design of mixed use development does not result in significant land use incompatibilities.

In many locations, the addition of uses similar to existing uses would occur. For instance, in the Office District, uses would continue as currently permitted, and additional offices could be built in the Neighborhood Transitional district. Where additional development that is the same as or similar to existing development could occur, these uses would be compatible.

Land Use changes are further discussed below for each District. Land use changes are summarized in Table 4.8-1 (Summary of Key Land Use Changes by District in Overlay Zone), below.

Table 4.8-1 Summary of Key Land Use Changes by District in Overlay Zone

District	*Existing Use*	*Future Permitted Uses*	*Existing Building Heights*	*Future Allowable Building Heights*	*Key District Features*
Neighborhood Transitional	Office	Residential Live/work Office	One and Two stories	Three stories	Transition neighborhood
Village Center	Office Retail Auto-related retail Motel	Commercial Office Residential	One to Four stories	Four to Six stories	Emphasis on pedestrian environment, public open space areas
Active Urban	Office Minor retail/ commercial Auto-related retail Motel & care/rehab facility	Commercial, office, residential, and entertainment	One to Eight stories	High Rise	Highly urban environment
Office	Almost entirely office Minor retail/ commercial Care/rehab facility	Same as existing	One to Sixteen stories	Same as existing	Maintain balance between office, commercial and residential uses within the Overlay Zone

SOURCE: PBS&J 2006.

Neighborhood Transitional: Existing land uses in the Neighborhood Transitional district consist of one- and two-story office buildings. Land uses that would be permitted within this district under the proposed Overlay Zone would be limited to residential, live/work, or office uses, limited to three stories in height.

The Neighborhood Transitional district would remain as a low-intensity neighborhood as it is intended in the General Plan, and act as a transition between the single–family residential to the north and adjacent Village Center district and high-intensity Active Urban district to the south. The Neighborhood Transitional district development will be designed to provide an appropriate interface with the adjacent single-family residential area to the north by incorporating high levels of landscaping and design features.

Village Center: Existing land uses in the Village Center district consist of office buildings one to four stories in height, and minor retail, auto-related retail, and motel uses. Land uses that would be permitted within this District under the proposed Overlay Zone include commercial, office, and residential uses. The area would remain as a mid-rise building environment with heights between four and six stories. The Village Center is intended to serve as the focal point and central gathering place within the Overlay Zone, with an emphasis on creating a vibrant, attractive, and highly-interconnected pedestrian environment. The Village Center will provide open spaces, niches, and areas for gatherings and activities along streets, paseos, and interconnecting walkways that link the Village Center to adjacent districts and nearby public parks north of the district.

Active Urban: Existing development in the Active Urban district includes primarily office, with minor retail/commercial, auto-related retail, and a motel and care/rehab facility. Land uses that would be permitted within this district under the proposed Overlay Zone include commercial, office, residential, and entertainment uses (all uses that would occur in Village Center, plus entertainment uses). Pursuant to the General Plan, the Active Urban district is intended as the location for well-designed high-rise mixed-use developments in a highly urbanized environment. Developments will be designed to showcase an amenity-enhanced environment that provides numerous open space opportunities for the enjoyment of residents, employees, and visitors, and to promote pedestrian connections between this District and the Village Center as well as Cabrillo Park located north of the Overlay Zone.

The Office District: Existing development in the Office District consists almost entirely of office uses, with minor retail/commercial, and a care/rehab facility. Land uses and intensity standards that would be permitted within this district under the proposed Overlay Zone would continue pursuant to the existing Zoning Code.

Provided that the above objectives and development standards are implemented into the design of individual projects, land use impacts to the Office District and adjacent communities would be less than significant. The land use character of the area would change from a largely office-oriented district to a mixed use area with development divided into a series of districts and scaled in a variety of intensities. Because the proposed Overlay Zone would not adversely affect existing land uses, impacts to established communities within and adjacent to the Overlay Zone would be ***less than significant***.

Threshold	Physically divide an established community

Impact 4.8-2 **The proposed Overlay Zone would not physically divide an established community. This impact is considered *less than significant*.**

The proposed Overlay Zone does not include any features that would be considered divisive. Rather, the Development Standards of the Overlay Zone are intended to allow cohesive development. The required public realm improvements would enhance and unify the existing with the new development and create linkages to adjacent communities through pedestrian amenities and an integrated and interconnected open space and landscaping network. Existing uses would continue to be permitted within the Overlay Zone and be subject to the regulations and development standards of the underlying zoning districts, with the exception that certain standards contained in the Overlay Zone as to public realm improvements would be required. Because the proposed Overlay Zone would encourage connectivity, impacts to established communities within and adjacent to the Overlay Zone would be ***less than significant***.

Threshold	Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect.

Impact 4.8-3 **The proposed Overlay Zone would conflict with the Santa Ana General Plan by adopting standards and land uses not currently allowed within the proposed Overlay Zone area; however, as part of the proposed project, the General Plan would be amended to incorporate the proposed land uses and development standards. This impact is considered *less than significant.***

The City's General Plan Land Use Element designates the entire Overlay Zone within the Professional and Administrative (PAO) land use category. The General Plan identifies the following uses as types of uses typically located in the PAO district:

- Professional and administrative offices/office parks;
- Service activities such as copy centers, courier services, travel agencies, and restaurants when such uses are an integral component of a planned office development; and
- Professional uses such as accountants, attorneys, doctors, engineers, and insurance brokers.

The Land Use Element also prescribes a floor area ratio (FAR) intensity standard from 0.5 to 1.0 FAR for the PAO land use category.

Adoption of the proposed Overlay Zone would conflict with the currently adopted General Plan by permitting additional uses including commercial, residential, and entertainment uses. The Santa Ana General Plan will be amended as part of the approval process of the proposed Overlay Zone to include the Overlay Zone. Therefore, impacts of the proposed Overlay Zone would be ***less than significant***.

Development within the proposed Overlay Zone would consist of development ranging in intensity from 0.5 to 3.0 FAR, exceeding the General Plan recommended FAR threshold of 1.0; however, the proposed

intensity standards by district generally reflect the intent of the General Plan. The General Plan prescribes an FAR of 0.5 for those areas adjacent to low-density residential neighborhoods. The Neighborhood Transitional District in the Overlay Zone contains an intensity standard ranging from 0.5 to 0.75. The General Plan also designates the area south of Fourth Street as a "major development area" with high-intensity and high-quality regional office projects. The Active Urban District and the Office District of the Overlay Zone are located within this area. The existing high-rise Xerox Center (SD 54) within the proposed Office District is an example of development appropriate for the "major development area". It has an FAR of over 3. While the FAR allowance in the proposed Overlay Zone exceeds the range prescribed in the General Plan, the Santa Ana General Plan will be amended as part of approval of the proposed Overlay Zone to reflect the Overlay Zone intensity standards. Therefore, impacts of the proposed Overlay Zone would be ***less than significant***.

Under the City's existing zoning, there are six land use zones within the Overlay Zone. The provisions of the proposed Overlay Zone would apply to all properties within the Overlay Zone, but would not supersede the underlying zoning districts. All regulations, development standards, and requirements in the underlying zoning districts would continue to apply to those properties that are currently developed according to the existing standards, with the exception that certain standards contained in the Overlay Zone as to public realm improvements would be required. Properties within the Overlay Zone may choose to develop to the standards contained within the Overlay Zone as an alternative to developing to the standards of the underlying zoning districts. Therefore, adoption of the proposed Overlay Zone would be complementary to, and compatible with the existing Zoning Code.

As required by Section 15125(d) of the CEQA Guidelines, the land use section of the EIR shall discuss any inconsistencies between the proposed Overlay Zone and applicable regional and local plan policies that pertain to land use. The regional plans relevant to the proposed Overlay Zone, as listed above under Regulatory Framework, include those prepared by the Southern California Association of Governments (SCAG): *Destination 2030: 2004 Regional Transportation Plan* (RTP), *Regional Comprehensive Plan and Guide (RCPG)*—1996 Version, and *Compass Growth Version*. The local plan relevant to the proposed Overlay Zone, and for which a consistency analysis is also provided includes the *City of Santa Ana General Plan*. Consistency of the proposed Overlay Zone with applicable regional and local plans is provided in the following sections below.

Consistency with Applicable Regional Plan Policies

Regional Plans

Southern California Association of Governments

2004 Regional Transportation Plan – Adopted 2004 RTP Goals

1. Encourage Land-use and growth patterns that complement our transportation investments.

Consistency Analysis: The Overlay Zone proposes to complement the City's transportation investments by supporting growth and intensification of land uses in an existing urban environment, and do so in a well-designed manner that enhances streetscapes and facilitates the use of alternative modes of transportation.

An objective of the proposed Overlay Zone is to create an active, mixed-use urban village where it is possible to live, work, shop and play all within a short walk of each other. New development in the Overlay Zone will take place through infill development or redevelopment, and combine land uses and create highly-amenitized streetscapes that facilitate and inspire walking, biking, and an increased utilization of existing public transportation systems. Already in close proximity to two major freeways in Santa Ana, the proposed Overlay Zone supports a major goal of SCAG's 2004 RTP by supporting growth in an area that enhances and supports the City's existing transportation investments. The proposed Overlay Zone is consistent with this goal.

Regional Comprehensive Plan and Guide (RCPG)

- SCAG shall encourage existing or proposed local jurisdictions programs aimed at designed land uses which encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunities for residents to walk and bike.
- SCAG shall encourage local jurisdictions plans that maximize the use of existing urbanized area accessible to transit through infill and redevelopment.
- SCAG shall support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems and activity centers.
- SCAG shall support local jurisdictions strategies to establish mixed-use clusters and other transit oriented development around transit stations and along transit corridors.
- SCAG shall encourage developments in and around activity centers, transportation corridors, under-utilized infrastructure systems and areas needing recycling and redevelopment.
- SCAG shall encourage planned development in locations least likely to cause adverse environmental impact.

Consistency Analysis: As discussed in the previous consistency analysis, the purpose of the proposed Overlay Zone is to introduce mixed-use development and a rich supply of public amenities to encourage walking, biking, and facilitate the use of public transit. New development will occur through infill development and redevelopment as the area is nearly built out, and new development standards will allow for greater intensity of use to promote growth in a transit-accessible location. The Overlay Zone area is ideally located for increased growth by its proximity to major transit systems and its adjacency to existing residential communities and an established open space and recreational network. The proposed Overlay Zone would be supportive of the existing transportation network, and create amenity-enriched linkages to the adjacent open space and residential communities. Therefore, the proposed Overlay Zone is consistent with the policies contained in SCAG's RCPG.

Compass Growth Vision

- Promote "people-scaled" pedestrian-friendly communities
- Provide a variety of housing types in each community to meet the housing needs of all income levels
- Focus development in urban centers and existing cities
- Develop strategies to accommodate growth that use resources efficiently, eliminate pollution, and significantly reduce waste

- Utilize "green" development techniques

Consistency Analysis: The Overlay Zone contains several development standards to promote "people-scaled" pedestrian-friendly communities. For example, the Overlay Zone requires pedestrian-oriented ground floor uses along specific corridors in order to generate pedestrian activity and provide uses that contribute to an active street life. All new development will also be required to include one of several listed street frontage layouts to encourage public-private interaction (front porch, stoop, forecourt, shopfront, gallery, or arcade). Additionally, the Overlay Zone requires highly-amenitized publicly-accessible open space areas integrated into the design of the project.

A variety of housing types are also encouraged in the Overlay Zone, including loft-style units, live/work units, attached row houses, and high-quality stacked flats. While it is likely that these units will be market rate, the Overlay Zone would be introducing new housing types in an area not previously developed with residential uses.

The Overlay Zone is located in an area considered by the City's General Plan to be a "major development area" and a regional office destination. Therefore, the Overlay Zone would be consistent with SCAG's goal of focusing development in urban centers and existing cities.

As discussed previously, the Overlay Zone would introduce mixed-use development and an increase of open space in an existing urban environment. By doing this, the City is able to accommodate growth in a manner that utilizes existing resources and facilities, encourages environmentally friendly practices (i.e., walking, biking, public transit), and enhances the environment with permeable surfaces and energy efficient practices. As such, the Overlay Zone would help to accomplish SCAG's policies to accommodate growth that use resources efficiently, eliminate pollution, and significantly reduce waste.

The Overlay Zone contains a guideline that energy consumption be minimized using the following features where feasible: cogeneration, solar access, south facing windows with eave coverage, double glazed windows, deciduous shade trees, good ventilation, efficient lighting, and day lighting. As such, the Overlay Zone encourages new development to utilize "green" development techniques.

Based on the analysis above, the Overlay Zone is consistent with the applicable policies within SCAG's Compass Growth Vision.

Table 4.8-2 includes a detailed discussion of consistency with SCAG RCPG policies. The scoping letter received from SCAG requested an analysis of project consistency with policies, but did not provide a list of applicable policies. Thus, the City has reviewed the RCPG in order to identify policies appropriate for consideration in this EIR.

Table 4.8-2 SCAG Regional Comprehensive Plan and Guide Policies

SCAG RCPG Policies	*Project Consistency*
Growth Management Chapter	
Policy 3.01. The population, housing, and jobs forecasts, which are adopted by SCAG's Regional Council and that reflect local plans and policies, shall be used by SCAG in all phases of implementation and review.	The proposed increase in dwelling units within Santa Ana would represent less than one percent of total population growth in the region.
Policy 3.05. Encourage patterns of urban development and land use, which reduce costs on infrastructure construction and make better use of existing facilities.	Growth and development under the proposed Overlay Zone would include mixed use development, and infill development and redevelopment, which would minimize costs on infrastructure and make use of existing facilities.
Policy 3.09. Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.	Growth and development under the proposed Overlay Zone would include infill development and redevelopment, which would minimize costs on infrastructure and make use of existing facilities.
Policy 3.12. Encourage existing or proposed local jurisdictions' programs aimed at designing land uses that encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunity for residents to walk and bike.	The proposed Overlay Zone would encourage more pedestrian-oriented uses and design, which would serve to further reduce automobile trips. This includes expansion of mixed-use development, which places housing in close proximity to jobs.
Policy 3.13. Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.	Growth and development under the proposed Overlay Zone would involve infill development and redevelopment, which would maximize the use of existing urbanized areas accessible to transit.
Policy 3.16. Encourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.	The proposed Overlay Zone would result in the creation of an activity center, which would minimize costs on infrastructure and make use of existing transportation corridors and areas needing recycling.
Policy 3.18. Encourage planned development in locations least likely to cause environmental impact.	Infill development and redevelopment under this proposed Overlay Zone would occur in already urbanized areas and minimize environmental impacts.
Policy 3.20. Support the protection of vital resources such as wetlands, groundwater recharge areas, woodlands, production lands, and land containing unique and endangered plants and animals.	The proposed Overlay Zone would not occur in areas containing sensitive resources identified in this policy.
Policy 3.21. Encourage the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites.	This EIR includes measures to preserve and protect cultural resources and archaeological sites.
Policy 3.22. Discourage development, or encourage the use of special design requirements, in areas with steep slopes, high fire, flood, and seismic hazards.	Development would not occur in an area with steep slopes, high fire, and hazards. Seismic hazards on-site would not be unique to the area.
Policy 3.23. Encourage mitigation measures that reduce noise in certain locations, measures aimed at preservation of biological and ecological resources, measures that would reduce exposure to seismic hazards, minimize earthquake damage, and to develop emergency response and recovery plans.	Mitigation measures are contained in this EIR as appropriate to reduce noise, preserve biological and ecological resources, reduce exposure to seismic hazards, minimize earthquake damage, and develop emergency response and recovery plans.
Policy 3.24. Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.	The proposed Overlay Zone would introduce residential uses into an area currently designated for non-residential uses. Up to 5,551 new residential units could be provided in the City.

Table 4.8-2 SCAG Regional Comprehensive Plan and Guide Policies	
SCAG RCPG Policies	*Project Consistency*
Policy 3.27. Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.	In the Public Services section of this EIR (4.11), fire protection, police protection, schools, and parks and recreation are analyzed, and Housing is discussed in Population and Demographics (Section 4.10). The intent of the proposed Overlay Zone is not to obstruct provision of these services.
Core Air Quality Chapter	
Policy 5.11. Through the environmental document review process, ensure that plans at all levels of government (regional, air basin, county, subregional, and local) consider air quality, land use, transportation and economic relationships to ensure consistency and minimize conflicts.	This EIR has been prepared in accordance with this policy.
Water Quality Chapter	
Policy 11.02. Encourage "watershed management" programs and strategies, recognizing the primary role of local governments in such efforts.	The proposed Overlay Zone would comply with applicable watershed management programs, including the Orange County Drainage Area Master Plan (DAMP).
Policy 11.05. Support regional efforts to identify and cooperatively plan for wetlands to facilitate both sustaining the amount and quality of wetlands in the region and expediting the process for obtaining wetlands permits.	The proposed Overlay Zone area does not include any wetlands.
Policy 11.07. Encourage water reclamation throughout the region where it is cost-effective, feasible, and appropriate to reduce reliance on imported water and wastewater discharges. Current administrative impediments to increased use of wastewater should be addressed.	Reclaimed water is not available in the Overlay Zone area. Individual developers would consider its use if it becomes available in the future.
Open Space Chapter Ancillary Goals	
Policy 9.01. Provide adequate land resources to meet the outdoor recreation needs of the present and future residents in the region and to promote tourism in the region.	Development standards are included in the Overlay Zone in order to assure public open space and allow for recreational use.
Policy 9.02. Increase the accessibility to open space lands for outdoor recreation.	The Overlay Zone is not within proximity to open space lands, and would not obstruct accessibility to them.
Policy 9.04. Maintain open space for adequate protection of lives and properties against natural and man-made hazards.	Natural environmental hazards that would require open space buffers are not included within the overlay zone.
Policy 9.05. Minimize potential hazardous development in hillsides, canyons, areas susceptible to flooding, earthquakes, wildfire and other known hazards, and areas with limited access for emergency equipment.	The Overlay Zone does not include hillsides, canyons, areas susceptible to flooding, wildfire and other known hazards, and areas with limited access for emergency equipment. Damage due to earthquakes would be minimized to the extent feasible; no unique earthquake hazards are present onsite.
Policy 9.06. Minimize public expenditure for infrastructure and facilities to support urban type uses in areas where public health and safety could not be guaranteed.	Public health and safety is expected to remain in the Overlay Zone.
Policy 9.08. Develop well-managed viable ecosystems or known habitats of rare, threatened, and endangered species, including wetlands.	The proposed Overlay Zone does not contain any known sensitive habitats.

Table 4.8-2 SCAG Regional Comprehensive Plan and Guide Policies

SCAG RCPG Policies	Project Consistency
Regional Transportation Plan	
Policy 4.01. Transportation investments shall be based on SCAG's adopted Regional Performance Indicators.	During preparation of this element, SCAG's plans and policies were considered in formulation of the Overlay Zone.
Policy 4.02. Transportation investments shall mitigate environmental impacts to an acceptable level.	The EIR includes transportation improvements that reduce impacts associated with the local transportation system as a result of implementation of the Overlay Zone.
Policy 4.03. Transportation Control Measures shall be a priority.	Transportation control measures will be implemented as each proposed development project is implemented.
Policy 4.16. Maintaining and operating the existing transportation system will be a priority over expanding capacity.	Since transportation improvement will be implemented only when a new specific development project is proposed, this will ensure that maintenance of the existing transportation system is prioritized rather than implementing capital improvements.

Consistency with Applicable Local General Plan Policies

Local Plan

City of Santa Ana General Plan

Land Use Element

Goal 1 A balance of land uses

Policy 1.3 Encourage high intensity office development to attract major tenants that will contribute to cultural and business activities in the central city.

Policy 1.5 Maintain and foster a variety of residential land uses in the City.

Policy 1.6 Support "live/work" opportunities within specifically defined areas.

Policy 1.8 Encourage the development of commercial and nonprofit recreational facilities and services.

Goal 2 The promotion of land uses which enhance economic vitality

Policy 2.2 Support commercial land uses in adequate amounts to accommodate the City's needs for goods and services.

Policy 2.4 Support pedestrian access between commercial uses and residential neighborhoods which are in close proximity.

Policy 2.6 Encourage the creation of new development opportunities in developments which are compatible with surrounding land uses, and provide a net community benefit.

Policy 2.8 Promote rehabilitation of commercial properties, and encourage increased levels of capital investment.

Policy 2.9 Support developments that create a business environment that is safe and attractive.

Policy 2.10 Support new development which is harmonious in scale and character with existing development in the area.

Goal 3 The preservation of existing neighborhoods

Policy 3.1 Support development which provides a positive contribution to neighborhood character and identity.

Policy 3.5 Encourage new development and/or additions to existing development that are compatible in scale, and consistent with the architectural style and character of the neighborhood.

Goal 4 The protection of unique community assets and open space that enhance the quality of life

Policy 4.3 Support land uses which provide community and regional economic and service benefits.

Policy 4.4 Encourage the development of projects which promote the City's image as a regional activity center.

Policy 4.5 Encourage development of employment centers and mixed use projects within targeted areas adjacent to major arterial roadways and freeway corridors.

Goal 5 The protection of the community from the impacts of future development

Policy 5.1 Promote development which has a net community benefit, and enhances the quality of life.

Policy 5.2 Protect the community from incompatible land uses.

Policy 5.5 Encourage development which is compatible with, and supportive of surrounding land uses.

Policy 5.9 Encourage development which provides a clean and safe environment for the City's residents, workers, and visitors.

Policy 5.11 Encourage development which does not generate obnoxious fumes, toxins, or hazardous materials

Urban Design Element

Goal 1 Improve the physical appearance of the City through the development of districts that project a sense of place, community image and quality environment

Policy 1.6 Plazas, open spaces, and courtyards connecting to public right-of-way so as to encourage public interaction, will be promoted.

Policy 1.7 On and off-site improvements must be pedestrian friendly.

Goal 2 Improve the physical appearance of the City through the development that is proportionally and aesthetically related to its district setting

Policy 2.2 New development must be consistent with the scale, bulk, and pattern of existing development.

Policy 2.7 New development must exhibit a functional, comfortable scale in relation to its neighborhood.

Policy 2.8 The character and uniqueness of existing districts and neighborhoods are to be protected from intrusive development.

Policy 2.11 New developments must re-enforce, or help establish district character (Overlay Zone in Tustin District)

Policy 2.12 Development and subdivision patterns are to be compatible with existing patterns of development in and around districts and neighborhoods, and provide a smooth transition along designated edges.

Policy 2.13 Unless in a special design district, signage that is exaggerated, obtrusive, disruptive, or detrimental to a district's character, must be prohibited.

Goal 6 Create new and protect existing City landmarks and memorable places that convey positive images

Policy 6.2 Development near an existing landmark must be supportive and respectful of the architecture, site, and other design features of the landmark. (Birtcher Xerox Center, Santa Ana Zoo)

Goal 7 Provide a sense of arrival to the City through on and off-site improvements

Policy 7.1 Gateways must be developed at strategically designated locations to communicate a sense of arrival and positive image of the City. (First Street at I-5 Freeway)

Consistency Analysis

The land use policies above encourage projects that are intensive in scale, provide a mix of uses, are compatible and harmonious with surrounding development, and offer an array of pedestrian amenities that provide safety, and enhance the image and quality of life and the environment. Similarly, the design policies address the image of the community, and encourage measures to enhance public-private interaction, the pedestrian experience, district character, and compatibility between land uses. The growth management policy addresses balanced growth to ensure that residential, commercial, and public land uses are proportionally balanced.

Implementation of the proposed Overlay Zone would continue to facilitate a high-intensity, high-quality regional office area. All four Districts would continue to permit professional, administrative and business offices, and all related uses, at floor area ratios ranging from .5 to 3.0. In addition, the Overlay Zone

encourages mixed-use development that would combine residential, commercial, office, and/or entertainment uses in the same building or on the same site, thereby facilitating a balance of land uses. The Overlay Zone allows for a variety of residential product types in a mixed-use configuration including loft-style units, live/work units, attached row houses, and high-quality stacked flats. Commercial land uses would also be allowed in all districts except for the Neighborhood Transitional District, in order to maintain the residential character of the area, and would be supported in the amount determined by the market based on the needs of the community.

Of prime importance is to achieve compatibility between land uses and create a highly-integrated pedestrian system that connects residential areas to mixed use areas, commercial areas, and community amenities, so as to encourage walking and public interaction. The development standards and design guidelines work together to ensure integration and linkages between land uses as well as the facilitation of comfortable pedestrian and bicycle movements, thereby supporting nonprofit recreational facilities and services, and positively contributing to neighborhood character. The prescribed scale of each district would also be consistent and compatible with adjacent community neighborhoods. For example, the Neighborhood Transitional District would be a low-scale office/residential environment that would function comfortably with the existing residential development to the north.

Requirements for public open space within projects would also provide net benefits to the community. Development standards direct the architecture, site configuration, and signage to enhance the aesthetic quality, character and image of the surrounding area. An aesthetically enhanced and integrated urban environment would promote a business community that is clean, safe and attractive, one that would not generate obnoxious fumes, toxins, or hazardous materials. Signage would be a tool to enhance the design and image of a project rather than detract from it, thereby helping to define and reinforce district character. Signage and public art at important gateways into the Overlay Zone would be encouraged to further communicate a sense of arrival and positive image of the City. Design guidelines would also ensure that development proceeds in a manner that provides overall compatibility among projects, and be developed in a scale that relates to the neighborhood.

At floor area ratios ranging from .5 to 3.0, commercial land uses would be permitted in amounts to accommodate the City's needs for goods and services. The development standards contained in the Overlay Zone allow for more flexibility in development than currently exists, thus promoting investment and redevelopment in the area. The creation of an urban center would encourage development of projects that would promote the City's image as a regional activity center that would provide the community and region with economic and service benefits, and improve quality of life. Furthermore, the Overlay Zone is situated at a prime location at the intersection of two major freeways, providing employment centers and mixed-use development that is regionally visible and accessible.

Overall Consistency

As the proposed Overlay Zone is consistent with the policies contained in the applicable regional plans described above for both SCAG and the City of Santa Ana, and as it is anticipated that the City's General Plan and Zoning Code will be amended to incorporate the Overlay Zone, conflict with these applicable documents would be ***less than significant***.

4.8.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found Not to Be Significant, which result in no project-related impacts.

This cumulative impact analysis considers development of the proposed project, in conjunction with other development in the City of Santa Ana, unless otherwise specified. This analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Santa Ana General Plan and development of the related projects.

Development of cumulative projects is anticipated to generally conform to the requirements of the City of Santa Ana and would be subject to review by the City. Cumulative land use impacts have the potential to occur where a number of projects have the potential to change the overall land use of an area or affect adjacent existing land uses. Other than the proposed Overlay Zone, this type of widescale change is not foreseen in any other portion of the City. As a result, cumulative projects are anticipated to be compatible with adjacent uses, including the existing office development and future mixed-use projects. All of the cumulative projects within the Overlay Zone would be subject to the same standards and ultimately be developed to achieve the desired character for each District within the Overlay Zone area. As such, cumulative impacts resulting from anticipated development within the Overlay Zone would be ***less than significant***, and the Overlay Zone's contribution to cumulative land use changes would not be considerable.

Cumulative development within the City could have a potentially significant impact on the environment by conflicting with an applicable land use plan, policy, or regulation of an agency with jurisdiction over the project adopted for the purpose of avoiding or mitigating an environmental effect. Future development in the City would be reviewed for consistency with applicable local and regional plans and policies, in accordance with the requirements of CEQA, the State *Zoning and Planning Law*, the Santa Ana Municipal Code, and the State *Subdivision Map Act*, all of which require findings of plan and policy consistency prior to approval of entitlements for development. It should be noted that future projects could also include General Plan amendments and/or zone changes. For this reason, the cumulative impact associated with conflict of future development with adopted plans and policies would be less than significant. As discussed above, implementation of the proposed Overlay Zone would not conflict with land use policies or regulations of the General Plan, provided that these plans are amended to include the Overlay Zone. Therefore, the Overlay Zone would not have a cumulatively considerable contribution to impacts, and cumulative impacts would be ***less than significant***.

Cumulative development could have impacts to an existing community where development or results in physical division of an area. However, future development in the City is not likely to alter the basic pattern of development prescribed in the General Plan, and will consist primarily of the recycling of land and intensification of existing development. For this reason, the cumulative impact associated with the physical division of an established community would be less than significant. The proposed Overlay Zone is designed to be compatible with adjacent uses and provide pedestrian linkages to adjacent areas. The objectives, standards, and guidelines of the Overlay Zone guide development within each district

and ensure that new development does not divide existing land uses within the Overlay Zone area. Therefore, the Overlay Zone would not have a cumulatively considerable contribution to impacts, and cumulative impacts would be ***less than significant***.

4.8.5 References

Santa Ana, City of. 1997. *Draft Environmental Impact Report for the Land Use Element of the Santa Ana General Plan* (State Clearinghouse No. 97071058).

_____. 1998. *Santa Ana General Plan Land Use Element*.

_____. 1998. Santa Ana General Plan Urban Design Element

4.9 NOISE

This EIR section evaluates the potential effects of noise and groundborne vibration associated with construction and operational activities that could occur as a result of implementation of the proposed Overlay Zone. The Initial Study (Appendix A) identified the potential for impacts to occur associated with a substantial temporary and/or permanent increase in ambient noise levels within or around the Overlay Zone. Additionally, the Initial Study identified the potential for people to be exposed to excessive noise levels, groundborne vibration, or groundborne noise levels in excess of standards established in the local General Plan or noise ordinance. Potential direct and indirect impacts resulting from construction and operation of the proposed projects are identified, and potential mitigation measures that could avoid or reduce these impacts are recommended, where feasible.

Issues scoped out include proximity, to or association with, an airport land use plan or airstrip. While the proposed project area is located outside of the 20,000-foot notification area as required by the Orange County Airport Land Use Commission (ALUC), the project must still comply with the Airport Environs Element that was adopted by the City of Santa Ana in 1987, in order to comply with the Airport Environs Land Use Plan (AELUP) for Orange County. Data used to prepare this report were taken from the Noise Technical Report prepared for the proposed project, the Traffic Impact Analysis Report prepared by Katz, Okitsu & Associates for the proposed project, and information obtained by measuring and modeling existing and future noise levels at the Overlay Zone and in the surrounding area.

A letter received in response to the Notice of Preparation circulated for the proposed project was received from the Southern California Association of Governments (SCAG) included comments related to potential noise impacts of the proposed project. The comment letters can be found in Appendix A.

4.9.1 Existing Conditions

The City of Santa Ana proposes the creation of the Overlay Zone over a portion of the City. The Overlay Zone is comprised of more than 200 acres of land that is currently developed with commercial and office uses. Along the western boundary of the Overlay Zone there are several large vacant properties. The areas surrounding the Overlay Zone include mixed-use residential and commercial properties. To the north is a single-family residential neighborhood, and to the south there are St. Jeanne De Lestonnac School and multi-family residential properties.

The Overlay Zone is located east of the Santa Ana Freeway (Interstate 5 or I-5) and west of State Route 55 (SR-55) in the City of Santa Ana in Orange County. The Overlay Zone is bounded by the Santa Ana Freeway (I-5) on the west and south; Tustin Avenue on the east; and East Sixth Street on the north. Several roadways provide access to properties within the Overlay Zone, including East First Street, East Fourth Street, Cabrillo Park Drive, Park Court Place, East Sixth Street, Parkcenter Drive, and North Golden Circle Drive.

There is one proposed project-specific development that is consistent with the objectives of the proposed overlay zone designation, and is being proposed in conjunction with the Overlay Zone. The

First and Cabrillo Tower portion of the project would be located on approximately 5 acres of land in the central portion of the Overlay Zone. The applicant, NDC Development, is proposing the development of commercial and residential uses along First Street and Cabrillo Park Drive. The proposed development includes approximately 435,000 square feet (sf) of residential areas, 8,900 sf of retail/commercial areas, and approximately 774 parking spaces.

The First and Cabrillo Tower project would require some demolition, which would include grading and compacting of the entire site, trenching for utility hookups, building foundation, buildings, landscaping, and other typical construction activities that would begin in March 2007, and would be completed within 24 months.

Fundamentals of Sound and Environmental Noise

Sound is technically described in terms of amplitude (loudness) and frequency (pitch). The standard unit of sound amplitude measurement is the decibel (dB). The decibel scale is a logarithmic scale that describes the physical intensity of the pressure vibrations that make up any sound. The pitch of the sound is related to the frequency of the pressure vibration. Because the human ear is not equally sensitive to a given sound level at all frequencies, a special frequency-dependent rating scale has been devised to relate noise to human sensitivity. The A-weighted decibel scale (dBA) provides this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise, on the other hand, is typically defined as unwanted sound. A typical noise environment consists of a base of steady "background" noise that is the sum of many distant and indistinguishable noise sources. Superimposed on this background noise is the sound from individual local sources. These can vary from an occasional aircraft or train passing by to virtually continuous noise from, for example, traffic on a major highway. Table 4.9-1 (Representative Environmental Noise Levels) lists representative noise levels for the environment.

Several rating scales have been developed to analyze the adverse effect of community noise on people. Because environmental noise fluctuates over time, these scales consider that the effect of noise upon people is largely dependent upon the total acoustical energy content of the noise, as well as the time of day when the noise occurs. The L_{eq} is a measure of ambient noise, while the L_{dn} and CNEL are measures of community noise. Each is applicable to this analysis and defined as follows:

- L_{eq}, the equivalent energy noise level, is the average acoustic energy content of noise for a stated period of time. Thus, the L_{eq} of a time-varying noise and that of a steady noise are the same if they deliver the same acoustic energy to the ear during exposure. For evaluating community impacts, this rating scale does not vary, regardless of whether the noise occurs during the day or the night.
- L_{dn}, the Day-Night Average Level, is a 24-hour average L_{eq} with a 10 dBA "weighting" added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the nighttime. The logarithmic effect of these additions is that a 60 dBA 24 hour L_{eq} would result in a measurement of 66.4 dBA L_{dn}.

Table 4.9-1 Representative Environmental Noise Levels		
Common Outdoor Activities	*Noise Level (dBA)*	*Common Indoor Activities*
Power Saw	—110—	Rock Band
Jet Fly-over at 100 feet		Crying Baby
Subway	—100—	
Gas Lawnmower at 3 feet		
Tractor	—90—	
		Food Blender at 3 feet
Diesel Truck going 50 mph at 50 feet	—80—	Garbage Disposal at 3 feet
Noisy Urban Area during Daytime		
Gas Lawnmower at 100 feet	—70—	Vacuum Cleaner at 10 feet
Commercial Area		Normal Speech at 3 feet
Heavy Traffic at 300 feet	—60—	Sewing Machine
Air Conditioner		Large Business Office
Quiet Urban Area during Daytime	—50—	Dishwasher in Next Room
		Refrigerator
Quiet Urban Area during Nighttime	—40—	Theater, Large Conference Room (background)
Quiet Suburban Area during Nighttime		
	—30—	Library
Quiet Rural Area during Nighttime		Bedroom at Night, Concert Hall (background)
	—20—	
		Broadcast/Recording Studio
	—10—	
Lowest Threshold of Human Hearing	—0—	Lowest Threshold of Human Hearing

SOURCE: League of the Hard of Hearing 2006

- *CNEL*, the Community Noise Equivalent Level, is a 24-hour average L_{eq} with a 5 dBA "weighting" during the hours of 7:00 P.M. to 10:00 P.M. and a 10 dBA "weighting" added to noise during the hours of 10:00 P.M. to 7:00 A.M. to account for noise sensitivity in the evening and nighttime, respectively. The logarithmic effect of these additions is that a 60 dBA 24 hour L_{eq} would result in a measurement of 66.7 dBA CNEL.
- L_{min}, the minimum instantaneous noise level experienced during a given period of time.
- L_{max}, the maximum instantaneous noise level experienced during a given period of time.

Noise environments and consequences of human activities are usually well represented by median noise levels during the day or night, or over a 24-hour period. Environmental noise levels are generally considered low when the CNEL is below 60 dBA, moderate in the 60 to 70 dBA range, and high above 70 dBA. Examples of low daytime levels are isolated, natural settings that can provide noise levels as low as 20 dBA and quiet, suburban, residential streets that can provide noise levels around 40 dBA. Noise levels above 45 dBA at night can disrupt sleep. Examples of moderate-level noise environments are urban residential or semi-commercial areas (typically 55 to 60 dBA) and commercial locations (typically 60 dBA). People may consider louder environments adverse, but most will accept the higher levels associated with more noisy urban residential or residential-commercial areas (60 to 75 dBA) or dense

urban or industrial areas (65 to 80 dBA). According to the City's Noise Control Ordinance, the exterior noise level standard is 55 dBA from 7am to 10pm, and 50 dBA from 10:00 P.M. to 7:00 A.M. The interior noise level standard is 55 dBA from 7:00 A.M. to 10:00 P.M., and 45 dBA from 10:00 P.M. to 7:00 A.M. Standards for impact noise, simple tone noise, speech, music, and any other combination are 5 dBA lower than the above standards, and noise levels exceeding these standards are limited to relatively shorter periods of time.

When evaluating changes in 24-hour community noise levels, a difference of 3 dBA is a barely perceptible increase to most people. A 5 dBA increase is readily noticeable, while a difference of 10 dBA would be perceived as a doubling of loudness.

Noise levels from a particular source decline as distance to the receptor increases. Other factors, such as the weather and reflecting or shielding, also intensify or reduce the noise level at a location. A common method for estimating roadway noise is that for every doubling of distance from the source, the noise level is reduced by about 3 dBA at acoustically "hard" locations (i.e., the area between the noise source and the receptor is nearly complete asphalt, concrete, hard-packed soil, or other solid materials) and 4.5 dBA at acoustically "soft" locations (i.e., the area between the source and receptor is normal earth or has vegetation, such as grass). Noise from stationary or point sources is reduced by about 6 to 7.5 dBA for every doubling of distance at acoustically hard and soft locations, respectively. Noise levels may also be reduced by intervening structures; generally, a single row of buildings between the receptor and the noise source reduces the noise level by about 5 dBA, while a solid wall or berm reduces noise levels by 5 to 10 dBA. The manner in which older homes in California were constructed generally provides a reduction of exterior-to-interior noise levels of about 20 to 25 dBA with closed windows. The exterior-to-interior reduction of newer residential units is generally 30 dBA or more.

Fundamentals of Environmental Groundborne Vibration

Vibration is sound radiated through the ground. Groundborne noise is the rumbling sound caused by the vibration of room surfaces. The ground motion caused by vibration is measured as particle velocity in inches per second; in the U.S., this is referenced as vibration decibels (VdB).

The background vibration velocity level in residential and educational areas is usually around 50 VdB. The vibration velocity level threshold of perception for humans is approximately 65 VdB. A vibration velocity level of 75 VdB is the approximate dividing line between barely perceptible and distinctly perceptible levels for many people. Most perceptible indoor vibration is caused by sources within buildings, such as operation of mechanical equipment, movement of people, or the slamming of doors. Typical outdoor sources of perceptible groundborne vibration are construction equipment, steel-wheeled trains, and traffic on rough roads. If a roadway is smooth, the groundborne vibration from traffic is rarely perceptible. The range of interest is from approximately 50 VdB, which is the typical background vibration velocity level, to 100 VdB, which is the general threshold where minor damage can occur in fragile buildings. Table 4.9-2 (Human Response to Different Levels of Groundborne Vibration) describes the general human response to different levels of groundborne vibration velocity levels.

Table 4.9-2 Human Response to Different Levels of Groundborne Vibration	
Vibration Velocity Level	*Human Reaction*
65 VdB	Approximate threshold of perception for many people.
75 VdB	Approximate dividing line between barely perceptible and distinctly perceptible. Many people find that transportation-related vibration at this level is unacceptable.
85 VdB	Vibration acceptable only if there are an infrequent number of events per day.

SOURCE: HMMH 2006

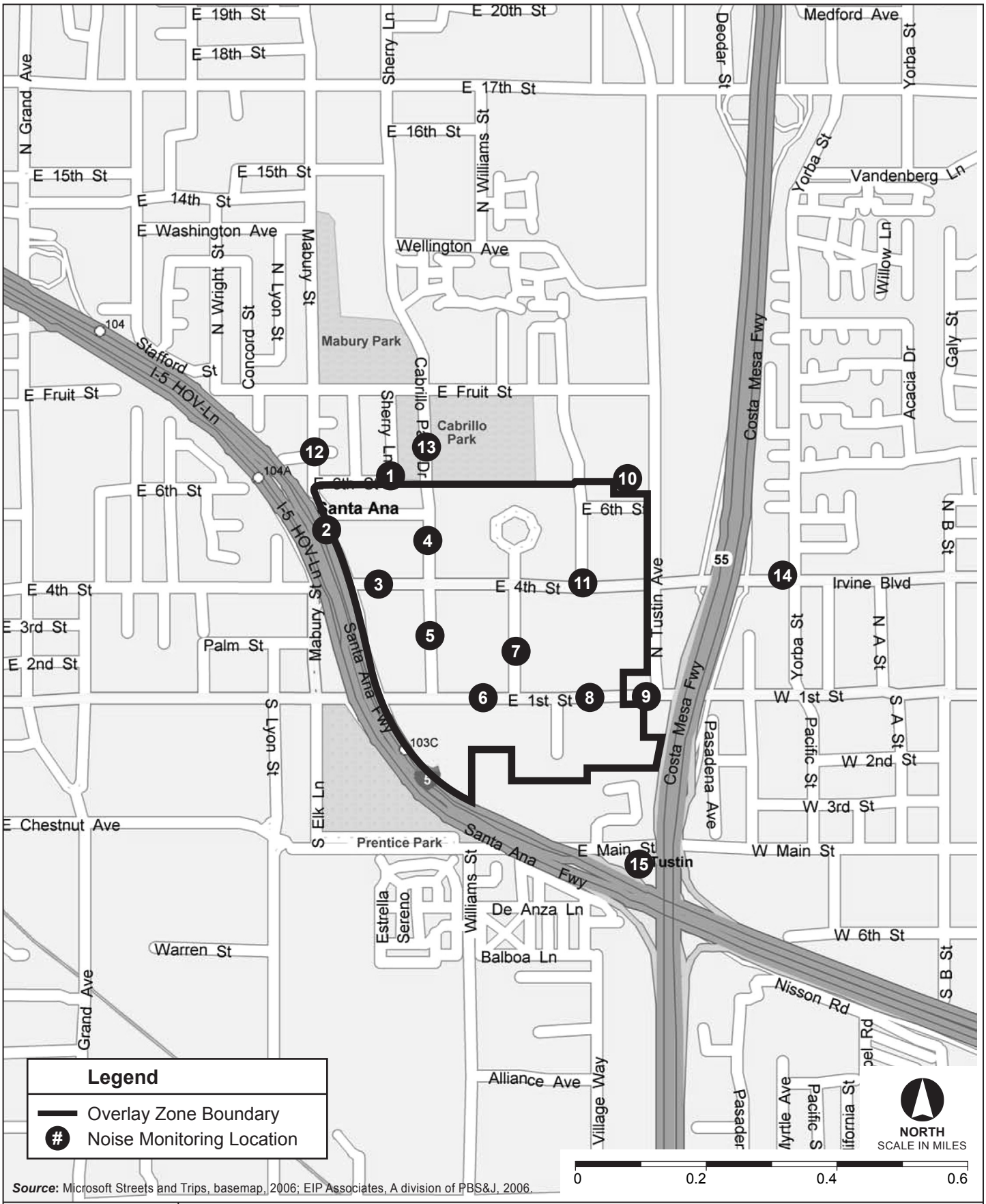
Existing Ambient Daytime Noise Levels

According to the Noise Element of the City of Santa Ana General Plan, the primary source of noise within the City is traffic noise from major roadways and freeways within the area from mobile sources such as automobiles, buses, trucks, and vehicles associated with construction equipment transport. Secondary noise sources in the City include aircraft operations, railroad operations, and construction activities. Also, stationary sources such as industrial activities, public gatherings, activities in open areas, and the use of equipment in unenclosed spaces, produce a significant amount of noise.

Existing daytime noise levels were monitored at fifteen locations around the project site, which are depicted in Figure 4.9-1 (Noise Monitoring Locations), in order to identify representative noise levels at various areas. The noise levels were measured using a Larson-Davis Model 814 precision sound level meter, which satisfies the American National Standards Institute (ANSI) for general environmental noise measurement instrumentation. The average noise levels and sources of noise measured at each location are identified in Table 4.9-3 (Existing Noise Levels Around the Proposed Overlay Zone Area). These daytime noise levels are characteristic of a typical urban area.

Existing Local Noise Environment

Santa Ana is near the Atchison, Topeka, and Santa Fe Railroad (AT&SF) tracks that run along the eastern edge of the City, which is used by Amtrak for commuter train services from San Diego to Los Angeles during most of the day. John Wayne Airport is located southeast of Santa Ana and is served by several commercial air carriers and commuter airlines.



Source: Microsoft Streets and Trips, basemap, 2006; EIP Associates, A division of PBS&J, 2006.

EIP ASSOCIATES
A division of PBS&J

FIGURE **4.9-1**
Noise Monitoring Locations

D20950.01

Metro East Mixed-Use Overlay Zone EIR

10244 | JCS | 06

Table 4.9-3 Existing Noise Levels Around the Proposed Overlay Zone Area

	Location	Primary Noise Sources	Noise Level Statistics		
			L_{eq} (dBA)	L_{min} (dBA)	L_{max} (dBA)
1	Park Court Place between Mabury Street and Cabrillo Park Drive	Freeway Traffic	65.2	61.3	78.1
2	I-5 Freeway between Parkcourt Place and Fourth Street	Freeway Traffic	78.6	74.7	81.7
3	Fourth Street between I-5 and Cabrillo Park Drive	Traffic, Freeway traffic	71.5	64.1	80.4
4	Cabrillo Park Drive between Parkcourt Place and Fourth Street	Traffic, Airplanes	66.1	58.2	76.0
5	Cabrillo Park Drive between Fourth Street and First Street	Traffic	68.7	59.5	88.9
6	First Street between Cabrillo Park Drive and Golden Circle Drive	Traffic	68.7	61.4	80.3
7	Golden Circle Drive between Fourth Street and First Street	Traffic, birds	62.8	54.8	79.3
8	First Street between Golden Circle Drive and Tustin Avenue	Traffic, airplanes	72.1	56.4	86.7
9	Tustin Avenue between First Street and Fourth Street	Traffic, airplanes	64.9	56.6	79.8
10	Sixth Street between Parkcenter Drive and Tustin Avenue	Light traffic, distant traffic, airplanes, birds	58.7	48.5	78.3
11	Fourth Street between Golden Circle Drive and Tustin Avenue	Traffic, airplanes	71.6	54.0	80.6
12	Mabury Street between Sixth Street and Ladell Circle	Freeway traffic, light traffic	61.4	55.5	74.7
13	Cabrillo Park Drive between Fruit Street and Parkcourt Place	Traffic, birds	64.3	53.2	78.0
14	Irvine Boulevard between Mountain View Drive and North A Street	Traffic	70.5	53.0	80.6
15	East Main Street and Stoneglass Court	Traffic, freeway traffic, airplanes	72.9	60.6	82.3

SOURCE: PBS&J, August 23, 2006.

Existing Roadway Noise Levels Off-Site

Existing roadway noise levels were calculated for the roadway segments in the project site vicinity that have noise-sensitive uses facing the roadways. This task was accomplished using the Federal Highway Administration Highway Noise Prediction Model (FHWA-RD-77-108) and traffic volumes from the project traffic analysis. The model calculates the average noise level at specific locations based on traffic volumes, average speeds, roadway geometry, and site environmental conditions. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified to reflect average vehicle noise rates identified for California by Caltrans. The Caltrans data show that California automobile noise is 0.8 to 1.0 dBA higher than national levels and that medium and heavy truck noise is 0.3 to 3.0 dBA

lower than national levels. The average daily noise levels along these roadway segments are presented in Table 4.9-4 (Existing Roadway Noise Levels Off Site).

Table 4.9-4 Existing Roadway Noise Levels

Roadway Segment	*Reference 24-hour dBA CNEL Noise Level at 50 Feet [a]*
Cabrillo Park Dr./Seventeenth St. to Cabrillo Park Dr./Wellington Ave.	64.9
Cabrillo Park Dr./Fruit to Cabrillo Park Dr./Wellington Ave.	65.1
Cabrillo Park Dr./Fruit to Cabrillo Park Dr./Parkcourt Pl.	65.0
Cabrillo Park Dr./Fourth St. to Cabrillo Park Dr./Parkcourt Pl	65.6
Cabrillo Park Dr./First St. to Cabrillo Park Dr./Fourth St	66.0
Seventeenth St./Tustin Ave. to Tustin Ave/Wellington Ave	71.9
Tustin Ave/Fruit St to Tustin Ave/Wellington Ave	71.5
Tustin Ave/Fruit St to Tustin Ave/Sixth St.	71.5
Tustin Ave/Fourth St to Tustin Ave/Sixth St	71.8
Tustin Ave/Fourth St to Tustin Ave/First St	70.9
Yorba St/First St to Yorba St/Fourth St	67.9
B St/Irvine Blvd. to B St/First St	55.9
Prospect Ave/Irvine Blvd. to Prospect Ave/ First St.	63.7
Parkcenter Dr/Sixth St. to Parkcenter Dr./Fruit St	57.8
Parkcenter Dr/Sixth St. to Parkcenter Dr./Fourth St.	58.1
Golden Circle Dr/Fourth St to Golden Circle Dr/First St	60.6
Seventeenth St/Cabrillo Park Dr. to Seventeenth St./Tustin	72.9
Wellington Ave/Tustin Ave to Wellington Ave/Cabrillo Park Dr	59.0
Seventeenth St/SR-55 Ramp to Seventeenth St/Tustin Ave	73.9
Fruit St/Cabrillo Park Dr to Fruit St/Parkcourt Pl	59.3
Fruit St/Cabrillo Park Dr to Fruit St/Parkcenter Dr.	60.8
Fruit St/Tustin Ave to Fruit St/Parkcenter Dr.	62.3
Sixth St/Tustin Ave to Sixth St/Parkcenter Dr	54.2
Fourth St/Cabrillo Park Dr to Fourth St/Golden Circle Dr.	71.7
Fourth St/Golden Circle Dr to Fourth St/Parkcenter Dr	71.7
Fourth St/Tustin Ave. to Fourth St/Parkcenter Dr.	71.7
Irvine Blvd/B St to Irvine Blvd/Yorba St	72.9
Irvine Blvd/B St to Irvine Blvd/Prospect Ave	72.8
Irvine Blvd/Prospect Ave to Irvine Blvd/Fashion Lane	72.3
Irvine Blvd/Holt Ave to Irvine Blvd/Fashion Lane	72.5
Irvine Blvd/Holt Ave to Irvine Blvd/Newport Ave	72.3
First St/Mabury St to First St/Cabrillo Park Dr.	71.1
First St/Cabrillo Park Dr. to First St/Golden Circle Dr	69.4
First St/ Tustin Ave to First St/Golden Circle Dr	68.9
First St/Yorba St to First St/Tustin Ave	69.0
First St/Yorba St to First St/B St	69.3
First St/B St to First St/El Camino Real	69.3

Table 4.9-4 Existing Roadway Noise Levels	
Roadway Segment	*Reference 24-hour dBA CNEL Noise Level at 50 Feet [a]*
First St/Prospect to First St/El Camino Real	69.5
First St/Prospect to First St/Centennial Way	69.5
First St/Centennial Way to First St/Newport Ave	68.8

SOURCE: PBS&J, 2006 (calculation data and results are provided in Appendix G).

[a] Distances are in feet from roadway centerline. The identified noise level at 50 feet from the roadway centerline is for reference purposes only. It does not reflect an actual building location or potential impact location.

Existing Groundborne Vibration Levels

The greatest regular source of ground-borne vibration at the Overlay Zone and in the immediate vicinity is roadway truck and bus traffic. These trucks and buses typically generate noticeable ground-borne vibration velocity levels at the edge of the road as they travel along the roadway.

4.9.2 Regulatory Framework

Federal

There are no federal noise regulations applicable to the proposed project.

State

The California Government Code requires that a noise element be included in the General Plan of each county and city.

Local

City of Santa Ana General Plan

Noise Element

The Noise Element of the General Plan identifies sources of noise in the City and provides objectives and policies that ensure that noise from various sources would not create an unacceptable noise environment. It is a tool that City planners use to achieve and maintain land uses with compatible environmental noise levels. As shown in Table 4.9-5 (City of Santa Ana Standards and Guidelines for Noise Levels by Land Use), the City has established the following standards and guidelines for noise levels for land use.

Table 4.9-5 City of Santa Ana Standards and Guidelines for Noise Levels by Land Use

Land Use Category	Desirable Maximum (CNEL dBA)	Maximum Acceptable (CNEL dBA)
Residential, Low Density	55	65
Residential, Medium Density	60	65
Residential, High Density	65	70
Schools	60	70
Commercial, Office	65	70
Industrial	70	75

SOURCE: City of Santa Ana General Plan Noise Element

Based on these standards, exterior noise levels of 55 dBA CNEL and lower are desirable for single-family residential uses, while exterior noise levels of 65 dBA CNEL and lower are desirable for high density multi-family residential uses. Incompatible land uses should not be developed in areas where existing noise levels exceed the maximum acceptable guidelines. All residential uses should be protected with sound insulation over and above that provided by normal building construction when constructed in areas exposed to greater than 60 dBA CNEL.

Airport Environs Element

This Element was adopted in 1987 by the City of Santa Ana in order to comply with the Airport Environs Land Use Plan for Orange County. The Element outlines procedures for notification and review by FAA and the ALUC of projects near airports, and monitoring of FAA conditions, as well as sets standards for noise. Among the set standards are: no residential uses mitigated to 45 CNEL interior, noise control needed in areas greater than 65 CNEL in order to achieve 45 dBA in private office, 50 dBA in general office, 55 dBA in lobby or restaurant, and 65 dBA in warehouse or manufacturing use. Areas greater than 65 CNEL cannot have schools, hospitals, libraries, and other sensitive uses.

Consistency Analysis

As shown above, the General Plan identifies maximum allowable noise levels that vary depending on the receptor-type. As an amendment to the General Plan, the proposed project would be designed to be consistent with policies contained in the General Plan, including those related to noise levels. Any new development within the Overlay Zone would be subject to the policies of the General Plan, both in terms of impacting the environment and placing uses in an area with elevated noise levels. The proposed project includes measures to reduce/control future noise levels such that the impact to land uses within the City is reduced. Therefore, implementation of the Overlay Zone is consistent with the General Plan as it relates to noise.

City of Santa Ana Municipal Code

The City of Santa Ana has also adopted a Noise Ordinance (Chapter 18, Article VI of the Santa Ana Municipal Code), which identifies exterior noise standards, specific noise restrictions, exemptions, and variances for sources of noise within the City. Section 18-311 of the Municipal Code designates the entire

City as Noise Zone 1 for exterior and interior noises. Section 18-312 of the Municipal Code establishes exterior noise levels for residential land uses. The exterior noise standards established in the City's Noise Ordinance are identified in Table 4.9-6 (City of Santa Ana Noise Ordinance Exterior Noise Standards). If the ambient noise level is greater than the identified noise standards, the noise standard becomes the ambient noise level without the offending noise.

Table 4.9-6 City of Santa Ana Noise Ordinance Exterior Noise Standards[a]

Noise Zone	*Noise Level (dBA)*	*Time Period*
Noise Zone 1	55 dBA	7:00 A.M. – 10:00 P.M.
	50 dBA	10:00 P.M. – 7:00 A.M.

SOURCE: City of Santa Ana Municipal Code Section 18-312

[a] Exterior noise levels can be measured at any point on the affected property. In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB (A). It shall be unlawful for any person at any location within the City of Santa Ana to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured on any other residential property, to exceed:

- The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or
- The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or
- The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or
- The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or
- The noise standard plus twenty (20) dB(A) for any period of time.
- In the event the ambient noise level exceeds any of the first four (4) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

Section 18-313 of the Municipal Code establishes interior noise standards that apply to all residential properties within the designation Noise Zone 1. Interior noise levels must not exceed 55 dBA between the hours of 7:00 A.M. and 10:00 P.M. or 45 dBA between the hours of 10:00 P.M. and 7:00 A.M., as shown in Table 4.9-7 (City of Santa Ana Noise Ordinance Interior Noise Standards). As with Section 18-312 of the Municipal Code, if the ambient noise level is greater than the identified noise standards, the noise standard becomes the ambient noise level without the offending noise.

Table 4.9-7 City of Santa Ana Noise Ordinance Interior Noise Standards[a]

Noise Zone	*Noise Level (dBA)*	*Time Period*
Noise Zone 1	55 dBA	7:00 A.M. – 10:00 P.M.
	45 dBA	10:00 P.M. – 7:00 A.M.

SOURCE: City of Santa Ana Municipal Code Section 18-313

[a] Interior noise measurements shall be made within the affected dwelling unit. The measurement shall be made at a point at least four (4) feet from the wall, ceiling, or floor nearest the alleged offensive noise source and may be made with the windows of the affected unit open. In the event the alleged offensive noise consists entirely of impact noise, simple tone noise, speech, music, or any combination thereof, each of the above noise levels shall be reduced by five (5) dB(A). It shall be unlawful for any person at any location within the City of Santa Ana to create any noise, or to allow the creation of any noise on property owned, leased, occupied, or otherwise controlled by such person, when the foregoing causes the noise level, when measured within any other dwelling unit on any residential property, to exceed:

- The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or
- The interior noise standard plus five (5) dB(A) for a cumulative period of more than one minute in any hour; or
- The interior noise standard plus ten (10) dB(A) for any period of time

In the event the ambient noise level exceeds either of the first two (2) noise limit categories above, the cumulative period applicable to said category shall be increased to reflect said ambient noise level. In the event the ambient noise level exceeds the third noise limit category, the maximum allowable noise level under said category shall be increased to reflect the maximum ambient noise level.

Section 18-314 of the Noise Ordinance provides special provisions which exempt certain activities from the standards established in the Noise Ordinance. As such, the following activities are exempt:

- Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college
- Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a license issued by the City of Santa Ana
- Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity
- Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work
- Noise sources associated with construction, repair, remodeling, or grading of any real property, provided said activities do not take place between the hours of 8:00 P.M. and 7:00 A.M. on weekdays, including Saturday, or any time on Sunday or a federal holiday
- All mechanical devices, apparatus or equipment which are utilized for the protection or salvage of agricultural crops during periods of potential or actual frost damage or other adverse weather condition
- Mobile noise sources associated with agricultural operations, provided such operations do not take place between the hours of 8:00 P.M. and 7:00 A.M. on weekdays, including Saturday, or at any time on Sunday or a federal holiday
- Mobile noise sources associated with agricultural pest control through pesticide application, provided that the application is made in accordance with restricted material permits issued by or regulations enforced by the agricultural commissioner
- Noise sources associated with the maintenance of real property, provided said activities take place between 7:00 A.M. and 8:00 P.M. on any day except Sunday or a federal holiday, or between the hours of 9:00 A.M. and 8:00 P.M. on Sunday or a federal holiday
- Any activity to the extent regulation thereof has been preempted by state or federal law

Under Section 18-314(e) of the Municipal Code, construction activity noise sources are exempt from the Noise Ordinance standards so long that the activities do not take place between the hours of 8:00 P.M. and 7:00 A.M. on weekdays, including Saturday, or at any time on Sunday or a federal holiday.

Jurisdictions Potentially Affected by the Proposed Project

City of Tustin

Development of the Overlay Zone could potentially include construction activities along the border of the City of Tustin. As such, this Program EIR will take into consideration the construction noise standards established by the City of Tustin Municipal Code.

Section 4617(e) of the City of Tustin Municipal Code exempts noise sources associated with construction, repair, remodeling, or grading of any real property between the hours of 7:00 A.M. and 6:00 P.M. Monday through Friday and the hours of 9:00 A.M. and 5:00 P.M. on Saturdays, excluding city observed federal holidays.

4.9.3 Project Impacts and Mitigation

Analytic Method

Implementation of the proposed project could result in the introduction of noise levels that may exceed permitted City noise levels. The primary sources of noise associated with the proposed project would be construction activities within the Overlay Zone and project-related traffic volumes associated with operation of those projects. Secondary sources of noise would include new stationary sources (such as heating, ventilation, and air conditioning units) and increased human activity throughout the Overlay Zone. The net increase in noise levels generated by these activities and other sources have been quantitatively estimated and compared to the applicable noise standards and thresholds of significance.

Aside from noise levels, groundborne vibration would also be generated during the construction phase of the proposed projects within the Overlay Zone by various types of construction equipment. Thus, the groundborne vibration levels generated by construction equipment have also been quantitatively estimated and compared to applicable thresholds of significance.

Construction Noise Levels

Construction noise levels were estimated by data published by the U.S. Environmental Protection Agency (U.S. EPA). Potential noise levels are identified for on- and off-site locations that are sensitive to noise, including residences and schools.

The EPA has compiled data regarding the noise-generating characteristics of typical construction activities. These noise levels would diminish rapidly with distance from the construction site, at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured at 50 feet from the noise source to the receptor would reduce to 80 dBA at 100 feet from the source to the receptor, and reduce by another 6 dBA to 74 dBA at 200 feet from the source to the receptor.

Roadway Noise Levels

Roadway noise levels have been calculated for various locations in and around the Overlay Zone. The noise levels were calculated using the FHWA-RD-77-108 model and traffic volumes from the project traffic study. The average vehicle noise rates (energy rates) utilized in the FHWA Model have been modified to reflect average vehicle noise rates identified for California by Caltrans. Traffic volumes used in the FHWA model are derived from the project traffic study, which is provided in its entirety Appendix H and summarized in Section 4.13 (Transportation/Traffic) of this document.

Vibration Levels Associated with Construction Equipment

Groundborne vibration levels resulting from construction activities occurring within the Overlay Zone were estimated by data published by Harris Miller Miller & Hanson Inc. (HMMH, 2006) for the Federal Transit Administration. Potential vibration levels are identified for on- and off-site locations that are sensitive to vibration, including residences and schools.

Thresholds of Significance

The following thresholds are based on Appendix G of the CEQA Guidelines, as amended. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on noise if it would result in any of the following:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies
- Expose persons to or generate excessive groundborne vibration or groundborne noise levels
- Cause a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project
- Cause a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project
- Expose people residing or working in the project site to excessive noise levels from a project located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airport
- Expose people residing or working in the project site to excessive noise levels from a project located within the vicinity of a private airstrip

The CEQA Guidelines do not define the levels at which temporary and permanent increases in ambient noise are considered "substantial." As discussed previously in this section, a noise level increase of 3 dBA is barely perceptible to most people, a 5 dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. Based on this information, the following thresholds would apply to the operational characteristics of the proposed project:

- Less than 3 dBA: not discernable, not significant
- Greater than 3 dBA but less than 5 dBA: noticeable, but not significant, if noise levels remain below 65 dBA CNEL noise level standard at sensitive land uses including residential uses
- Five dBA or greater: potentially significant, if the noise increase would meet or exceed 65 dBA CNEL noise level standard at sensitive land uses including residential uses
- Five dBA or greater: potentially significant

The CEQA Guidelines also do not define the levels at which groundborne vibration or groundborne noise is considered "excessive." For the purpose of this analysis, groundborne vibration impacts associated with human annoyance would be significant if the proposed project exceeds 85 VdB, which is the vibration level that is considered by the Federal Transit Administration (FTA) to be acceptable only if there are an infrequent number of events per day (as described in Table 4.9-2 [Human Response to Different Levels of Groundborne Vibration]). In terms of groundborne vibration impacts on structures, this analysis will use the Federal Transit Administration's vibration damage threshold of approximately 100 VdB for fragile buildings and approximately 95 VdB for extremely fragile historic buildings (HMMH, 2006).

Effects Found to Have No Impact

Threshold	If the project is located within an airport land use plan or, where such a plan has not been adopted, within 2 miles of a public airport or public use airstrip, would it expose people residing or working in the project site to excessive noise levels?

As discussed in Section 4.6 (Hazards and Hazardous Materials), the proposed project is not located within an airport land use plan or within 2 miles of a public airport or public use airport. The nearest public airport to the project is the John Wayne Airport, which is located approximately 6.5 miles southwest of the proposed project. Further, the proposed project is located over 5,000 feet from the 60 CNEL noise contour for John Wayne Airport. Thus, no impact related to the exposure of people residing or working in the project site to excessive airport related noise levels is anticipated, and no further analysis is required in this EIR.

Threshold	If the project is located within the vicinity of a private airstrip, would it expose people residing or working in the project site to excessive noise levels?

The Overlay Zone is not located within the vicinity of a private airstrip. Thus, no impact related to the exposure of people residing or working in the project site to excessive airstrip-related noise levels is anticipated, and no further analysis is required in this EIR.

Effects Found to Be Less Than Significant

Threshold	Would the project result in the exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

Impact 4.9-1 **Construction activities associated with the proposed project would generate noise levels that exceed the noise standards established by the City of Santa Ana Municipal Code. This is considered a potentially significant impact. Implementation of mitigation measures MM-OZ 4.9-1 through MM-OZ 4.9-4 would reduce this impact, but noise levels could still be substantial. However, the project's construction noise impacts would be temporary and would be consistent with the exemption for construction noise that exists in the Municipal Code. Therefore, this impact would be considered *less than significant*.**

The proposed project has the potential to result in events that may exceed permitted noise levels. The primary sources of noise associated with the proposed project would be construction activities and project-related traffic volumes. Secondary sources include increased human activity throughout the sites. Noise limits for sensitive uses established in Section 18-311 and 18-312 of the Santa Ana Municipal Code are shown in Table 4.9-6 and Table 4.9-7.

Development of projects under the Overlay Zone would require the use of heavy equipment for demolition, site excavation, installation of utilities, site grading, paving, and building fabrication.

Construction activities would also involve the use of smaller power tools, generators, and other sources of noise. During each stage of construction there would be a different mix of equipment operating, and noise levels would vary based on the amount of equipment in operation and the location of the activity.

The EPA has compiled data regarding the noise generating characteristics of specific types of construction equipment and typical construction activities. These data are presented in Table 4.9-8 (Noise Ranges of Typical Construction Equipment) and Table 4.9-9 (Typical Outdoor Construction Noise Levels). These noise levels would diminish rapidly with distance from the construction site at a rate of approximately 6 dBA per doubling of distance. For example, a noise level of 86 dBA measured at 50 feet from the noise source to the receptor would reduce to 80 dBA at 100 feet from the source to the receptor, and reduce by another 6 dBA to 74 dBA at 200 feet from the source to the receptor.

Table 4.9-8 Noise Ranges of Typical Construction Equipment

Equipment	*Noise Levels in dBA L_{eq} at 50 Feet* [a]
Front Loader	73 to 86
Trucks	82 to 95
Cranes (moveable)	75 to 88
Cranes (derrick)	86 to 89
Vibrator	68 to 82
Saws	72 to 82
Pneumatic Impact Equipment	83 to 88
Jackhammers	81 to 98
Pumps	68 to 72
Generators	71 to 83
Compressors	75 to 87
Concrete Mixers	75 to 88
Concrete Pumps	81 to 85
Back Hoe	73 to 95
Pile Driving (peaks)	95 to 107
Tractor	77 to 98
Scraper/Grader	80 to 93
Paver	85 to 88

SOURCE: U.S. EPA 1971

[a] Machinery equipped with noise control devices or other noise-reducing design features does not generate the same level of noise emissions as that shown in this table.

Noise that would be experienced by sensitive uses due to development associated with implementation of the proposed project is determined at their property lines. While the nearest sensitive uses vary at different locations in and around the Overlay Zone and as specific development plans have not yet been determined at individual sites, for the purpose of this analysis it is assumed that sensitive receptors could be as close as 50 feet from where construction would take place. Sensitive receptors in the project vicinity could experience noise levels up to 86 dBA L_{eq} as a result of construction activities, or as high as 107 dBA L_{eq} in the event that pile drivers are used. The City of Santa Ana Municipal Code,

Section 18-314(e) allows for noise resulting from construction activities to be exempt from noise limits established in the Code. In accordance with the Noise Ordinance, construction activities would also be limited to the hours of 7:00 A.M. and 8:00 P.M. on Monday through Saturday, and is prohibited on Sundays and federal holidays. As construction would not occur except during the times permitted in the Noise Ordinance, and as the Municipal Code, Section 18-314(e) of the Municipal Code allows construction noise in excess of standards to occur between these hours, the proposed project would not violate established standards.

Table 4.9-9 Typical Outdoor Construction Noise Levels

Construction Phase	Noise Levels at 50 Feet(dBA L_{eq})	Noise Levels at 50 Feet with Mufflers (dBA L_{eq})
Ground Clearing	84	82
Excavation, Grading	89	86
Foundations	78	77
Structural	85	83
Finishing	89	86

SOURCE: U.S. EPA 1971

The following mitigation measures shall be implemented as part of the proposed project:

MM-OZ 4.9-1 *Construction activities shall be limited to the following general restrictions. In the event that there is a conflict between the City of Santa Ana Municipal Code and the City of Tustin Municipal Code, the more restrictive measures shall be applied:*

- *All construction activity within the City shall be conducted in accordance with Section 18-314(e) of the City of Santa Ana Municipal Code.*
- *All construction activity within 200 feet of the City of Tustin Border shall be conducted in accordance with Section 4617(e) of the City of Tustin Municipal Code.*

MM-OZ 4.9-2 *The project applicant shall require by contract specifications that the following construction best management practices (BMPs) be implemented by contractors to reduce construction noise levels:*

- *Two weeks prior to the commencement of construction, notification must be provided to surrounding land uses within 1,000 feet of a project site disclosing the construction schedule, including the various types of activities that would be occurring throughout the duration of the construction period*
- *Ensure that construction equipment is properly muffled according to industry standards and be in good working condition*
- *Place noise-generating construction equipment and locate construction staging areas away from sensitive uses, where feasible*
- *Schedule high noise-producing activities between the hours of 8:00 a.m. and 5:00 p.m. to minimize disruption on sensitive uses*
- *Implement noise attenuation measures, which may include, but are not limited to, temporary noise barriers or noise blankets around stationary construction noise sources*

- *Use electric air compressors and similar power tools rather than diesel equipment, where feasible*
- *Construction-related equipment, including heavy-duty equipment, motor vehicles, and portable equipment, shall be turned off when not in use for more than 30 minutes*
- *Construction hours, allowable workdays, and the phone number of the job superintendent shall be clearly posted at all construction entrances to allow for surrounding owners and residents to contact the job superintendent. If the City or the job superintendent receives a complaint, the superintendent shall investigate, take appropriate corrective action, and report the action taken to the reporting party.*

Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.

MM-OZ 4.9-3 *The project applicant shall require by contract specifications that construction staging areas along with the operation of earthmoving equipment within the project area would be located as far away from vibration and noise sensitive sites as possible. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.*

MM-OZ 4.9-4 *The project applicant shall require by contract specifications that heavily loaded trucks used during construction would be routed away from residential streets. Contract specifications shall be included in the proposed project construction documents, which shall be reviewed by the City prior to issuance of a grading permit.*

Implementation of mitigation measures MM-OZ 4.9-1 through MM-OZ 4.9-4 would ensure that impacts associated with construction-related noise would be minimized. Therefore, this impact would be ***less than significant***.

Impact 4.9-2 **Operation of the proposed project could expose noise-sensitive land uses to noise levels that exceed the standards established by the City of Santa Ana General Plan. This is considered a potentially significant impact. Implementation of mitigation measures MM-OZ 4.9-5 through MM-OZ 4.9-7 would reduce this impact to a *less-than-significant* level.**

Sources of noise generated by implementation of the proposed project would include new stationary sources (such as rooftop heating, ventilation, and air conditioning [HVAC] systems for the residential and office uses). The proposed project would also introduce new activity and noise to the area as residences are included and people are attracted to the new mix of uses that would develop as part of the proposed project. As shown in Table 4.9-3 (Existing Noise Levels Within and Around the Overlay Zone Area), noise monitoring on the project site indicates that existing noise levels on site currently exceed the 65 dBA "desirable maximum" noise standard for high density residential uses. Development of new residences in areas where existing noise levels are over 65 dBA would constitute a significant impact. As the noise levels monitored on-site exceed the 65 dBA thresholds, the project site would not meet acceptable noise levels for a residential use. It should be noted that some monitoring locations such as First Street between Cabrillo Park Drive and Golden Circle Drive are primarily commercial corridors with uses that typically do not qualify as sensitive receptors. Further, impacts related to substantial

permanent increases in ambient noise levels that could potentially result with implementation of the proposed project are discussed below under Impact 4.9-5.

The City of Santa Ana General Plan states that all residential uses should be protected with sound insulation over and above that provided by normal building construction when constructed in areas exposed to greater than 60 dBA CNEL. As such the following mitigation measures shall be implemented to all residential development within the Overlay Zone Area where the existing noise levels exceed the 60 dBA CNEL standard established in the General Plan.

MM-OZ 4.9-5 *Where future residential uses would be construction in areas exposed to noise levels greater than 60 dBA CNEL, prior to issuance of building permits, building plans shall reflect the construction of noise barriers around patios and balconies. The barriers shall be constructed of materials that provide a surface density of at least four pounds per square foot and shall be continuous, without gaps or gates. The height of the barriers shall be sufficient to reduce the exterior noise levels to a CNEL of 65 dBA or less, and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project*

MM-OZ 4.9-6 *Prior to issuance of building permits, building plans shall specify the STC rating of windows and doors for all residential land uses. Window and door ratings shall be sufficient to reduce the interior noise level to a CNEL of 45 dBA or less, and shall be determined by a qualified acoustical consultant as part of the final engineering design of the project*

As previously discussed, implementation of the proposed project would lead to the development of high density residential uses in areas that exceed the 65 dBA CNEL "Desirable Maximum," and this would be considered a significant impact. However implementation of mitigation measure MM-OZ 4.9-5 would ensure that exterior living spaces, such as porches and patios are constructed in a manner that noise levels do not exceed the 65 dBA CNEL. Further implementation of mitigation measure MM-OZ 4.9-6 would ensure that interior living spaces of the residential units do not exceed 45 dBA CNEL. Therefore, this impact would be reduced to a level of ***less than significant***.

The HVAC systems that would be installed for the new residential building associated with the proposed project can result in noise levels that average between 50 and 65 dBA L_{eq} at 50 feet from the equipment. As 24-hour CNEL noise levels are about 6.7 dBA greater than 24-hour L_{eq} measurements, this means that the HVAC equipment associated with the retail-commercial buildings could generate community noise levels that average between 57 to 72 dBA CNEL at 50 feet when the equipment is operating constantly over 24 hours. These HVAC units would be mounted on the rooftops of the proposed buildings and would be screened from view by building features. However, the installation of shielding around these HVAC systems would be required as part of the proposed project, as stated in mitigation measure MM-OZ 4.9-7 below.

MM-OZ 4.9-7 *The developer shall provide proper shielding for all new HVAC systems used by the proposed residential and mixed use buildings to achieve an attenuation of 15 dBA at 50 feet from the equipment.*

The shielding installed around these systems would typically reduce noise levels by approximately 15 dBA, which could reduce HVAC system noise to approximately 50 dBA L_{eq} at 50 feet from the

equipment, which would be approximately 56.7 dBA CNEL. Implementation of mitigation measure MM-OZ 4.9-1 would ensure that impacts related to the HVAC systems would remain below the 65 dBA CNEL "Desirable Maximum" exterior noise level guideline established in the City's General Plan for high density residential uses. As such impacts to residents of the proposed project relating to HVAC systems would be ***less than significant***.

Impact 4.9-3 **Operation of the proposed project would not generate and expose sensitive receptors on- or off-site to excessive groundborne vibration or groundborne noise levels. This is considered a *less-than-significant* impact.**

During operation of the proposed project, background operational vibration levels would be expected to average around 50 VdB, as discussed previously in this section. This is substantially less than the 85 VdB threshold for people in the vicinity of the project site. Groundborne vibration resulting from operation of the proposed project would primarily be generated by trucks making periodic deliveries to the proposed Overlay Zone. However, these types of deliveries would be consistent with deliveries that are currently made along roadways to commercial uses in the proposed Overlay Zone and in the proposed project vicinity and would not increase groundborne vibration above existing levels. Because no substantial sources of groundborne vibration would be built as part of the proposed project, no vibration impacts would occur during operation of the proposed project. Therefore, operation of the proposed project would not expose sensitive receptors on or off site to excessive groundborne vibration or groundborne noise levels, and this impact would be ***less than significant***.

Threshold	Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact 4.9-4 **Construction activities associated with the proposed project would result in a substantial temporary or periodic increase in ambient noise levels. However, the project's construction noise impacts would be temporary, would not occur during recognized sleep hours, and would be consistent with the exemption for construction noise that exists in the Municipal Code. Therefore, this impact would be considered *less than significant*.**

As discussed in Impact 4.9-1, construction activities associated with the proposed project could reach above 86 dBA L_{eq} within 50 feet of the proposed project site. These construction activities would represent a substantial temporary or periodic increase in ambient noise levels. As discussed previously under "Thresholds of Significance", this analysis assumes that an increase of 5.0 dBA or greater over ambient noise levels is substantial and significant. As shown in Table 4.9-3, the highest existing daytime ambient noise level monitored in the project vicinity was 78.6 dBA L_{eq} near the I-5 Freeway, between Fourth Street and Parkcourt Place. As such, the noise generated by construction activities for the proposed project could result in a temporary increase in ambient noise levels of over 5 dBA at uses adjacent to the project site. However, with implementation of mitigation measure MM-OZ 4.9-1, the construction activities would only occur during the permitted hours designated in the City of Santa Ana Municipal Code Section 18-314(e), and thus would not occur during recognized sleep hours for residences or on days that residents are most sensitive to exterior noise (Sundays and Federal holidays). As such, while the physical impact from an increase in ambient noise levels could occur from the

construction activities associated with the proposed project, an adverse effect on the nearby residents would not occur. Implementation of mitigation measures MM-OZ 4.9-2 through MM-OZ 4.9-4 would also help reduce this impact. Therefore, with mitigation, this impact would be ***less than significant***.

Impact 4.9-5 **Operation of the proposed project would not result in temporary or periodic increases in ambient noise levels. There would not be a substantial temporary or periodic increase and, thus, this impact would be *less than significant*.**

Operation of the proposed project would not include special events or temporary activities which would cause an increase in ambient noise levels. In addition, operation of the proposed project would not require periodic use of special stationary equipment that would expose off-site sensitive receptors to an increase in ambient noise levels above those existing without the proposed project. Therefore, there would be no temporary or periodic noise impacts to on- or off-site receptors due to operation of the proposed project. This impact would be ***less than significant***.

Effects Found to Be Significant

Threshold	Would the project result in the exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

Impact 4.9-6 **Construction activities associated with the proposed project could generate or expose persons or structures to excessive groundborne vibration. While implementation of mitigation measures MM-OZ 4.9-1 through MM-OZ 4.9-4 would minimize this impact, it would not reduce it to a less-than-significant level. This is considered a *significant and unavoidable* impact.**

Construction-related vibration has two potential impacts. First, vibration at high enough levels can result in human annoyance. Second, groundborne vibration can potentially damage the foundations and exteriors of historic structures. Groundborne vibration that can cause this kind of damage is typically limited to impact equipment, especially pile drivers. Construction activities that would occur under the proposed project have the potential to generate low levels of groundborne vibration. Table 4.9-10 (Vibration Source Levels for Construction Equipment) identifies various vibration velocity levels for the types of construction equipment that would operate within the City during construction.

Table 4.9-10 Vibration Source Levels for Construction Equipment

Equipment	*Approximate VdB*			
	25 Feet	*50 Feet*	*75 Feet*	*100 Feet*
Large Bulldozer	87	81	77	75
Loaded Trucks	86	80	76	74
Jackhammer	79	73	69	67
Small Bulldozer	58	52	48	46

SOURCE: Federal Railroad Administration 1998

In addition to the construction equipment shown in Table 4.9-10 (Vibration Source Levels for Construction Equipment), vibration that would be experienced from the use of impact pile-drivers could reach as high as 112 VdB at a distance of 25 feet (HMMH, 1995). Like noise, groundborne vibration will attenuate at a rate of approximately 6 VdB per doubling of distance. The groundborne vibration generated during construction activities would primarily impact existing sensitive uses (e.g., residences, schools, and hospitals) that are located adjacent to, or within, the vicinity of specific projects. These sensitive uses could sometimes be located as close as 25 feet to the construction site or as far as several hundred feet away. Based on the information presented in Table 4.9-10, vibration levels could reach up to 87 VdB at sensitive uses located within 25 feet of construction. For sensitive uses that are located at or within 25 feet of potential project construction sites, sensitive receptors (e.g., residents, school children, and hospital patients) at these locations may experience vibration levels during construction activities that exceed the FTA's vibration impact threshold of 85 VdB for human annoyance. So long as construction occurs more than 50 feet from sensitive receptors, the impact associated with groundborne vibration generated by the equipment would be below 85 VdB and thus would be less than significant. However, as specific site plans or constructions schedules are unknown at this time, it may be possible that construction activities could occur as close as 25 feet from sensitive receptors. This would result in these sensitive receptors experiencing vibration impacts above the threshold of 85 VdB, in which case this impact would be potentially significant. Implementation of mitigation measures MM-OZ 4.9-1 through MM-OZ 4.9-4 would help to reduce this impact, but not to a less-than-significant level; therefore, this impact would remain ***significant and unavoidable***.

Threshold	Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

Impact 4.9-7 **Operation of the proposed project would generate increased local traffic volumes that would cause a substantial permanent increase in ambient noise levels in the project vicinity. This is considered a *significant and unavoidable* impact.**

The increase in traffic resulting from implementation of the proposed project would increase the ambient noise levels at sensitive off-site locations in the project vicinity. Table 4.9-11 (Traffic Noise Impacts for Year 2030 with Project Compared to Existing Conditions) identifies the changes in future noise levels along the study area roadway segments in the project vicinity. As discussed previously, a difference of 3.0 dBA between 24-hour noise levels is a barely perceptible increase to most people. A 5.0 dBA increase is readily noticeable, and a difference of 10 dBA would be perceived as a doubling of loudness. Existing traffic noise levels are identified in Table 4.9-4. Noise levels associated with traffic generated from existing conditions with the proposed project are calculated at the selected locations along the study-area roadway segments within the City using traffic data from the traffic study (included in Appendix H). As stated in the Thresholds of Significance, a 3.0 dBA CNEL increase is considered substantial if the noise increase would meet or exceed the City's 65 dBA CNEL noise level standard at high density residential uses.

As shown in Table 4.9-11 (Traffic Noise Impacts for Year 2030 with Project Compared to Existing Conditions), two roadways within the Overlay Zone would exceed the 3.0 dBA CNEL increase with

implementation of the proposed project. Cabrillo Park Drive between Fourth Street and Parkcourt Place would increase from an average of 65.6 dBA CNEL to 68.6 dBA CNEL and Fourth Street between Golden Circle Drive and Parkcenter Drive would increase from 71.7 dBA CNEL to 74.7 dBA CNEL.

Table 4.9-11 Traffic Noise Impacts for Year 2030 with Project Compared to Existing Conditions

	Noise Levels in dBA CNEL at 50 feet				
Roadway Segment	Existing Conditions	Year 2030 With Project Traffic Volumes	Increase	Significance Threshold[1]	Exceeds Significance Threshold?
Cabrillo Park Dr./Seventeenth St. to Cabrillo Park Dr./ Wellington Ave.	64.9	67.2	2.3	3.0	No
Cabrillo Park Dr./Fruit to Cabrillo Park Dr./Wellington Ave.	65.1	67.6	2.5	3.0	No
Cabrillo Park Dr./Fruit to Cabrillo Park Dr./Parkcourt Pl.	65.0	67.8	2.8	3.0	No
Cabrillo Park Dr./Fourth St. to Cabrillo Park Dr./Parkcourt Pl.	65.6	68.6	3.0	3.0	Yes
Cabrillo Park Dr./First St. to Cabrillo Park Dr./Fourth St.	66.0	68.7	2.7	3.0	No
Seventeenth St./Tustin Ave. to Tustin Ave./Wellington Ave.	71.9	73.9	2.0	3.0	No
Tustin Ave./Fruit St. to Tustin Ave./Wellington Ave.	71.5	73.7	2.2	3.0	No
Tustin Ave./Fruit St. to Tustin Ave./Sixth St.	71.5	73.6	2.1	3.0	No
Tustin Ave./Fourth St. to Tustin Ave/Sixth St.	71.8	74.0	2.2	3.0	No
Tustin Ave./Fourth St. to Tustin Ave./First St.	70.9	72.8	1.9	3.0	No
Yorba St./First St. to Yorba St./Fourth St.	67.9	68.8	0.9	3.0	No
B St./Irvine Blvd. to B St./First St.	55.9	57.6	1.7	5.0	No
Prospect Ave./Irvine Blvd. to Prospect Ave./ First St.	63.7	66.2	2.5	5.0	No
Parkcenter Dr./Sixth St. to Parkcenter Dr./Fruit St.	57.8	59.7	1.9	5.0	No
Parkcenter Dr./Sixth St. to Parkcenter Dr./Fourth St.	58.1	62.0	1.9	5.0	No
Golden Circle Dr./Fourth St. to Golden Circle Dr./First St.	60.6	63.0	2.4	5.0	No
Seventeenth St./Cabrillo Park Dr. to Seventeenth St./Tustin	72.9	73.9	1.0	3.0	No
Wellington Ave./Tustin Ave. to Wellington Ave./Cabrillo Park Dr.	59.0	59.9	0.9	5.0	No
Seventeenth St./SR-55 Ramp to Seventeenth St./Tustin Ave.	73.9	74.5	0.6	3.0	No
Fruit St./Cabrillo Park Dr. to Fruit St./Parkcourt Pl.	59.3	60.5	1.2	5.0	No
Fruit St./Cabrillo Park Dr. to Fruit St./Parkcenter Dr.	60.8	62.5	1.7	5.0	No
Fruit St./Tustin Ave. to Fruit St./Parkcenter Dr.	62.3	64.1	1.8	5.0	No
Sixth St./Tustin Ave. to Sixth St./Parkcenter Dr.	54.2	59.0	4.8	5.0	No
Fourth St./Cabrillo Park Dr. to Fourth St./Golden Circle Dr.	71.7	74.5	2.8	3.0	No
Fourth St./Golden Circle Dr. to Fourth St./Parkcenter Dr.	71.7	74.7	3.0	3.0	Yes
Fourth St./Tustin Ave. to Fourth St./Parkcenter Dr.	71.7	74.8	2.9	3.0	No
Irvine Blvd./B St. to Irvine Blvd./Yorba St.	72.9	73.7	0.8	3.0	No
Irvine Blvd./B St. to Irvine Blvd./Prospect Ave.	72.8	73.5	0.7	3.0	No
Irvine Blvd./Prospect Ave. to Irvine Blvd./Fashion Lane	72.3	73.5	1.2	3.0	No
Irvine Blvd./Holt Ave. to Irvine Blvd./Fashion Lane	72.5	73.9	1.4	3.0	No
Irvine Blvd./Holt Ave. to Irvine Blvd./Newport Ave.	72.3	74.2	1.9	3.0	No
First St./Mabury St. to First St./Cabrillo Park Dr.	71.1	72.8	1.7	3.0	No

Table 4.9-11 Traffic Noise Impacts for Year 2030 with Project Compared to Existing Conditions

Roadway Segment	Noise Levels in dBA CNEL at 50 feet				
	Existing Conditions	Year 2030 With Project Traffic Volumes	Increase	Significance Threshold[1]	Exceeds Significance Threshold?
First St./Cabrillo Park Dr. to First St./Golden Circle Dr.	69.4	71.5	2.1	3.0	No
First St./ Tustin Ave. to First St./Golden Circle Dr.	68.9	70.9	2.0	3.0	No
First St./Yorba St. to First St./Tustin Ave.	69.0	70.9	1.9	3.0	No
First St./Yorba St. to First St./B St.	69.3	71.1	1.8	3.0	No
First St./B St. to First St./El Camino Real	69.3	71.2	1.9	3.0	No
First St./Prospect to First St./El Camino Real	69.0	70.6	1.6	3.0	No
First St./Prospect to First St./Centennial Way	69.5	70.8	1.3	3.0	No
First St./Centennial Way to First St./Newport Ave.	68.8	70.5	1.7	3.0	No
Cabrillo Park Dr./Seventeenth St. to Cabrillo Park Dr./ Wellington Ave.	64.9	67.2	2.3	3.0	No

SOURCE: PBS&J, 2006 (calculation data and results are provided in Appendix G).

1. Significance Thresholds are set as follows:
   5.0 dBA CNEL if the noise increase is below the City of Santa Ana standard of 65 dBA CNEL
   3.0 dBA CNEL if the noise increase meets or exceeds the City of Santa Ana standard of 65 dBA CNEL.

These increases of 3 dBA CNEL would constitute a substantial permanent increase in ambient noise levels due to implementation of the proposed project. As there is no feasible mitigation to reduce this impact, this impact would be considered ***significant and unavoidable***.

4.9.4 Cumulative Impacts

The geographic context for the analysis of cumulative noise impacts depends on the impact being analyzed. For construction impacts, only the immediate area around the project site would be included in the cumulative context. For operational/roadway related impacts, the context is existing and future development in the City of Santa Ana. This cumulative impact analysis considers development of the proposed project, in conjunction with ambient growth and other development within the vicinity of the proposed project in the City of Santa Ana. Noise is by definition a localized phenomenon, and significantly reduces in magnitude as distance from the source increases. The analysis accounts for all anticipated cumulative growth within this geographic area, as represented by full implementation of the City of Santa Ana General Plan Framework and development of the related projects provided in Table 3-3 in Chapter 3.0 (Project Description).

Increases in noise at sensitive uses would occur as a result of construction of the proposed project, along with other construction in the vicinity. Other construction that may occur in the vicinity of the proposed project site would contribute noise levels similar to those generated for the proposed project. Where this development adjoins the proposed project construction, the combined construction noise levels would have a cumulative effect on nearby sensitive uses. Noise is not strictly additive, and a doubling of noise sources would not cause a doubling of noise levels; however, cumulative construction noise levels would be in excess of 65 dBA CNEL at nearby sensitive receptors.

As discussed under Impact 4.9-1, Section 18-314(e) of the City Municipal Code limits construction activities to between the hours of 7:00 A.M. and 8:00 P.M. Monday through Saturday, and also prohibits construction activities on Sundays and public holidays. Because compliance with this construction time limit is required by the City Municipal Code, the proposed project and all other cumulative development would be exempt, and the cumulative impact associated with construction noise in the Santa Ana area would be considered less than significant. Similarly, because construction-related noise generated under the proposed project would be exempt from established noise standards, the construction of the proposed project would not be cumulatively considerable and the cumulative impact of the project would also be ***less than significant***.

Other development projects within the City of Santa Ana could potentially introduce residential development into areas that currently exceed the 60 dBA CNEL standard for residential uses. However, such residential development would have to be constructed so that the noise levels exterior living spaces do not exceed the 65 dBA CNEL standard as set forth in the Noise Element of the General Plan. Since any potential new residential development within the City would be required to mitigate through site and building design, insulation and other noise preventative measures, the proposed project's impact would not be cumulatively considerable and the cumulative impact of the project would also be ***less than significant***.

As discussed under Impact 4.9-2, all rooftop HVAC equipment would be shielded; therefore, no source would generate maximum noise levels of greater than 57 dBA L_{eq} at 50 feet. Consequently, multiple units would have to be located within 50 feet of a receptor to achieve noise levels that would exceed the City standards. The development types associated with the proposed project and other nearby projects are not so dense that multiple stationary units would be so closely spaced, either on-site or off-site. Consequently, the cumulative effect of multiple HVAC units and other mechanical equipment would be less than significant and the contribution of the project would not be cumulatively considerable. This would be a ***less than significant*** impact.

As discussed in Impact 4.9-6, the proposed project's construction would produce temporary vibration impacts. However, as discussed in Impact 4.9-6, the construction vibration impact would be significant and unavoidable. Cumulative development in the City of Santa Ana is not considered likely to result in the exposure of on-site or off-site receptors to excessive groundborne vibration due to the localized nature of vibration impacts, the fact that all construction would not occur at the same time and at the same location, and the largely built-out nature of the City, which would usually preclude the use of heavy equipment such as bulldozers. Other projects listed in Table 3-3 are proposed in close enough proximity to affect the same receptors as the proposed project. Only receptors located in close proximity to each construction site would be potentially affected by each activity. Construction activities associated with these projects, which are adjacent to or within, the Overlay Zone, may overlap with construction activities for the proposed project for some amount of time. Sensitive uses in the immediate vicinity of the Overlay Zone may be exposed to two sources of groundborne vibration. However, for the combined vibration impact from the two projects to reach cumulatively significant levels, intense construction from both projects would have to occur simultaneously within 50 feet of any receptor. As individual development projects under the Overlay Zone may be constructed concurrently with each other or other related projects, it is possible that intense construction from two or more projects would simultaneously

occur at distances of 50 feet or less from existing nearby receptors. Therefore, vibration from future development could potentially combine with construction vibration of the proposed project to result in a potentially significant cumulative impact. Mitigation measures MM-OZ 4.9-1 through MM-OZ 4.9-4 would help reduce this impact, but not to a less than significant level. Therefore, the cumulative impact of the proposed project would be ***significant and unavoidable***.

Groundborne vibration could conceivably be generated by operation of the proposed project and related projects in the vicinity of the Overlay Zone. Since no substantial sources of groundborne vibration would be built as part of the proposed project, no vibration impacts would occur during operation of the proposed project. The same is expected to hold true for other projects in the vicinity of the Overlay Zone. Consequently, there would be no cumulative operational groundborne vibration impacts to any on-site or off-site receptor. This impact would be ***less than significant***.

Substantial permanent increases in noise would occur primarily as a result of increased traffic on local roadways due to the proposed project, related projects, and ambient growth through Year 2030 within the study area. Cumulative traffic-generated noise impacts have been assessed based on the contribution of the proposed project to the future cumulative base traffic volumes in the project vicinity. As shown in Table 4.9-12 (Traffic Noise Impacts for Year 2030 Overlay Zone Buildout Compared to 2030 without Project), cumulative traffic would not result in substantial increases in noise along any roadway segments compared to 2030 without Project Conditions. Roadway noise under 2030 without Project Conditions would not increase roadway noise levels above the 3.0 dBA CNEL significance threshold in areas where existing noise levels meet or exceed the 65 dBA CNEL standard for sensitive uses, or above the 5.0 dBA CNEL significance threshold in areas where existing noise levels are below the 65 dBA CNEL standard. Contribution of the proposed project to future roadway noise levels would exceed the identified thresholds of significance as identified under Impact 4.9-7 and, therefore, would be considered cumulatively considerable and the cumulative impact would be ***significant and unavoidable***.

Table 4.9-12 Traffic Noise of Cumulative Development in 2030 without Project

	Noise Levels in dBA CNEL at 50 feet				
Roadway Segment	Existing Conditions	Year 2030 Without Project Buildout	Increase	Significance Threshold[1]	Exceeds Significance Threshold?
Cabrillo Park Dr./Seventeenth St. to Cabrillo Park Dr./Wellington Ave.	64.9	66.1	1.2	3.0	No
Cabrillo Park Dr./Fruit to Cabrillo Park Dr./Wellington Ave.	65.1	66.4	1.3	3.0	No
Cabrillo Park Dr./Fruit to Cabrillo Park Dr./Parkcourt Pl.	65.0	66.5	1.5	3.0	No
Cabrillo Park Dr./Fourth St. to Cabrillo Park Dr./Parkcourt Pl	65.6	67.1	1.5	3.0	No
Cabrillo Park Dr./First St. to Cabrillo Park Dr./Fourth St.	66.0	67.0	1.0	3.0	No
Seventeenth St./Tustin Ave. to Tustin Ave./Wellington Ave.	71.9	72.9	1.0	3.0	No
Tustin Ave./Fruit St. to Tustin Ave./Wellington Ave.	71.5	72.6	1.1	3.0	No
Tustin Ave./Fruit St. to Tustin Ave./Sixth St.	71.5	72.6	1.1	3.0	No
Tustin Ave./Fourth St. to Tustin Ave/Sixth St.	71.8	72.9	1.1	3.0	No
Tustin Ave./Fourth St. to Tustin Ave./First St.	70.9	72.0	1.1	3.0	No
Yorba St./First St .to Yorba St./Fourth St.	67.9	68.7	0.8	3.0	No

Table 4.9-12 Traffic Noise of Cumulative Development in 2030 without Project

Roadway Segment	Noise Levels in dBA CNEL at 50 feet				
	Existing Conditions	Year 2030 Without Project Buildout	Increase	Significance Threshold[1]	Exceeds Significance Threshold?
B St./Irvine Blvd. to B St./First St.	55.9	56.8	0.9	5.0	No
Prospect Ave./Irvine Blvd. to Prospect Ave./First St.	63.7	65.9	2.2	5.0	No
Parkcenter Dr./Sixth St. to Parkcenter Dr./Fruit St.	57.8	58.6	0.8	5.0	No
Parkcenter Dr./Sixth St. to Parkcenter Dr./Fourth St.	58.1	59.0	0.9	5.0	No
Golden Circle Dr./Fourth St. to Golden Circle Dr./First St.	60.6	61.9	1.3	5.0	No
Seventeenth St./Cabrillo Park Dr. to Seventeenth St./Tustin	72.9	73.5	0.6	3.0	No
Wellington Ave./Tustin Ave. to Wellington Ave./Cabrillo Park Dr.	59.0	59.9	0.9	5.0	No
Seventeenth St./SR-55 Ramp to Seventeenth St/Tustin Ave.	73.9	74.1	0.2	3.0	No
Fruit St./Cabrillo Park Dr. to Fruit St./Parkcourt Pl.	59.3	60.3	1.0	5.0	No
Fruit St./Cabrillo Park Dr. to Fruit St./Parkcenter Dr.	60.8	61.8	1.0	5.0	No
Fruit St./Tustin Ave. to Fruit St./Parkcenter Dr.	62.3	63.2	0.9	5.0	No
Sixth St./Tustin Ave. to Sixth St./Parkcenter Dr.	54.2	55.5	1.3	5.0	No
Fourth St./Cabrillo Park Dr. to Fourth St./Golden Circle Dr.	71.7	72.6	0.9	3.0	No
Fourth St./Golden Circle Dr to Fourth St./Parkcenter Dr.	71.7	72.7	1.0	3.0	No
Fourth St./Tustin Ave. to Fourth St./Parkcenter Dr.	71.7	72.5	0.8	3.0	No
Irvine Blvd./B St. to Irvine Blvd./Yorba St.	72.9	73.1	0.2	3.0	No
Irvine Blvd./B St. to Irvine Blvd./Prospect Ave.	72.8	73.0	0.2	3.0	No
Irvine Blvd./Prospect Ave. to Irvine Blvd./Fashion Lane	72.3	73.0	0.7	3.0	No
Irvine Blvd./Holt Ave. to Irvine Blvd./Fashion Lane	72.5	73.5	1.0	3.0	No
Irvine Blvd./Holt Ave. to Irvine Blvd./Newport Ave.	72.3	73.9	1.6	3.0	No
First St./Mabury St. to First St./Cabrillo Park Dr.	71.1	71.3	0.2	3.0	No
First St./Cabrillo Park Dr. to First St./Golden Circle Dr.	69.4	69.9	0.5	3.0	No
First St./Tustin Ave to First St./Golden Circle Dr.	68.9	69.4	0.5	3.0	No
First St./Yorba St. to First St./Tustin Ave.	69.0	70.2	1.2	3.0	No
First St./Yorba St. to First St/B St.	69.3	70.5	1.2	3.0	No
First St./B St. to First St./El Camino Real	69.3	70.5	1.2	3.0	No
First St./Prospect to First St./El Camino Real	69.0	70.1	1.1	3.0	No
First St./Prospect to First St./Centennial Way	69.5	70.3	0.8	3.0	No
First St./Centennial Way to First St./Newport Ave.	68.8	70.0	1.2	3.0	No
Cabrillo Park Dr./Seventeenth St. to Cabrillo Park Dr./Wellington Ave.	64.9	66.1	1.2	3.0	No

SOURCE: PBS&J, 2006 (calculation data and results are provided in Appendix G)

1. Significance Thresholds are set as follows:
   5.0 dBA CNEL if the noise increase is below the City of Santa Ana standard of 65 dBA CNEL
   3.0 dBA CNEL if the noise increase meets or exceeds the City of Santa Ana standard of 65 dBA CNEL.

Periodic and temporary noise levels would be generated by construction of the proposed project along with other construction in the vicinity. As discussed in Impact 4.9-1, the proposed project by itself would expose some receptors to noise levels in excess of acceptable City standards. Construction noise impacts are localized in nature and decrease substantially with distance. Consequently, in order to achieve a

substantial cumulative increase in construction noise levels, more than one source emitting high levels of construction noise would need to be in close proximity to a sensitive receptor. As discussed previously, related projects provided in Table 3-3 in Chapter 3.0 (Project Description) of Volume I are in the vicinity of the proposed project. Construction activity associated with these projects may overlap with construction activity for the proposed project. Thus, the possibility exists that a substantial cumulative increase in construction noise levels could result from construction associated with the proposed project and related projects. The cumulative impact concerning the proposed project and the related projects, concurrently emitting high levels of construction noise, would likely be significant and unavoidable. As discussed previously, the City exempts construction noise from the provisions of the Municipal Code as long as construction occurs within certain hours of the day. All of the projects analyzed in the cumulative context that would construct concurrently with the proposed project would be required to comply with the same provisions of the Municipal Code described above. Consequently, all projects analyzed in the cumulative context would fall under the Municipal Code exemption, and the cumulative impact of the proposed project would be ***less than significant***.

Operation of the proposed project would not include special events or temporary activities which would cause an increase in ambient noise levels. Therefore, there would be no temporary or periodic noise impacts to on- or off-site receptors due to operation of the proposed project, and the cumulative impact of the proposed project would be ***less than significant***.

4.9.5 References

Harris Miller Miller & Hanson Inc. 2006. Transit Noise and Vibration Impact Assessment, Final Report, May.

Hendriks, R. 1998. Technical Noise Supplement: A Technical Supplement to the Traffic Noise Analysis Protocol. California Department of Transportation (Caltrans), Sacramento, California. October.

Katz, Okitsu & Associates. December 2006. *Traffic Impact Study for the Mixed Use Overlay Zone in the City of Santa Ana.*

Santa Ana, City of. 1982. City of Santa Ana General Plan Noise Element, 1982.

United States Department of Transportation. Federal Highway Administration. 1980a. Highway Noise Fundamentals.

———. Federal Highway Administration. 1980b. Fundamentals and Abatement of Highway Traffic Noises. September.

———. Federal Highway Administration. 1980c. Highway Noise Mitigation.

———. Federal Highway Administration. Traffic Noise Prediction Model (FHWA-RD-77-108).

———. Federal Railroad Administration. 1998. High-Speed Ground Transportation Noise and Vibration Impact Assessment.

United States Environmental Protection Agency. 1971. Noise from Construction Equipment and Operations, Building Equipment and Home Appliances.

4.10 POPULATION, HOUSING, AND EMPLOYMENT

This EIR section analyzes the potential for adverse impacts on population, housing, and employment resulting from implementation of the proposed Overlay Zone. Data used to prepare this section were taken from the United States Bureau of the Census, the California Department of Finance (DOF), the Southern California Association of Governments (SCAG), the California Employment Development Department, and the City of Santa Ana General Plan.

The 2004 SCAG data provides future growth projections for population, housing, and employment figures, and the more recent data computations from other sources do not always match these previous projections. Thus, for purposes of this analysis, the most recently available data (2006) is used to identify current conditions where possible, while SCAG data is generally used for projection purposes. Full bibliographic entries for all reference materials are provided in Section 4.10.5 (References) of this section.

One comment letter from the Southern California Association of Governments (SCAG) was received in regards to population and housing issues in response to the Notice of Preparation for the proposed project. The comment letter from SCAG notes that the Overlay Zone is located in a *Compass Growth Vision* 2% Strategy Area, where development is intended to balance employment, housing, and services in order to reduce auto trips and emissions, enhance livability, expand prosperity, and increase sustainability. SCAG has requested that the EIR demonstrate how the Overlay Zone does or does not support these principles.

4.10.1 Environmental Setting

The Overlay Zone is currently developed with commercial and office uses, with several large vacant properties located along its western boundary. Although there are residential uses to the north and south, there are no existing residential uses within the Overlay Zone.

United States 2000 Census

The United States Census Bureau provides population and housing data from the 2000 National Decennial Census (the "Census"). The Census occurs every 10 years for the purpose of counting the population and housing units for the entire United States. While the primary purpose of the census is to provide the population counts that determine how seats in the U.S. House of Representatives are apportioned, the Census data is also the basis for most demographic projections. The Census data, which was compiled using answers to surveys sent to all households within the United States, are provided for the nation, all states, and all counties, as well as each individual city.

Southern California Association of Governments

Santa Ana is located within the planning area of SCAG, the lead planning agency for the Southern California region. SCAG consists of local governments from Los Angeles, Ventura, Orange, San Bernardino, Riverside, and Imperial Counties. To facilitate regional planning efforts, the planning area of

SCAG is further divided into thirteen subregions. Santa Ana is located in the Orange County Council of Governments (OCCOG) Subregion, which includes all of the cities in Orange County.

One of SCAG's primary functions is to forecast population, housing, and employment growth for each region, subregion, and city. The latest SCAG Growth Forecast was completed in 2004 as part of the 2004 *Regional Transportation Plan Update*. The following population and housing analysis in this section addresses this forecast.

Population

Table 4.10-1 (Population: City of Santa Ana [(1980 – 2006]) presents California DOF data for population the City over the past three decades, including the 1990 and 2000 Census counts and the most recent 2006 DOF population estimate.

Table 4.10-1 Population: City of Santa Ana (1980 – 2006)

Year	Population	Increase	Average Annual Growth (persons/year)	Average Annual Growth Rate
1980	204,001	—	—	—
1990	293,827	44%	8,983	3.05%
2000	337,977	15%	4,415	1.31%
2006	351,322	4%	2,224	0.63%

SOURCE: State of California, Department of Finance, *E-4 Population Estimates for California Cities and Counties*, 1970–1980
State of California, Department of Finance, *E-4 Revised Historical City, County and State Population Estimates, 1991-2000, with 1990 and 2000 Census Counts*. Sacramento, California, March 2002.
State of California, Department of Finance, *E-4 Population Estimates for Cities, Counties, and the State, 2001-2006, with 2000 Benchmark*, Sacramento, California, May 2006.

According to DOF data noted in Table 4.10-1, the City's existing (2006) population is approximately 351,322 residents (California 2005a). This represents a 0.2 percent increase over the DOF estimated 2005 City population of 350,455 residents. The DOF data also demonstrates that the population in the City has increased by 147,321 residents, or approximately 72 percent, between 1980 and 2006. This represents an average annual growth rate of approximately 2.8 percent and an increase of about 566 residents per year for the period 1980-2006.

The year 2000 Census data indicates that the City's year 2000 population of 337,977 residents represented approximately 12 percent of Orange County's total year 2000 population (2,846,289 residents). Currently, Santa Ana ranks as the most populated city in Orange County, followed closely by Anaheim. Additionally, Santa Ana is ranked number 9 in California by total population.

Growth Forecasts

The SCAG Forecasting Section, under the Community Development Division, Planning and Policy Department, is responsible for producing socioeconomic projections for the SCAG region and developing, refining and maintaining SCAG's regional and small area forecasting models. The SCAG Forecasting Section works closely with the SCAG Plans and Programs Technical Advisory Committee,

the DOF, subregions, local jurisdictions, transportation commissions/agencies, the public and other major stakeholders.

Table 4.10-2 (SCAG Population Growth Projections, 2005 – 2030) presents the latest SCAG population forecasts (estimated future projections based upon demographic modeling) for the City of Santa Ana, Orange County (OCCOG Subregion), and the SCAG region. The forecasts were prepared in 2004.

Table 4.10-2 SCAG Population Growth Projections, 2005 – 2030

	2005	2010	2015	2020	2025	2030
Santa Ana						
Population	353,225	359,823	363,393	366,230	368,895	370,130
Orange County (OCCOG Region)						
Population	3,103,377	3,291,628	3,369,745	3,433,609	3,494,394	3,552,742
SCAG Region						
Population	18,117,604	19,208,661	20,191,117	21,137,519	22,035,416	22,890,797

SOURCE: SCAG 2004, Growth Forecast

According to the forecasts in Table 4.10-2, in 2005, the City of Santa Ana had a population of 353,225, the population of Orange County was 3,103,377, and the SCAG Region's population was 18,117,604. The population of Santa Ana is projected to grow by 16,905 residents between 2005 and 2030, representing an average annual growth rate of 0.2 percent or about 676 residents per year. In comparison, Orange County is projected to grow by 449,365 people between 2005 and 2030, with an estimated average annual growth rate of 0.6 percent or about 17,974 residents per year. The SCAG Region is projected to grow by 4,773,193 people over this 25-year period, representing an estimated average annual growth rate of 1.1 percent or about 190,924 residents per year.

Housing

The total housing stock in the City of Santa Ana during 2000 and 2006 is shown in Table 4.10-3 (Housing Units: City of Santa Ana [2000 – 2006]). There was an increase of 704 housing units in the City between 2000 and 2006. Of the 75,292 total housing units in 2006, 1,601 units (2.13 percent) are vacant.

Table 4.10-3 Housing Units: City of Santa Ana (2000 – 2006)

	Housing Type					
		Multifamily				
Year	Single Family	2 to 4 units	5+ units	Mobile Homes/Other	Total Number of Units	Occupied Units
2000	39,891	7,522	23,266	3,909	74,588	73,002
2006	40,277	7,494	23,612	3,909	75,292	73,691

SOURCE: State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark,* Sacramento, California, May 2006

The 2006 approximate percentage breakdown for housing by type in the City, as derived from Table 4.10-3, is as follows:

- 54 percent single-family
- 10 percent multifamily (2 to 4 units)
- 31 percent multifamily (5+ units)
- 5 percent mobile homes/other

Vacancy Rates

The vacancy rates and affordability of the housing stock are also key elements in the balance between supply and demand in the City's housing market. High vacancy rates usually indicate low demand and/or high prices in the housing market or significant mismatches between the desired and available types of housing. Conversely, low vacancy rates usually indicate high demand and/or low prices in the housing market. However, vacancy rates are not the sole indicator of market conditions. They must be viewed in the context of all the characteristics of the local and regional market and economy. Vacancy rates, which indicate a "market balance" (i.e., a reasonable level of vacancy to avoid local housing shortages, and appropriate price competition and consumer choice), generally range from one to three percent for single-family units, and from three to five percent for multi-family units. According to the total number of housing units versus occupied units noted in Table 4.10-3, the City of Santa Ana's overall vacancy rate remained the same between 2000 and 2006, at 2.1 percent.

Households

A household is defined by the DOF and the Census as a group of people who occupy a housing unit. A household differs from a housing (or dwelling) unit because the number of housing units includes both occupied and vacant housing units. It is important to note that not all of the population lives in households. A portion lives in group quarters, such as board and care facilities; others are homeless.

Household Size

Small households (1 to 2 persons per household [pph]) traditionally reside in units with 0 to 2 bedrooms, while family households (3 to 4 pph) normally reside in units with 3 to 4 bedrooms. Large households (5 or more pph) typically reside in units with 4 or more bedrooms. However, the number of units in relation to the household size group may also reflect preference and economics: many small households obtain larger units, and some large families live in small units for economic reasons.

Table 4.10-4 compares the DOF data reported for the number of households in the City of Santa Ana and Orange County for the period 2000-2006. The average household size in the City of Santa Ana increased slightly from 4.6 pph in 2000 to 4.7 pph in 2006. As noted in Chapter 3, the pph used for the Overlay Zone differs from the City average. This is explained in further detail under Impact 4.10-1 below.

Table 4.10-4 Households: City of Santa Ana and Orange County (2000-2006)		
Area	*2000*	*2006*
Total Households		
Santa Ana	73,002	73,691
Orange County	935,287	984,386
Average Household Size (persons per household)		
Santa Ana	4.6	4.7
Orange County	3.00	3.1

SOURCE: State of California, Department of Finance, *E-5 Population and Housing Estimates for Cities, Counties and the State, 2001-2006, with 2000 Benchmark*, Sacramento, California, May 2006

Table 4.10-5 presents the latest SCAG household forecasts (estimated future projections based upon demographic modeling) for the City of Santa Ana, Orange County (OCCOG Subregion), and the SCAG region. The forecasts were prepared in 2004.

Table 4.10-5 SCAG Household Growth Projections, 2005-2030						
	2005	*2010*	*2015*	*2020*	*2025*	*2030*
Santa Ana						
Households	73,600	74,940	75,117	75,383	75,641	75,694
Orange County (OCCOG Region)						
Households	978,423	1,034,027	1,046,473	1,063,976	1,081,421	1,098,474
SCAG Region						
Households	5,673,585	6,072,578	6,463,402	6,865,355	7,263,519	7,660,107

SOURCE: SCAG 2004, Growth Forecast

According to the growth forecasts presented in Table 4.10-5, in 2005, the City of Santa Ana had 73,600 households, Orange County had 978,423 households, and the SCAG Region had 5,673,585 households. The number of households in Santa Ana is projected to grow by 2,094 between 2005 and 2030, representing an average annual growth rate of 0.1 percent or about 83 households per year. In comparison, Orange County is projected to grow by 120,051 households between 2005 and 2030, with an estimated average annual growth rate of 0.5 percent or about 4,802 households per year. The SCAG Region is projected to grow by 1,986,522 households over this 25-year period, representing an estimated average annual growth rate of 1.4 percent or about 79,460 households per year.

Employment

According to data from the California Employment Development Department (EDD), the City of Santa Ana currently (as of March 2006) has an a labor force of approximately 155,300 persons and unemployment in the City stands at 5.4 percent of the labor force (8,300 people).

Table 4.10-6 presents the projected (estimated) employment in the City of Santa Ana from the SCAG 2004 Growth Forecast. The SCAG Growth Forecast estimate for 2005 employment in the City is

170,050 workers, which is substantially higher than the 2006 EDD employment estimate for the City noted above. Both the EDD and the SCAG numbers are estimates, so it is reasonable to conclude that current labor force in the City is somewhere in the range between the low estimate (155,300 workers) and the high estimate (170,050 workers).

Table 4.10-6 Employment Forecast: Santa Ana, Orange County, and SCAG Region (2005-2030)

Year:	2005	2010	2015	2020	2025	2030
Santa Ana						
Employment	170,050	177,583	179,381	180,850	181,768	183,444
Orange County (OCCOG Region)						
Employment	1,580,855	1,749,985	1,801,602	1,848,135	1,887,542	1,921,806
SCAG Region						
Employment	7,764,997	8,729,192	9,198,618	9,659,847	10,100,776	10,527,202

SOURCE: SCAG 2004, Growth Forecast

According to the employment growth forecasts presented in Table 4.10-6, the number of workers in Santa Ana is projected to grow by 13,394 employees between 2005 and 2030, representing an average annual increase of 0.3 percent or about 535 workers per year. In comparison, employment in Orange County is projected to grow by 340,951 workers between 2005 and 2030, with an estimated average annual increase of 0.9 percent or about 13,638 workers per year. Employment in the SCAG Region is projected to increase by 2,762,205 workers over this 25-year period, representing an estimated average annual increase of 1.4 percent or about 110,488 workers per year.

4.10.2 Regulatory Framework

Growth and development within the Overlay Zone project area is currently subject to land use regulations set forth in the City of Santa Ana General Plan and the Santa Ana Zoning Ordinance. The SCAG Regional Comprehensive Plan and Guide (RCPG), serves as a framework to guide local land use decision-making as it relates to regional growth.

Federal and State

There are no federal and State regulations related to population and housing that apply to the proposed project.

Regional

Southern California Association of Governments (SCAG), Regional Comprehensive Plan and Guide (RCPG)

SCAG, which is the designated Metropolitan Planning Organization for six Southern California counties (Ventura, Orange, San Bernardino, Riverside, Imperial, and Los Angeles), is federally mandated to develop plans for transportation, growth management, hazardous waste management, and air quality. SCAG has prepared the RCPG in conjunction with its constituent members and other regional planning agencies. The RCPG is intended to serve as a framework to guide decision-making with respect to the growth and changes that can be anticipated in the region through the year 2015. The Plan consists of five core chapters that contain goals, policies, implementation strategies, and technical data that support three overarching objectives for the region, including (1) improving the standard of living for all, (2) improving the quality of life for all, and (3) enhancing equity and access to government. Local governments are required to use the RCPG as the basis for their own plans and are required to discuss the consistency of projects of "regional significance" with the RCPG.

The regional housing goals provide a planning framework for cities, counties, and subregions so that they can fashion housing strategies that are responsive to regional market needs related to growth and change during the next two decades. It is intended to be flexible, broad in scope, and a tool in relating housing concerns to a host of other issues identified in the RCPG. The goals of the Housing chapter promote the goals of the RCPG—a rising standard of living, a healthy and environmentally sound quality of life, and achievement of equity.

The RCPG housing and growth policies applicable to the Overlay Zone are outlined below in Table 4.10-7 (SCAG Regional Comprehensive Plan and Guide Policies), for which a consistency analysis for each plan is also provided.

Table 4.10-7 SCAG Regional Comprehensive Plan and Guide Policies

SCAG RCPG Policies	*Project Consistency*
Growth Management Chapter	
Policy 3.04 Encourage local jurisdictions' efforts to achieve a balance between the types of jobs they seek to attract and housing prices.	The Overlay Zone will continue to contain office uses, thereby attracting a professional employment base. The permitted housing in the project area is anticipated to be market-rate housing, which would be compatible with the majority of jobs attracted to the area.
Policy 3.05. Encourage patterns of urban development and land use, which reduce costs on infrastructure construction and make better use of existing facilities.	Growth and development under the proposed project would include mixed use development, and infill development and redevelopment, which would minimize costs on infrastructure and make use of existing facilities.
Policy 3.09. Support local jurisdictions' efforts to minimize the cost of infrastructure and public service delivery, and efforts to seek new sources of funding for development and the provision of services.	Growth and development under the proposed project would include infill development and redevelopment, which would minimize costs on infrastructure and make use of existing facilities.

Table 4.10-7 SCAG Regional Comprehensive Plan and Guide Policies

SCAG RCPG Policies	Project Consistency
Policy 3.11 Support provisions and incentives created by local jurisdictions to attract housing growth in job rich subregions and job growth in housing rich subregions.	The Overlay Zone is currently an office district. By allowing residential uses in mixed-use developments within the proposed Overlay Zone, the project would be attracting housing growth in an existing job rich area of the City.
Policy 3.12 Encourage existing or proposed local jurisdictions' programs aimed at designing land uses that encourage the use of transit and thus reduce the need for roadway expansion, reduce the number of auto trips and vehicle miles traveled, and create opportunity for residents to walk and bike.	The Overlay Zone would encourage more pedestrian-oriented uses and design, which would serve to further reduce automobile trips. This includes expansion of mixed-use development, which places housing in close proximity to jobs.
Policy 3.13 Encourage local jurisdictions' plans that maximize the use of existing urbanized areas accessible to transit through infill and redevelopment.	Growth and development under the proposed project would involve infill development and redevelopment, which would maximize the use of existing urbanized areas accessible to transit.
Policy 3.14 Support local plans to increase density of future development located at strategic points along the regional commuter rail, transit systems, and activity centers.	The Overlay Zone would increase the density of the area from a prescribed 1.0 FAR in the current General Plan, to an allowed maximum FAR of 3.0 FAR on individual project sites. The project area is also strategically located at the intersection of two major freeways in the City.
Policy 3.15 Support local jurisdictions' strategies to establish mixed-use clusters and other transit-oriented developments around transit stations and along transit corridors.	The proposed project is a mixed-use overlay zone along existing transit corridors.
Policy 3.16 Encourage developments in and around activity centers, transportation corridors, underutilized infrastructure systems, and areas needing recycling and redevelopment.	The Overlay Zone would result in the creation of an activity center, which would minimize costs on infrastructure and make use of existing transportation corridors and areas needing recycling.
Policy 3.18 Encourage planned development in locations least likely to cause environmental impact.	Infill development and redevelopment under the Overlay Zone would occur in already urbanized areas and minimize environmental impacts.
Policy 3.24 Encourage efforts of local jurisdictions in the implementation of programs that increase the supply and quality of housing and provide affordable housing as evaluated in the Regional Housing Needs Assessment.	The Overlay Zone would introduce residential uses into an area currently designated for non-residential uses. Up to 5,551 new residential units could be provided in the City.
Policy 3.27 Support local jurisdictions and other service providers in their efforts to develop sustainable communities and provide, equally to all members of society, accessible and effective services such as: public education, housing, health care, social services, recreational facilities, law enforcement, and fire protection.	In the Public Services section of this EIR (4.11), fire protection, police protection, schools, and parks and recreation are analyzed, and Housing is discussed in Population and Demographics (Section 4.10). The intent of the proposed Project is not to obstruct provision of these services.
Housing Chapter	
Goal 1 Decent and affordable housing choices for all people	While the Overlay Zone is not likely to contribute to the affordable housing stock in the City, the project would not take away from affordable housing opportunities, as the City's housing projections for the 2005-2030 period did not include the area with the proposed Overlay Zone for potential affordable housing locations, as the area is currently not zoned or designated for housing in the General Plan.
Goal 2 Adequate supply and availability of housing	The Overlay Zone would facilitate the development of more than twice the City's projected housing increase during the period 2005-2030, thereby contributing to the provision of an adequate housing stock in the City.
Goal 3 Housing stock maintenance and preservation	No housing currently exists within the proposed Overlay Zone.

Table 4.10-7 SCAG Regional Comprehensive Plan and Guide Policies	
SCAG RCPG Policies	*Project Consistency*
Goal 4 Promote a mix of housing opportunities regionwide	The Overlay Zone allows for the development of varied residential product types in a mixed-use configuration including, but not limited to, loft-style units, live/work units, attached row houses, and high-quality stacked flats.

SCAG Regional Housing Needs Assessment

State Housing Law mandates that local governments, through Councils of Governments, identify existing and future housing needs in a Regional Housing Needs Assessment (RHNA). The RHNA provides recommendations and guidelines to identify housing needs within each jurisdiction (cities and counties) within the sate and assigns a "fair share" of the statewide and regional housing needs burden to each jurisdiction. The RHNA does not impose requirements as to housing development in cities, but compliance with the RHNA is required in order for cities to maintain eligibility for receipt of certain state revenue funding.

In Orange County, the Orange County Council of Governments (OCCOG) was delegated by SCAG responsibility for developing the RHNA in coordination with all 34 Orange County cities and the County of Orange. The most recent RHNA adopted for the SCAG region was adopted in 2000. The RHNA includes calculated housing need numbers for each jurisdiction in the region based upon population projections, existing housing stock, and calculated new housing demand.

Table 4.10-8 (Regional Housing Needs Assessment—City of Santa Ana) presents the latest adopted RHNA calculated housing need assigned to the City of Santa Ana. The RHNA indicates a housing need in Santa Ana of 1,339 total new housing units by year 2005.

Table 4.10-8 Regional Housing Needs Assessment—City of Santa Ana	
Income Category	*New Housing Need (units)*
Very Low Income	377
Low Income	226
Moderate Income	313
Above Moderate Income	423
Total	1,339

SOURCE: SCAG Regional Housing Needs Assessment for planning period 1998-2005, adopted 11/2000

SCAG Compass Growth Vision

The *Compass Growth Vision* was adopted by SCAG's Regional Council in June 2004. This new long-range planning vision document for southern California is intended to accommodate the projected 6 million new residents expected to live in the region by 2030 while balancing valuable quality of life goals. Driven

by four key principles—mobility, livability, prosperity and sustainability—the *Compass Growth Vision* emphasizes strategies to better coordinate land use and transportation decision-making.

Various strategic opportunity areas in the SCAG region, comprising about 2% of the region, are known as the "Compass 2% Strategy Areas" under the *Compass Growth Vision* implementation plan. The City of Santa Ana, including the entire Overlay Zone, is within one of the 2% Strategy Areas. The *Compass Growth Vision* includes the City of Santa Ana under the following 2% Strategy Area categories:

- Metro Center—Area of regional significance that is currently or projected to be a major employment and residential center that attracts large numbers of work commuters and is well accessible by both highway and transit.
- Rail Transit Stop—Area that has an existing or planned light rail, subway, commuter rail, Amtrak and/or Maglev station stop.
- Airports, Ports, and Industrial Center—Area that has an existing or planned airport, sea port, inland port, international border crossing or major regional industrial center that is central to the region's economy.
- Priority Residential In-fill Area—Area that has shown the potential to provide regional and subregional transportation benefits as it absorbs its share of the regional residential growth.

The *Compass Growth Vision* recommends that decisions regarding growth, transportation, land use, and economic development be made in the 2% Strategy Areas to promote and sustain for future generations the region's mobility, livability and prosperity. The principles and strategies for the 2% Strategy Areas are intended to provide a framework for local and regional decision-making intended to achieve this goal. These principles and strategies are listed below in Table 4.10-9 (SCAG Compass Growth Vision Principles and Strategies), for which a consistency analysis is also provided.

Table 4.10-9 SCAG Compass Growth Vision Principles and Strategies

Principles and Strategies	*Project Consistency*
Improve Mobility for All Residents	
Encourage Transportation Investments and Land Use Decisions that Are Mutually Supportive	The Overlay Zone supports the City's transportation investments by its location within an existing transportation and infrastructure system.
Locate New Housing Near Existing Jobs and New Jobs Near Existing Housing	The Overlay Zone supports both of these strategies by allowing new housing near existing jobs, and permitting higher densities, thereby promoting job growth in a proposed mixed-use urban center.
Encourage Transit-Oriented Development	The proposed project is a mixed-use overlay zone that encourages walking and alternative modes of transportation, including public transit.
Promote a Variety of Travel Choices	The Overlay Zone would provide a rich amenity-enhanced environment supportive of walking and biking, and accessible to existing public transit systems.

Table 4.10-9 SCAG Compass Growth Vision Principles and Strategies	
Principles and Strategies	*Project Consistency*
Foster Livability in All Communities	
Promote In-Fill Development and Redevelopment to Revitalize Existing Communities	The Overlay Zone is within an existing office environment, with few vacant parcels. Densification and new development would almost entirely require redevelopment and infill development.
Promote Developments which Provide a Mix of Uses	The proposed project is a mixed-use overlay zone that would introduce a mix of uses into the existing office district, including residential, commercial, and entertainment uses.
Promote "People-Scaled," Walkable Communities	The objectives, standards, and design guidelines of the Overlay Zone promotes a "people-scaled" pedestrian-friendly environment by requiring commercial-retail at the ground level along specific corridors, and prolific public open space that integrates the private and public realm at the street level.
Support the Preservation of Stable Neighborhoods	The Overlay Zone would enhance and support the existing business district and adjacent residential neighborhoods by establishing a network of connective open space and streetscape elements to unify adjacent districts and provide effective transitions to areas outside the proposed overlay zone.
Enable Prosperity for All People	
Provide a Variety of Housing Types in Each Community to Meet the Housing Needs of All Income Levels	The Overlay Zone allows for the development of varied residential product types in a mixed-use configuration including, but not limited to, loft-style units, live/work units, attached row houses, and high-quality stacked flats.
Promote Sustainability for Future Generations	
Preserve Rural, Agricultural, Recreational and Environmentally Sensitive Areas	The Overlay Zone would maintain, expand, and foster connectivity to the existing open space and recreational services in the area, including the public recreation area to the north of the overlay zone.
Focus Development in Urban Centers and Existing Cities	The Overlay Zone is within an existing office district of the City of Santa Ana, part of which is considered a "major development area" comparable to the City's district centers.
Develop Strategies to Accommodate Growth that Use Resources Efficiently	The Overlay Zone would utilize the City's existing resources and enhance them as necessary on a project-specific level to accommodate growth in the proposed project area.
Minimize Pollution and Waste	The mixed-use concept is intended to promote walkable environments that limit the need to drive, by locating services within close distance to jobs and residential areas, thereby minimizing pollution and waste created by the automobile.
Utilize "Green" Development Techniques	The Overlay Zone features design guidelines that promote "green" urbanism, through sustainable landscaping, building materials and building orientation.

Local

City of Santa Ana General Plan

The General Plan provides long-term guidance and policies for maintaining and improving the quality of life in, and the resources of, the community, both man-made and natural. The General Plan provides

direction for the City's growth and development. As a policy document, the General Plan serves as a guide to the adoption of laws necessary to execute its intent. The goals and related policies set forth by the City of Santa Ana General Plan Land Use Element, Growth Management Element, and Housing Element that relate to population growth and housing are noted below.

Land Use Element

The Land Use Element of the General Plan includes the following major goals that are relevant to residential and office/commercial development within the proposed Overlay Zone:

Goal 1 A balance of land uses;

Goal 2 The promotion of land uses which enhance economic vitality;

Goal 3 The preservation of existing neighborhoods;

Goal 4 The protection of unique community assets and open space that enhance the quality of life;

Goal 5 The protection of the community from the impacts of future development; and

Goal 6 A reduction of residential crowding.

An analysis of the consistency of all applicable land use goals and policies of the City of Santa Ana General Plan Land Use Element with the proposed Overlay Zone is provided in Section 4.8 (Land Use and Planning) of this EIR.

Growth Management Element

The Growth Management Element of the General Plan includes the following policy that is relevant to residential and office/commercial development within the proposed Overlay Zone:

Policy *Balanced Community Development*: Recognizing the constraints of existing physical development characteristics (Santa Ana is 98 percent built out), it is the City's policy to strive toward achieving a balance of land uses where by residential, commercial, and public land uses are proportionally balanced.

An analysis of the consistency of all applicable goals and policies of the City of Santa Ana General Plan Growth Management Element with the proposed Overlay Zone is provided in Section 4.8 (Land Use and Planning) of this EIR.

Housing Element

The Housing Element of the General Plan is intended to identify and analyze existing and projected housing needs and discusses the goals, objectives, and policies of the City of Santa Ana in terms of community planning to balance resources and community values against ever increasing demands from population growth. The Housing Element is affected by development policies contained in the Land Use Element, which establishes the location, type, and intensity and distribution of land uses throughout the

City. The goals and policies contained in the Housing Element address the City's identified housing needs. Listed below are the goals outlined in the City's most recent Housing Element Update (adopted in 2000 for the implementation period of 2000-2005), as well as corresponding implementation policies relevant to residential development within the proposed Overlay Zone, for which a consistency analysis follows.

Goal 2 Maintain, preserve and revitalize residential neighborhoods and support quality housing for all economic groups within the community.

Policy 2.3 Discourage the intrusion of incompatible land uses into residential neighborhoods.

Policy 2.4 Promote equal housing opportunities for all economic segments of the community.

Goal 4 Promote and encourage the development of a variety of housing opportunities to accommodate current and projected housing needs which include 377 very-low, 226 low, 313 moderate, and 423 above moderate-income households.

Policy 4.1 Target areas in the City for the creation of new housing units and opportunities for all segments of the community.

Policy 4.2 Facilitate affordable home ownership opportunities through maximum utilization of remaining residential land in the City.

Goal 6 Promote consideration of regional housing issues and consistency with County and Regional plans.

Policy 6.1 Coordinate among public agencies and organizations that address housing issues.

Policy 6.2 Encourage a balance of land uses that promote livable communities.

Consistency Analysis

The above goals and policies focus primarily on maintaining and revitalizing the City's existing residential neighborhoods, discouraging incompatible development into residential neighborhoods, and providing a variety of high-quality housing types for all economic segments of the community. Additionally, the above policies encourage a balance of land uses that promote livable communities. The proposed Overlay Zone utilizes specific development standards and design guidelines to facilitate quality development that will unify the existing office district area and provide transitions and connections to residential areas outside of the overlay zone. This will be accomplished through the provision of amenity-enriched open space and public areas, and increased commercial services that will benefit and enhance the adjacent residential areas. Furthermore, the introduction of mixed-use development that incorporates residential uses with office and/or commercial uses would help promote a balance of uses. While the proposed project allows residential uses in the form of mixed-use development, it is not determined whether these residential units would be affordable; however, the Overlay Zone does incorporate a range of housing types and sizes that would cater to both families and individuals in the City. As the current General Plan does not currently designate the proposed project area for residential uses, the Overlay

Zone would be largely supplementing the existing housing stock, and would ultimately help the City achieve, if not exceed, its current housing goals.

Table 4.10-10 (Santa Ana General Plan Housing Element—New Housing Construction Objectives, 2000-2005) presents the new construction housing objectives established by the General Plan Housing Element for the period 2000-2005. The Housing Element called for the construction of a total of 1,445 new housing units in the City by year 2005, which exceeds the goal set by the RHNA for the same period.

Table 4.10-10 Santa Ana General Plan Housing Element—New Housing Construction Objectives, 2000-2005

Unity Type	*Very Low*	*Low*	*Moderate*	*Above Moderate*	*Total*
Single Family	--	--	221	132	353
Multi-Family	377	226	87	259	949
Subtotal	377	226	308	391	1,302
TOTAL1	377	226	379	463	1,445
Assigned RHNA	377	226	313	423	1,339

SOURCE: City of Santa Ana General Plan Housing Element (2000)

[1] Total includes New Housing Construction Achievements 1998-2000, City of Santa Ana

4.10.3 Project Impacts and Mitigation

Analytic Method

This analysis considers population and household growth that would occur with implementation of the proposed Overlay Zone and whether this growth is within local or regional forecasts, whether it can be considered substantial with respect to remaining growth potential in the City as articulated in the General Plan, and/or whether it would result in the displacement of housing or people. In addition, this analysis of potential population and housing impacts considers whether population growth and residential development were previously assumed to occur in a particular area. Specifically, population and housing impacts were conducted by comparing the proposed project with growth projections for the City from SCAG and the City's General Plan EIR.

All project components described in Chapter 3 (Project Description) are considered for temporary employment growth associated with construction activities, as construction estimates are provided for the proposed project as a whole. The proposed residential components of the Overlay Zone are considered within the context of direct growth. The analysis of the potential for the Overlay Zone to indirectly induce growth by extending roads or infrastructure and by providing permanent employment opportunities is also addressed.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, as amended. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on population and housing if it would result in the following:

- Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through the extension of roads or other infrastructure)
- Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere
- Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

Physical impacts related directly to population growth are addressed in transportation/traffic, air quality, land use and planning, noise, public services (police protection and school capacity), utilities, and recreation sections of this EIR.

Effects Found to Have No Impact

Threshold	Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere

Presently, the Overlay Zone is developed with commercial and office uses. Because no residential uses are located within the overlay zone boundaries, implementation of the Overlay Zone would not require the demolition of any existing housing and construction of replacement housing would not be necessary. Rather, implementation of the proposed project would permit residential uses in an area that currently prohibits these uses. Consequently, ***no impact*** would occur, and no further analysis is required in this EIR.

Threshold	Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere

As discussed above, no residential uses are located within the Overlay Zone boundaries. Implementation of the proposed project would not displace substantial numbers of people and would not necessitate the construction of replacement housing elsewhere. No existing housing will be demolished as part of the proposed project. Consequently, ***no impact*** would occur, and no further analysis is required in this EIR.

Effects Found to Be Less Than Significant

Threshold	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)

Impact 4.10-1 **Implementation of the proposed project would accommodate projected population and housing growth. This impact is considered *less than significant*.**

A discussion of growth inducing impacts of the proposed Overlay Zone, consistent with CEQA Guidelines, is contained in Section 6.4 (Growth-Inducing Impacts) of this EIR. This threshold and the discussion below address both direct growth in population resulting from new housing and indirect population growth impacts from the extension of roads or infrastructure or provision of employment opportunities.

The proposed Overlay Zone would provide for infill development that makes maximum use of existing infrastructure. As the majority of development that would occur under the Overlay Zone would be infill or redevelopment, the development permitted under the Overlay Zone would not require significant regional public infrastructure upgrades for any utility, transportation facility, or public service. However, any new development would be required to include provisions to make the necessary improvements in order to facilitate implementation of the Overlay Zone. Project developers would be required to fund their fair share allocation of any necessary public infrastructure associated with development under the Overlay Zone. Any infrastructure improvements would occur during a period of regional growth. Due to the fact that net new infrastructure developments would be minimal, it is not anticipated that the infrastructure improvements would result in measurable population growth in or around the Overlay Zone area. As such, the indirect population growth impact resulting from infrastructure improvements associated with the proposed Overlay Zone is considered ***less than significant***.

Implementation of the proposed Overlay Zone is intended to accommodate existing and future population growth forecasted for the City by introducing new residential housing within the Overlay Zone, as well as new employment opportunities in and around the project area.

As proposed, implementation of the Overlay Zone would enact zoning changes to allow for up to 5,551 multi-family residential units. In order to quantify the direct population increase that would result from new housing in the Overlay Zone, it is necessary to determine an appropriate persons per household (pph) estimate to use. While the City's current average household size is estimated to be 4.7 pph (as noted in Table 4.10-4 above), it is known that the majority of existing housing in the City is single family residences (54 percent) and low to medium density multi-family housing units that have a typical household size that is larger on average than the higher density multi-family housing units proposed under the Overlay Zone. The higher-density multi-family housing units proposed under the Overlay Zone would have an average per unit square footage of 1,200 square feet (sf) and a lower number of bedrooms (mostly 1-2 bedroom units with some 3 bedroom units) than existing larger single family residences in the City (typically 3-4 bedrooms). As such, the current City average household size of

4.7 pph is not considered an appropriate measure of household size that would result from the higher density multi-family housing under the proposed Overlay Zone.

A household size ratio in the range of 1.8 pph is consistent with the sales/rental experience of downtown-oriented mixed-use development in other similar cities (e.g., Pasadena, Burbank, Long Beach). Sales, rental, and marketing experience of downtown developers in other cities with higher density mixed-use development projects comparable to that expected in the Overlay Zone suggest that residents of these areas are predominantly singles, young couples, and empty-nesters, but rarely families with children. The experience of comparable developments suggests that the average medium-high density mixed-use residential unit is occupied by one or two individuals. As such, for the purposes of the analysis in this EIR, a conservative household size estimate of 2.0 pph is considered an appropriate and accurate prediction of the future demographics of the Overlay Zone.

Table 4.10-11 provides a summary of the proposed Overlay Zone development and the estimated direct growth potential. The proposed Overlay Zone would allow for the development of approximately 5,551 new residential dwelling units in the project area. Based on an average person per household size of 2.0 pph, the estimated direct population growth associated with the potential 5,551 new residential units in the Overlay Zone would be approximately 11,102 people (5,551 units x 2.0 pph). In addition, the Overlay Zone would allow for a total of 1,275,440 square feet (sf) of commercial/retail/service uses and a total of 3,410,507 sf of office building uses. These development potential totals would represent a net increase of 963,154 sf of commercial/retail/service uses and a net increase of 690,339 sf of office uses compared to existing conditions within the Overlay Zone. The net new commercial and office uses in the Overlay Zone could generate an estimated 2,343 additional jobs.

Table 4.10-11 Proposed Overlay Zone Development and Direct Growth Potential

Additional Commercial/Retail/Service Building Area[1]	*Additional Office Building Area*[2]	*Housing Stock Increase*	*Jobs Created*[3]	*Direct Increase in Population*[4]
963,154 sf	690,339 sf	5,551 dwelling units	2,343 employees	11,102 residents

SOURCE: City of Santa Ana, 2006

[1] Net new commercial/retail/service area = proposed new uses (1,275,440 sf) minus existing uses (312,286 sf).

[2] Net new office building area = proposed new uses (3,410,507 sf) minus existing uses (2,720,168 sf).

[3] Office jobs based on 0.002 jobs/sf (or 387 sf/worker); Commercial/retail/service jobs based on 0.001 jobs/sf (or 945 sf/worker). Occupancy/sf ratios were derived from the "Commercial Energy Consumption Survey" prepared by the Department of Energy in 1995. For additional information, see www.eia.doe.gov/emeu/consumptionbriefs/cbspecs/pbawebsite/contents.htm.

[4] Residential population based on 2.0 persons per new residential unit within the Overlay Zone.

Direct Population Growth from New Housing

Based on the population projections presented previously in Table 4.10-2, a population increase (without the project) of 16,905 residents is projected between 2005 and 2030 for the City of Santa Ana, representing an annual average growth rate of 0.2 percent or approximately 676 residents per year. The direct population growth estimated to be associated with the project—approximately 11,102 people, or approximately 65 percent of the projected growth—would not result in growth exceeding this projection but is considered substantial in relation to the level of forecasted population growth.

The proposed Overlay Zone was not planned or considered in the land use factors that SCAG or the City used to estimate the population growth forecast for Santa Ana. Therefore, the population growth associated with the project is not accounted for in the population growth projections. When coupled with natural population increases in the City that will result from births and migration, the project-related direct population growth would result in population growth in the City that far exceeds the projected growth.

However, in comparison to the average annual growth rate of 0.2 percent projected for the City, the population of Orange County is forecast to grow by an annual average growth rate of 0.6 percent between 2005 and 2030, while the population of the SCAG Region is forecast to grow by an average of 1.1 percent per year during this same 25-year period. Due to the fact that the City's population is forecasted to grow at a slower rate than the County and SCAG Region, the forecasted project-related direct population growth in the City is not considered substantial relative to the surrounding areas.

Additionally, although the potential housing units (and associated population increase) were not previously anticipated, the City is relatively built-out and has limited opportunities for additional residential development. Specifically, according to the 2000 Housing Element of the General Plan, there was a potential for only 1,775 residential units to be developed on the City's remaining undeveloped and underutilized properties. Even if all of these units were developed, the population increase that could be accommodated would only range between 3,550 and 8,343 persons (depending on a pph factor of 2.0 or 4.7). Therefore, in order to accommodate the forecasted population growth that is anticipated to continue to occur, infill and reutilization of underdeveloped land has become a priority in the City. In particular, as discussed in the City's 2000 Housing Element, the City's intent is to intensify compatible residential development through adaptive reuse and mixed use within the District Center designation and other existing commercial zones. As discussed in the Land Use Element of the General Plan, District Centers are considered to be the City's "Major Development Areas," where the most intense development in the City is targeted. The Overlay Zone is a Major Development Area even though it is not designated as a District Center.

Indirect Population Growth from New Employment

As shown in Table 4.10-6, SCAG projections indicate an increase of up to 13,394 employees in the City from 2005-2030. The proposed project could generate up to 2,343 employment positions, and would not substantially affect the employment forecasts within the City. With an existing (2005) jobs/housing ratio of 2.3 within the City, the new mix of residential and commercial/service and office uses in the Overlay Zone would improve the overall jobs/housing ratio to 2.4.

The proposed Overlay Zone new commercial/service and office uses would generate an estimated 2,343 long-term employment positions. Based on similar projects, the distribution of part-time to full-time would be approximately 60 percent (1,405) full-time jobs and 40 percent (937) part-time jobs. Based upon resident worker characteristics for similar cities, it is estimated that approximately 25 percent (one-quarter) of the new employees generated by the Overlay Zone, or about 585 workers, could relocate to Santa Ana. If it is conservatively assumed that each of these employees forms a single new household in the City (in residential units outside of the Overlay Zone area), these households could add

approximately 2,749 additional residents to the City (585 worker households x 4.7 persons per household for areas in the City outside of the Overlay Zone).

It should be noted that the estimate of indirect population growth provided in this analysis is extremely conservative since it is based on the following assumptions: (1) existing City residents would fill none of the new employment opportunities associated with the proposed Overlay Zone and (2) the new employees generated by the new Overlay Zone commercial/service and office jobs would reside in areas of the City outside of the Overlay Zone area (i.e., not within the new Overlay Zone residential units). As noted above, unemployment in Santa Ana stands at 5.4 percent in 2006, so it is reasonable that some of the employment opportunities associated with the proposed Overlay Zone will be filled by current residents of the City. It is also extremely likely that many of the new employees filling jobs generated by the Overlay Zone would reside in the new residential units built within the Overlay Zone. However, this analysis is meant to be extremely conservative such that the highest potential number of new residents (from both direct housing growth and indirect employment-related growth) is reported.

Total Direct and Indirect Population Growth

The direct increase in population of 11,102 people that would be associated with the proposed Overlay Zone residential units and the potential indirect increase in population of 2,749 people associated with the new employment opportunities generated by the Overlay Zone would result in a total population increase of approximately 13,851 people in the City of Santa Ana. As noted above, this assumes that none of the new employees would reside in the new residential units within the Overlay Zone area. Based on the population projections presented previously in Table 4.10-2, the projected population growth in Santa Ana between 2005 and 2030 is approximately 16,905 persons. The total direct and indirect population growth estimated to be associated with the project—approximately 13,851 people—will not result in growth exceeding this projection but is considered substantial in relation to the level of forecasted population growth.

The increased population and housing resulting from new development do not necessarily cause direct adverse physical environmental effects; however, indirect physical environmental effects such as population-driven traffic or air quality impacts could occur. These indirect physical environmental effects associated with population increases are analyzed in the relevant technical sections of this EIR.

As discussed above, even though the housing units under the Overlay Zone were not accounted for in the City and SCAG regional growth projections, implementation of the proposed project is consistent with the overall intent of the City's goals to provide adequate housing opportunities to meet its "fair share" of projected housing needs. In essence, implementation of the proposed project would allow the City to accommodate the projected growth increases. Additionally, due to the fact that the City's population is forecasted to grow at a slower rate than the County and SCAG Region, the forecasted project-related direct and indirect population growth in the City is not considered substantial relative to the surrounding areas. As such, this impact is considered ***less than significant***.

4.10.4 Cumulative Impacts

A cumulative impact analysis is only provided for those thresholds that result in a less-than-significant, potentially significant, or significant and unavoidable impact. A cumulative impact analysis is not provided for Effects Found to Have No Impact, which result in no project-related impacts.

The geographic context for the analysis of cumulative population and housing impacts is the City of Santa Ana, as represented by full build-out of the City's General Plan. The City is largely built out, and cumulative development would focus upon development of vacant parcels and intensified redevelopment of infill parcels within the City.

Based on the population projections presented previously in Table 4.10-2, a population increase (without the Overlay Zone) of 16,905 residents is projected between 2005 and 2030 for the City of Santa Ana. As discussed above, the total (direct and indirect) population growth estimated to be associated with the Overlay Zone would be approximately 13,851 people. Therefore, the remaining total growth estimated to occur within the City would be approximately 3,054 residents. However, because the City has such limited opportunities for additional residential development, it is estimated that cumulative development would likely accommodate, but not exceed, anticipated growth projections. Because full build-out under the Overlay Zone would account for approximately 65 percent of the anticipated cumulative growth projections, implementation of the proposed project would have a considerable contribution to this effect. However, changes in population and housing, in and of themselves, are generally characterized as social and economic effects, not physical effects on the environment. Additionally, because the proposed project and cumulative development would serve to accommodate, rather than generate, projected growth within the City, cumulative impacts are considered ***less than significant***.

4.10.5 References

California, State of. 2005a. Department of Finance. *E-1 City/County Population Estimates, with Annual percent Change, January 1, 2004 and 2005*, May

———. 2005b. Employment Development Department. http://www.labormarketinfo.edd.ca.gov/cgi/dataanalysis/labForceReport.asp?menuchoice=LABFORCE. Accessed December 2005.

Santa Ana, City of. 1997. *Draft Land Use Element Environmental Impact Report*. SCH No. 97071058. Prepared by Blodgett/Cunningham and Associates. October 16.

———. 2000. *General Plan Housing Element 2000-2005*. December 18.

———. 2006. Annual Element Progress Report—Regional Housing Needs Allocation Process: New Construction (1998-2005). Table B-1.

Southern California Association of Governments (SCAG). 1996. *Regional Comprehensive Plan and Guide*, March.

———. 2000. *Regional Housing Needs Assessment for the City of Santa Ana*, Adopted November 2000. http://api.ucla.edu/Rhna/RegionalHousingNeedsAssessment/FinalNumbers/Frame.htm. Accessed October 2006.

———. 2004. *Regional Transportation Plan Update*.

U.S. Department of Commerce. U.S. Census Bureau. 1990. *United States Census 1990*.

———. 2000. *United States Census 2000*.

4.11 PUBLIC SERVICES

This section evaluates the effects on public services related to implementation of the proposed project by identifying anticipated demands and existing and planned service availability. For purposes of this EIR, public services consist of (1) fire protection, (2) police protection, (3) schools, (4) library services, and (5) parks. The impacts related to emergency access are analyzed in Section 4.12 (Transportation/Traffic) of this EIR. Data used to prepare this section was taken from various sources, including the 2004 Annual Report of the Fire Department, contacts with the Santa Ana Police and Fire Departments, Tustin Unified School Districts (TUSD), Santa Ana Library Services, Santa Ana Parks, and Recreation and other project data sources. Three comment letters related to public services were received in response to the Initial Study/Notice of Preparation (IS/NOP) circulated for the project. Full bibliographic entries for all reference material are provided in Section 4.11.21 (References) of this section.

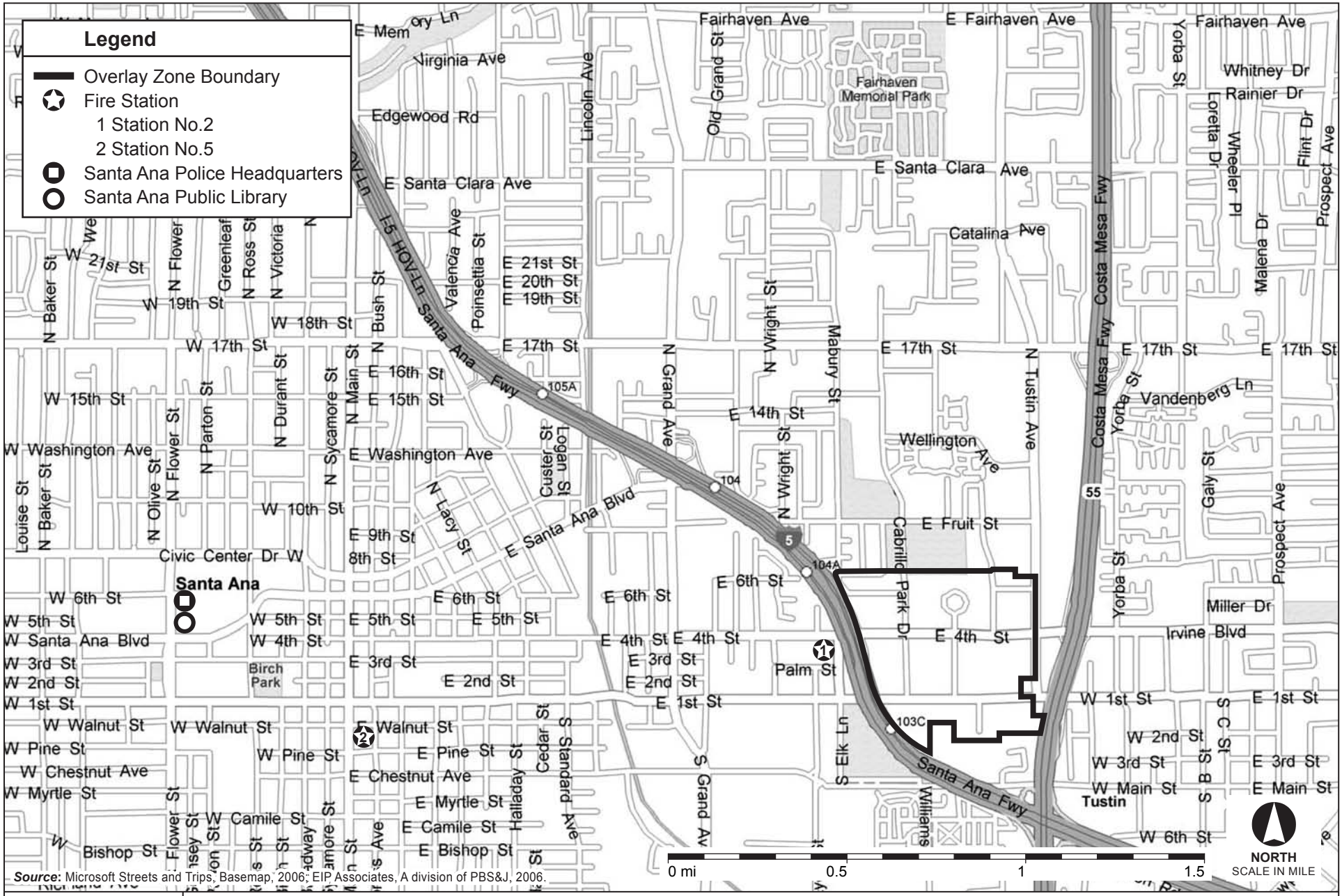
FIRE PROTECTION

4.11.1 Environmental Setting

Fire services within the Overlay Zone are provided by the Santa Ana Fire Department (SAFD). The Santa Ana Fire Communications Center processes calls for medical and fire emergencies. They employ life-saving techniques by providing "pre-arrival" instructions and assistance to callers in need of medical attention. An average of 2,000 calls for both emergency and non-emergency responses are received per month. SAFD also provides Emergency Medical Services (EMS) to city residents.

Fire Stations 2 and 5 are the primary responders to a first alarm call within the Overlay Zone. In cases where there is a need for back-up support, additional City fire stations would provide the necessary assistance. Fire Station 2 is located at 1668 East Fourth Street, which is approximately 1.3 miles west of the Overlay Zone. This station is staffed by one captain, one engineer and two firefighters. All the staff at this station are trained as Emergency Medical Technicians (EMTs). Fire Station 5 is located at 120 West Walnut Street, which is about 2 miles west of the Overlay Zone. This station is staffed by two captains, two engineers, four firefighters and two paramedics. The Santa Ana Fire Department Communications Center is located at Fire Station 5. The location of the two stations is shown in Figure 4.11-1 (Location of Public Facilities). Initial response time to the Overlay Zone ranges from 5 to 8 minutes, depending on the nature of the call, and this is considered adequate (Smith 2006).

The Fire Services Code Enforcement Division is responsible for State mandated inspections, including board and care facilities, day care facilities, hospitals, schools, detention facilities, and high rise buildings. They also inspect all new construction and fire protection systems. The suppression crews rely on this Division as a resource to assist in more complex District inspection issues. The responsibilities of required Fire Code permitting and citation issuance also belong within this Division. The primary purpose of the Fire Investigation Division is to determine fire origin and cause, whether accidental or incendiary, in order to lessen injuries and death to civilians and firefighters and to reduce property loss.



Source: Microsoft Streets and Trips, Basemap, 2006; EIP Associates, A division of PBS&J, 2006.

EIP ASSOCIATES

A Division of PBS&J

FIGURE **4.11-1**

Locations of Public Facilities (Fire and Police Stations and Libraries)

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The Emergency Medical Services (EMS) systems have adopted a method of predispatch screening of emergency aid calls in order that highly trained personnel on advanced life support (ALS) units are used for true emergencies and remain available for further advanced medical emergency calls.

4.11.2 Regulatory Framework

Federal

There are no federal fire protection regulations applicable to the proposed project.

State

California Fire Code

State fire regulations are set forth in Sections 13000 *et seq*. of the *California Health and Safety Code*, which include regulations concerning building standards (as also set forth in the *California Building Code*), fire protection and notification systems, fire protection devices such as extinguishers and smoke alarms, high-rise building and childcare facility standards, and fire suppression training.

Local

City Fire Code

The City of Santa Ana has adopted the Uniform Fire Code, 2000 Edition and the 2001 California Fire Code, which includes certain local amendments and deletions.

4.11.3 Project Impacts and Mitigation

Analytic Method

Significant impacts on fire protection services would result from an increase in population or building area that results in lengthened response times, inadequate fire flows, and/or the need for new or altered facilities. The SAFD has no formal criteria in place to determine adequacy of fire protection service. The standard for an urban level of service requires that an engine company arrive on the scene within 5 minutes, 90 percent of the time, with four fire fighters per Engine Company. The SAFD has an emergency service goal of 5 minutes or less (although slightly longer response times may be considered acceptable). For any 911 call received by the City's dispatch system, both fire personnel and paramedics, who provide medical or emergency response services, respond. Therefore, the following discussion of fire protection services also includes emergency medical services. With respect to response times, this analysis evaluates whether the proposed project could be served by the SAFD within the emergency service goal, and whether adequate fire flows would be provided.

Thresholds of Significance

The following threshold of significance is based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on fire protection services if it would do the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to fire protection services.

Effects Found to Be Less Than Significant

Threshold	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for fire protection?

Impact 4.11-1 **Operation of the proposed project would increase the demand for fire protection services, but it would not require the construction of new or physically altered facilities to accommodate the increased demand or maintain acceptable response times. This is considered a *less-than-significant* impact.**

As discussed in the existing conditions, adequate response times and staff are present at both Fire Stations serving the Overlay Zone. The addition of 5,551 residential units and office and commercial uses would increase demands on the Fire Department. However, both stations serving the area have response times from 5 to 8 minutes, which the City considers adequate. The additional demands from new development in the area are not expected to decrease response times or require additional staffing. The Fire Department notified that they would be able to handle the increased service demands with their current staffing and equipments (Smith 2006).

According to the City's Water Department, adequate water flow is available with ample water pressure for fire services (Burk 2006). In fact, the water demand projection for the City in analyzed in Section 4.13 (Utilities and Service Systems) accounts for water for fire fighting purposes in its future demand. The Department's Guide for the Determination of Fire Flow is used to estimate fire flow demands from new development. Structures that require fire flow over 3,500 gallons per minute are either redesigned to lower the fire flow or to include a fire sprinkler system to reduce fire flow demand. The provision of automatic fire sprinklers would reduce the demand, as well as compliance with the Uniform Fire Code, Uniform Building Code, applicable state codes, National Fire Protection Association Fire Codes and the Santa Ana Municipal Code.

Fire facilities fees would further assist in offsetting incremental increased demands from new development. A fire facilities fee is required as a condition of approval prior to the issuance of a building permit for construction of buildings exceeding two stories in height (excluding parking structures and excluding buildings owned and occupied by agencies of the federal, state or local governments). The SAFD also collects a plan check fee which is a fixed percentage of the building permit fee for review of building plans associated with new commercial, industrial, and multi-family residential units. Additional plan check fees for fire sprinkler, fire alarm, automatic extinguishing systems, and other fire protection systems are based on a fee schedule. SAFD also collects a one-time construction inspection fee for fire inspections. The Fire Department also collects an annual fee in the form of an "occupancy permit" for certain types of business, such as restaurants with large assemblage areas.

New development would be required to meet all access, water and fire protection system required under the California Building Code and Fire Code, and the City Municipal Codes. Therefore, impacts on City fire services would be ***less than significant***.

4.11.4 Cumulative Impacts

As additional development occurs in the City, there may be an overall increase in the demand for fire protection services, including personnel, equipment, and/or facilities. The provision of adequate fire protection services is of critical importance to the City, and funds are allocated to these services during the annual monitoring and budgeting process to ensure that fire protection services are responsive to changes in the City. Funds collected in the form of plan check fees and inspection fees (for new development) are deposited into the General Fund and allocated to City services, as needed. In addition, staffing levels are evaluated by the SAFD during the annual budgetary process, and personnel are hired, as needed, to ensure that adequate fire protection and police protection services are provided. The cumulative impact, therefore, on fire services in the City would be less than significant. The proposed project's contribution to this cumulative impact is also less than significant because the Overlay Zone is anticipated to be served within the established response times and distances for the SAFD and implementation of the proposed project can be accommodated within existing and future SAFD staffing capabilities. Therefore, the contribution of the proposed project to cumulative impacts on fire protection services would not be cumulatively considerable. This is considered to be a ***less-than-significant*** impact.

POLICE PROTECTION

4.11.5 Environmental Setting

Police services within the Overlay Zone are provided by the Santa Ana Police Department (SAPD). The Department has 700 employees providing a variety of police services, in positions as police officers, dispatchers, detention officers, and police service officers. The Overlay Zone falls in the Northeast Community Policing District.

The nearest SAPD station is the Santa Ana Police department Main headquarters located at 60 Civic Center Plaza, approximately 2 miles from the Overlay Zone. The location is shown in Figure 4.11-1. SAPD staff is comprised of one chief of police, three captains, fifteen lieutenants, 52 sergeants, 398 sworn and 311 non-sworn personnel are police officers. The City's officer-to-population ratio is currently an acceptable level of 2 officers per 1,000 population (based on existing total officers of 709/population of 351,322). The average response time throughout the City of Santa Ana is approximately 5 minutes depending on priority of calls for service (McCoy 2006).

In addition to the Office of the Chief of Police, the SAPD is organized into five bureaus: Administration Bureau; Field Operations Bureau; Investigations Bureau; Jail Bureau; Technology & Support Bureau. The Police Chaplain Program is comprised of professional clergy members who volunteer their services to department employees, their families, and members of the community during times of crisis, sorrow, or conflict.

4.11.6 Regulatory Framework

There are no federal, state or local police services regulations applicable to the proposed project.

4.11.7 Project Impacts and Mitigation

Analytic Method

Impacts on police protection services are considered significant if an increase in population or building area would result in inadequate staffing levels (as measured by the ability of the SAPD to respond to call loads) and/or increased demand for services that would require the construction or expansion of new or altered facilities that might have an adverse physical effect on the environment. The police department considers a staffing level of 1.3 to 1.5 per 1,000 officer-to-citizen ratio adequate. Based on this criteria, the level of adequacy of the police service can be determined.

Thresholds of Significance

The following threshold of significance is based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on police protection if it would do the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to police services.

Effects Found to Be Less Than Significant

Threshold	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for police protection?

Impact 4.11-2 **Operation of the proposed project would increase the demand for police services, potentially requiring additional staffing, although it would not require the construction of new or physically altered facilities or personnel to accommodate the increased demand. This impact is considered at a *less-than-significant* impact.**

The nearest SAPD station is the SAPD Main Headquarters located at 60 Civic Center Plaza approximately 2 miles from the Overlay Zone per the SAPD. The current officer-to-citizen ratio of 2 to 1,000 is consistent with City goal of between 1.3 to 1.5 officer per 1,000 residents. The proposed project would result in the addition of 11,102 persons to the Overlay Zone at buildout. This would decrease the officer to citizen ratio from 2 to 1.95, which is well above the existing City service goals for police protection.

The number of calls from the Overlay Zone in the context of the entire City with a population of about 350,000 residents would not substantially affect the level of police protection and service provided by the SAPD. However, given the magnitude of the population increase at buildout, the addition of the proposed project could affect how the Department resources are allocated.

Annual fees, collected in proportion to the revenue generated by a project, are collected for ongoing police protection services. All of the fees collected by the City are deposited into the City's General Fund and dispersed to the appropriate departments during the annual budgetary process. Although not necessary to maintain sufficient levels of police service, additional personnel and possibly equipment would ensure no change to the ratio of officers to population.

The police department has indicated that the project must comply with the City's Building Security Ordinance and the basic CPTED (Crime prevention through Environmental Design) principles. Also, the individual projects in the Mixed Use zone would be required to prepare mandated security plan, which would require a final Police Department approval. Thus, the proposed project would have ***less than significant*** effect on the police services of the City.

4.11.8 Cumulative Impacts

As additional development occurs in the City, there may be an overall increase in the demand for police services, including personnel, equipment, and/or facilities. The provision of adequate police services is of critical importance to the City, and funds are allocated to these services during the annual monitoring and budgeting process to ensure that police services are responsive to changes in the City. Funds collected in the form of plan check fees and inspection fees (for new development) are deposited into the General

Fund and allocated to City services, as needed. In addition, staffing levels are evaluated by the SAPD during the annual budgetary process, and personnel are hired, as needed, to ensure that adequate police services are provided. The cumulative impact, therefore, on police services in the City would be less than significant. The proposed project's contribution to this cumulative impact is also less than significant because the Overlay Zone is anticipated to be served within the established response times and distances for the SAPD and implementation of the proposed project can be accommodated within existing and future SAPD staffing capabilities. Therefore, the contribution of the proposed project to cumulative impacts on police services would not be cumulatively considerable. This is considered to be a ***less-than-significant*** impact.

SCHOOLS

4.11.9 Environmental Setting

The Overlay Zone is served by Tustin Unified School District (District). The District includes the City of Tustin, portions of the City of Santa Ana, the Foothills portion of the unincorporated area of Orange County (North Tustin), and portions of the City of Irvine (West Irvine and Northpark). The District served over 20,100 students in 2005–06. The School District has eighteen elementary schools, five middle schools, four high schools and alternative and adult education programs. The schools that serve the Overlay Zone are: Helen Estock Elementary School, Guin Foss Elementary School, Columbus Tustin Middle School and Foothill High School. The location of these schools can be seen on Figure 4.11-2 (Location of the Schools Serving the Area). The capacity and the enrollment numbers for the schools are given in Table 4.11-1 (Capacity and Enrollment of Schools). As shown all schools exceed capacity, with the exception of Helen Estock Elementary School, which is near capacity.

Table 4.11-1 Capacity and Enrollment of Schools

	Capacity	*Enrollment*
Helen Estock Elementary School	600	583
Guin Foss Elementary School	450	451
Columbus Tustin Middle School	918	939
Foothill High School	2025	2109
Total	3,993	4,802

SOURCE: TUSD

The District is currently experiencing over-crowding at most of their school sites now. The District houses several students in interim portable buildings, as neither sufficient permanent sites nor school facilities are available (Barrozo 2006). The District has been the fastest growing school district in Orange County over the past several years, and does not anticipate a change in such enrollment patterns.

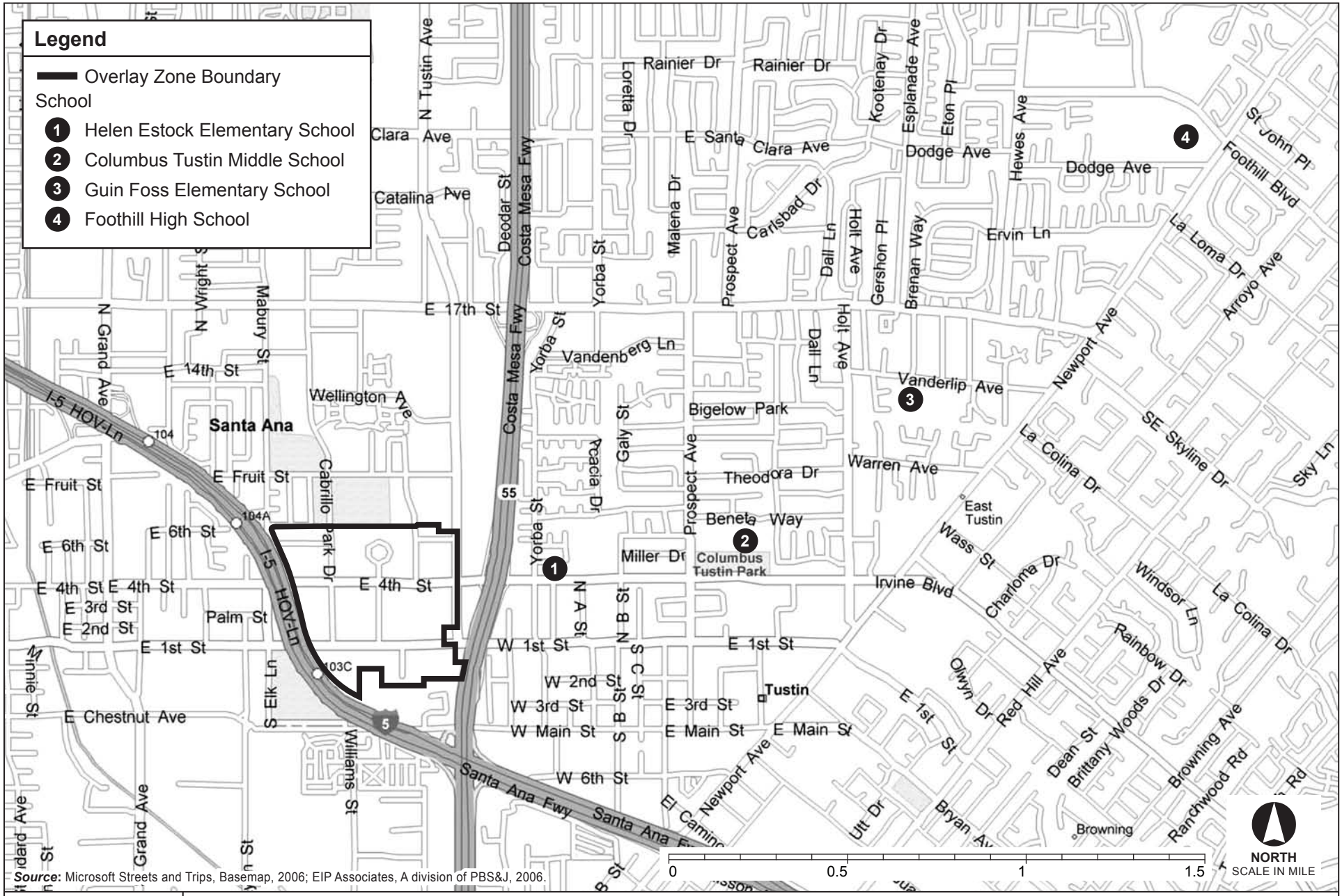

FIGURE **4.11-2**

Locations of the Schools Serving the Area

EIP ASSOCIATES

A Division of PBS&J

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City of Santa Ana

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4.11.10 Regulatory Context

Federal

There are no federal regulations pertaining to schools applicable to the proposed project.

State

California State Assembly Bill 2926 (AB 2926)—School Facilities Act of 1986

In 1986, AB 2926 was enacted by the state of California authorizing entities to levy statutory fees on new residential and commercial/industrial development in order to pay for school facilities. AB 2926, entitled the "*School Facilities Act of 1986*," was expanded and revised in 1987 through the passage of AB 1600, which added Section 66000 *et seq*. of the Government Code. Under this statute, payment of statutory fees by developers would serve as total CEQA mitigation to satisfy the impact of development on school facilities.

California Senate Bill 50 (SB 50)

The passage of SB 50 in 1998 defined the Needs Analysis process in Government Code Sections 65995.5 to 65998, thus providing the requirements that a school district must articulate when identifying expansion programs. Under the provisions of SB 50, school districts may collect fees to offset the costs associated with increasing school capacity as a result of development. The fees (referred to as Level One fees) are assessed based upon the proposed square footage of residential, commercial/industrial, and/or parking structure uses. Level Two fees require the developer to provide one-half of the costs of accommodating students in new schools, while the state would provide the other half. Level Three fees require the developer to pay the full cost of accommodating the students in new schools and would be implemented at the time the funds available from Proposition 1A (approved by the voters in 1998) are expended. School districts must demonstrate to the state their long-term facilities needs and costs based on long-term population growth in order to qualify for this source of funding. However, voter approval of Proposition 55 on March 2, 2004, precludes the imposition of the Level Three fees for the foreseeable future. Therefore, once qualified, districts may impose only Level Two fees, as calculated according to SB 50.

4.11.11 Project Impacts and Mitigation

Analytic Method

Impacts on schools are determined by analyzing the projected increase in the demand for schools as a result of a proposed project and comparing the projected increase with the schools' remaining capacities to determine whether new or altered facilities would be required. The analysis focuses upon the number of new residents that would result from the proposed project. Consequently, this analysis includes only the residential component of future development. The District's current student generation rates for

condominiums of 0.284 students per dwelling unit would be applied to future residential development projects in the Overlay Zone.[24]

Impacts on schools are considered to be less than significant with payment of the state Department of Education Development Fee, which was enacted to provide for school facilities construction, improvements, and expansion.

Thresholds of Significance

The following threshold of significance is based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on schools if it would:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives for schools

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to schools.

Effects Found to Be Less Than Significant

Threshold	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives for schools?

Impact 4.11-3 **Operation of the proposed project would require new or physically altered facilities to accommodate additional students in Tustin Unified School District (TUSD) schools. This is considered a *potentially significant* impact. However with implementation of mitigation measure MM-OZ 4.11-1 the impact would remain *less than significant*.**

Full build out of residential development under the Overlay Zone could result in an additional 5,551 residential units in the Overlay Zone. With the identified generation rate of 0.284 students per unit, the proposed project would generate approximately 1,576 students in the TUSD. As shown in Table 4.11-1, in aggregate, the District is already in excess of its capacity by 89 students. Thus, with the existing schools and no future plans for expansion of TUSD's facilities, TUSD will be unable to accommodate the additional 1,576 students. Incorporation of mitigation measure MM-OZ 4.11-1 would reduce this potentially significant impact to less-than-significant levels.

[24] Brock Wagner, Deputy Superintendent. Written correspondence with Tustin Unified School District, October 4, 2006.

MM-OZ 4.11-1 Individual project developers shall pay school impact fees prior to the issuance of occupancy permits.

Implementation of mitigation measure MM-OZ 4.11-1 would reduce the impact of the Overlay Zone to ***less than significant*** level.

4.11.12 Cumulative Impacts

Increases in residential and nonresidential development throughout the City would generate additional demand for public school classroom seating capacity in TUSD schools. The TUSD has experienced, and may continue to experience, a shortfall of classroom capacity. The degree to which this demand would be satisfied is dependent upon future enrollment trends. However, according to mitigation measure MM 4.11-1, all new private sector development is required to pay statutory impact fees to the TUSD to help fund construction of additional classroom capacity, and under current law, payment of these fees is deemed full mitigation under CEQA. For these reasons, cumulative impacts throughout the TUSD would be less than significant. Also, because individual project applicants would be required to pay the impact fees to the TUSD, which mitigates all project-related school impacts, the contribution of the proposed project would not be cumulatively considerable, and, therefore, the cumulative impact of the proposed project on school facility capacity is considered to be a ***less-than-significant*** impact.

LIBRARY SERVICES

4.11.13 Environmental Setting

The City of Santa Ana is serviced by two libraries: the Santa Ana Public Library and the branch library of the Newhope Library Learning Center. Both the libraries are located within 5 miles of the proposed project and would serve as the primary libraries for use by the residents of the project. Because Figure 4.11-1 (Location of City Public Facilities) illustrates nearby City public facilities, only the Public Library is identified. In addition, Santa Ana Public Library includes an online library that cardholders can access information online in eBooks, newspapers, magazines and reference works. In addition, The City of Santa Ana has a Santa Ana History Room that provides Santa Ana residents with information about the history of the City, County, and State in which they live.

The Santa Ana Public Library includes a Bookmobile that travels to 25 sites throughout Santa Ana to register and issue library cards, provide books, CDs, book and tape sets, videos and DVDs to residents in Santa Ana. The Youth Computer Centers offer computer access with: Internet and educational software at both Library sites; computer workshops for students at the Main Library and computer workshops for parents at the Newhope Library.

The Central Public Library has 40,000 square feet (sf) of floor area and the branch library is 9,000 sf. The combined circulation of these libraries and bookmobiles is over 720,000 books and other items, plus some 150,000 items for in-house use. Both the libraries have combined circulation of 301,966 items. These include 7549 Audio, 10,868 Videos, 26,960 Periodicals and 26,992 Paperbacks. The libraries are

said to have a daily attendance of around 1,378 people (Richards 2006). It is anticipated from existing demand that about one-third of the total residential population uses library services.

4.11.14 Regulatory Framework

There are no federal, state, or local library service regulations applicable to the proposed project.

4.11.15 Project Impacts and Mitigation

Analytic Method

Impacts on library services are considered significant if an increase in population or building area would result in inadequate staffing levels and/or increased demand for services that would require the need for new or physically altered library facilities in order to maintain acceptable service ratios.

The operational analysis focuses upon the number of new residents that would result from the proposed project. Consequently, this analysis includes only the residential component of the mixed-use development. The standard guidelines used for evaluating the acceptable level of service are set by California State Library Office of Library Construction, the Public Library Association, and the American Library Association. Standards include providing 0.5 sf of library facility and 2 volumes per capita.

Thresholds of Significance

The following threshold of significance is based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on library services if it would do the following:

- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for library services.

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to libraries.

Effects Found to Be Less Than Significant

Threshold	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives for library services?

Impact 4.11-4 **Implementation of the proposed project would not result in the need for new or physically altered library facilities in order to maintain acceptable service ratios. This is considered a *less than significant* impact.**

The Overlay Zone is served by two libraries, the Santa Ana Public Library and the Newhope Branch of the Santa Ana library system. Combined, these libraries have a collection of approximately 301,966 items and an overall size of 49,000 sf (40,000 sf main library and 9,000 sf branch library). No new library facilities or expansions are planned for the immediate future. Using the guidelines identified above, implementation of the proposed project would require approximately 5,551 sf of library space and approximately 22,204 volumes due to an estimated increase of approximately 11,102 persons under full build out of the Overlay Zone. The City's library system is funded through the general fund and does not have a fee collection system in place (similar to City Parks) to obtain fees from a developer. The tax base afforded by the additional development within the Overlay Zone would contribute to the City's general fund, which is distributed to various City services, including libraries. Therefore, any necessary improvements/modifications to the existing Santa Ana library system would be implemented using the general fund and determined on an as-needed annual basis by the City. As such, any increase in the need for library resources would be implemented by the City irrespective of the project, although aided by the additional tax base from development within the Overlay Zone, and impacts would be ***less than significant***.

4.11.16 Cumulative Impacts

Additional development in the City could increase the demand for library services, particularly for residential development. Cumulative projects include limited residential developments that would be accessing the same libraries affected by the proposed project. The proposed project would have an incremental effect on library services, and would not be considered cumulatively considerable with respect to library services. Impacts would be ***less than significant***.

PARKS

4.11.17 Environmental Setting

The Parks, Recreation and Community Services Agency has been responsible for maintaining, managing construction, and programming 35 facilities within its park and recreation network, along with several public school grounds. Agency provides a range of recreational opportunities that include parks, sport

fields, the Stadium, senior and recreation centers, the Santa Ana Zoo at Prentice Park, and the trail system. Table 4.11-2 (Santa Ana Parks) lists the parks in the City.

Table 4.11-2 Santa Ana Parks

Adams	Friendship	Riverview
Angels	Griset	Rosita
Birch	Heritage	Sandpointe
Bomo Koral	Jerome	Santa Anita
Cabrillo	Little King	Santiago
Campesino	Logan	Santiago Day Camp
Centennial Regional	Lowell	Sarah May Downie Herb Garden
Colonel W. C. Eldridge	Madbury	Sasscer
Delhi	Madison	Segerstrom Triangle
Edna	Memorial	Spurgeon
El Salvador	Morrison	Thornton
Fisher	Portola	Windsor
French	Santa Ana Zoo	

SOURCE: Santa Ana Parks and Recreation website, http://www.ci.santa-ana.ca.us/parks/parks.asp

Currently, there are approximately 330.5 acres of park and recreation facilities within the City, which is equivalent to approximately 0.96 acres per 1,000 residents, which falls short of the goal of 2 acres per 1,000 residents. There are six parks within the 0.5 mile radius of the proposed Overlay Zone. These parks are Portola Park, Mabury Park, Santiago Park, Santiago Day Camp, Prentice Park/Santa Ana Zoo and the Cabrillo Park. The location of these parks can be seen in Figure 4.11-3 (Location of Local Parks).

The City Parks Services have planned several new park and recreational facilities for immediate future. These include the Edna park site, Seventeenth Street Triangle, Fairview Triangle Site, Mc Fadden Triangle Site, Edinger Equestrian Trailhead site, Twist Basler House Project and the Memorial Recreation Center.

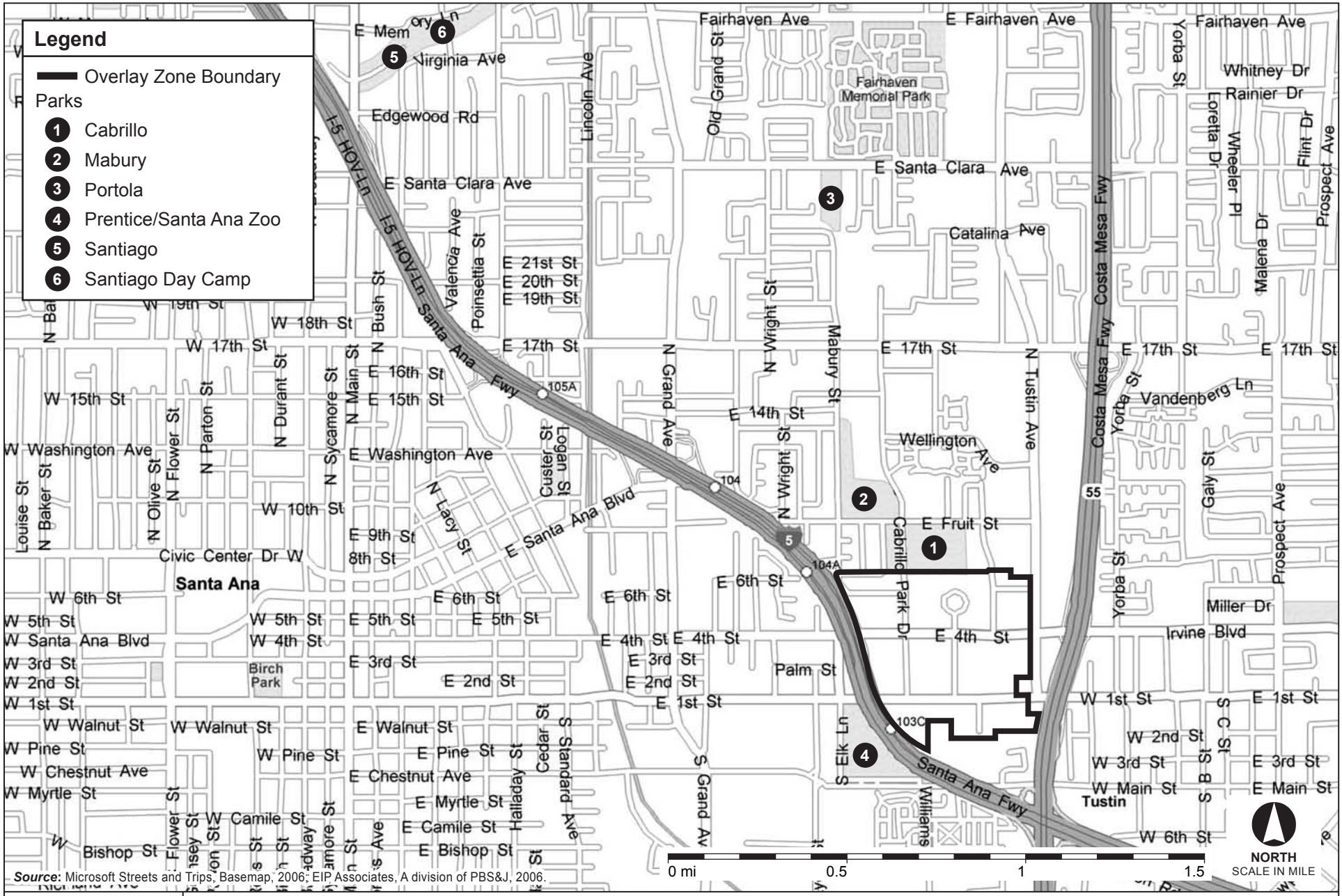
4.11.18 Regulatory Framework

There are no federal and state regulations applicable to the proposed project.

Local

City Municipal Codes

Chapter 34, Article 8 of the Santa Ana Municipal Code suggests parkland dedication requirements for proposed development. As per the Municipal Code each dwelling unit is required to provide 209.1 sf of public open space. In accordance with the Municipal Code, 25 percent of the required parkland can be provided as private open space and the remaining amount can be met through the dedication of land or through the payment of parkland fees.



Source: Microsoft Streets and Trips, Basemap, 2006; EIP Associates, A division of PBS&J, 2006.

EIP ASSOCIATES
A Division of PBS&J

FIGURE **4.11-3**
Locations of Local Parks

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City of Santa Ana

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4.11.19 Project Impacts and Mitigation

Analytic Method

Impacts on parks and recreation services are considered significant if an increase in population or building area would require the need for new park facilities in order to maintain acceptable service ratios. According to the City's General Plan Land Use Element EIR, the City's current goal for parkland is 2 acres per 1000 residents. The City's formula for determining how much land shall be dedicated to parkland varies depending on the type of proposed dwelling unit, as identified in Section 34-204 of the City's Municipal Code. Thus, while the City promotes a general standard of providing 2 acres per 1,000 residents, the standards set forth in Section 34-204 determine the maximum proportion of any single subdivision which may be required to be dedicated for park or recreational purposes. For the purpose of this analysis, consistent with Section 34-204, the parkland requirement of the proposed project would be 209.1 sf per dwelling unit.

Thresholds of Significance

The following threshold of significance is based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the proposed project may have a significant adverse impact on park services if it would do the following:

Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for park services.

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to parks.

Effects Found to Be Less Than Significant

Threshold	Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, or the need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, or other performance objectives for parks?

Impact 4.11-5 **Implementation of the proposed project would not result in the need for new or physically altered park facilities in order to maintain acceptable service ratios. This is considered *a less than significant* impact.**

The city's current park ratio is 0.96 acres per 1,000 residents, which is below the City's general standard of 2 acres per 1,000 residents. Based on the parkland dedication requirements provided in the City's Municipal Code, the individual development projects would be required to provide additional 209.1 sf of parkland per residential units. In aggregate, development of 5,551 units at buildout within the Overlay Zone would require 1.16 million sf of additional parkland, or 26.6 acres. Additional residential development would increase the number of users of the City's park and recreational facilities.

However, implementation of future development within the Overlay Zone would provide a variety of open space/recreational opportunities. New development within the Overlay Zone would be required to include an open space/recreation component that is accessible to the public through the main street-facing façade entry of a project. Common open space amenities could include courtyards, plazas, tennis courts, swimming pools, spas, permanently equipped gym/exercise rooms, or other permanent amenities. Private open space/recreation areas could include balconies, loggias, terraces, or rooftop decks. Publicly accessible open space/recreation areas would be designed to optimize linkages and connections with adjacent properties within the Districts, and would be visible and accessible from public rights-of-way to engage the interest of pedestrians and encourage public use. Open space/recreation areas would also encourage active use and pedestrian activity between the public and the private realm.

Further, individual projects would be required to make payments of Park Acquisition and Development Fees based on the City's Municipal Code Section 34-200 to Section 34-214. Consequently, the provision of open space within individual developments coupled with the payment of fees as appropriate would ensure that demands on parkland are not exacerbated. Impacts would be ***less than significant***.

4.11.20 Cumulative Impacts

The proposed project along with other related development projects would increase demands on park services. Individual projects would be required to include recreational space or make payments to offset demands associated with additional residential units. While the imbalance in the parkland per capita ratio would not improve, it would neither be worsened. Cumulative impacts would be less than significant. The proposed project is designed to ensure that impacts to parkland would be less than significant, and would thus have a ***less than significant*** contribution to this effect.

4.11.21 References

Barrazo, Leticia. 2006. Communication with Tustin Unified School District. 26 September 2006.

Burk, Ray. 2006. Telephone Communication with City of Santa Ana Public Works Agency, Water Department. 25 September 2006.

Folmar, Heather. 2006. E-mail communication with The City of Santa Ana Library Services. 4 October 2006.

Gorman, Peter. 2006. Communication with Tustin Unified School District. 23 March 2006.

McCoy, Mike. 2006. Communication with City of Santa Ana Police Department. 5 October 2006.

Ramos, Dolores. 2006. E-mail communication with City of Santa Ana parks and Recreation Department. 23 October 2006.

Santa Ana, City of. 1997. *Draft Land Use Element EIR.*

———. 2005. *City Municipal Codes* at http://www.municode.com/Resources/gateway.asp?pid=11492&sid=5.

———. 2005. *Fire Department Annual Report.*

———. 2006. City Library Services. http://www.ci.santa-ana.ca.us/library/default.asp. Accessed on 25 September 2006.

———. 2006. City Parks and Recreation. http://www.ci.santa-ana.ca.us/parks/default.asp. Accessed on 24 October 2006.

———. 2006. City Police Department. http://www.ci.santa-ana.ca.us/pd/default.asp. Accessed on 24 October 2006.

———. 2006. City Fire Department. http://www.ci.santa-ana.ca.us/fire/default.asp. Accessed on 24 October 2006.

Smith, Lori. 2006. Communication with City of Santa Ana Fire Department. May 2006.

4.12 TRANSPORTATION AND TRAFFIC

This EIR section analyzes the potential for adverse impacts on existing transportation and traffic conditions resulting from implementation of the proposed Overlay Zone. Data used to prepare this section were taken from Traffic Impact Study Report prepared for the proposed project (Appendix H).

Twelve comment letters were received in response to the Initial Study/Notice of Preparation (IS/NOP) circulated for the project related to traffic. The IS/NOP and the associated comment letters are provided in Appendix A. Full bibliographic entries for all reference material are provided in Section 4.12.5 (References) of this section.

4.12.1 Environmental Setting

This section provides an assessment of existing conditions (Year 2006) in the Overlay Zone area, including a description of the street and highway system, traffic volumes on these facilities, and operating conditions of the selected intersections. The discussion presented here is limited to specific roadways in the project vicinity that are affected by project-related traffic. The project location is bounded by Sixth Street on the north, the I-5 Freeway and Santa Ana City boundary on the south, the I-5 Freeway on the west, and Tustin Avenue on the east. However, the traffic study area boundary extends beyond the Overlay Zone and includes additional intersections within the cities of Santa Ana and Tustin.

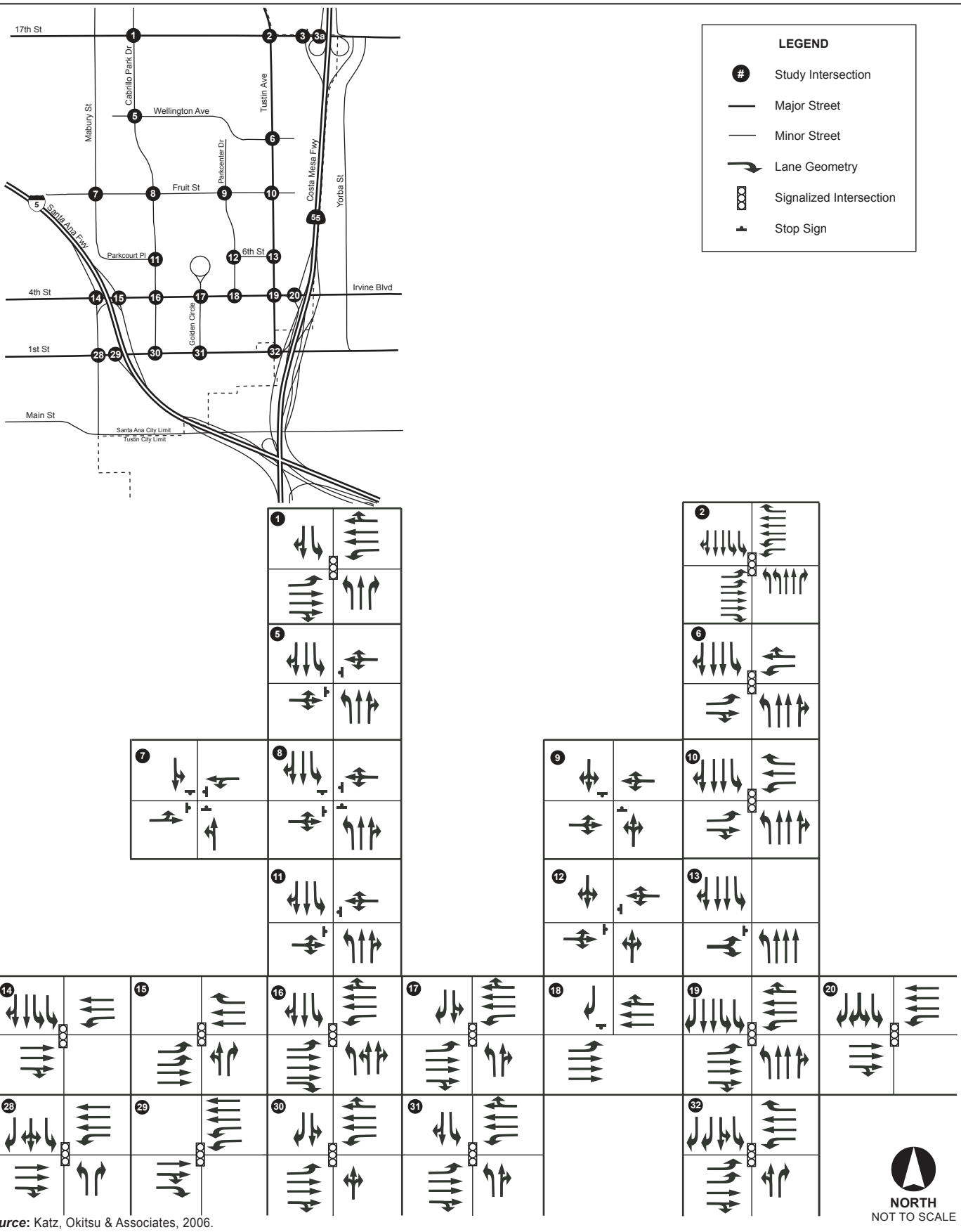
Area Roadway Network

Regional Access

Regional circulation is provided by Interstate 5 (I-5) west and south of the Overlay Zone, and State Route 55 (SR-55), which is east of the Overlay Zone. I-5 is a major route between Los Angeles, Orange, and San Diego Counties, serving many major employment centers and residential areas, including significant portions of Anaheim, Santa Ana, Tustin, and Irvine. SR-55 is a major north-south freeway in Orange County, serving the cities of Anaheim, Orange, Tustin, Santa Ana, Irvine, and Costa Mesa, and providing access to many major employment centers. It also serves commuter traffic traveling between Orange County and the Inland Empire.

Local Access

Local streets in the project vicinity which could be affected by the proposed project include: First Street, Fourth Street, Sixth Street, Fruit Street, Wellington Avenue, Seventeenth Street, Cabrillo Park Drive, Parkcenter Drive, Tustin Avenue, Yorba Street, Prospect Avenue, and Newport Avenue. Existing intersection geometries are shown in Figures 4.12-1 (Existing Intersection Geometry [Santa Ana]) and 4.12-2 (Existing Intersection Geometry [Tustin]).



Source: Katz, Okitsu & Associates, 2006.

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FIGURE **4.12-1**
Existing Intersection Geometry (Santa Ana)

D20950.01

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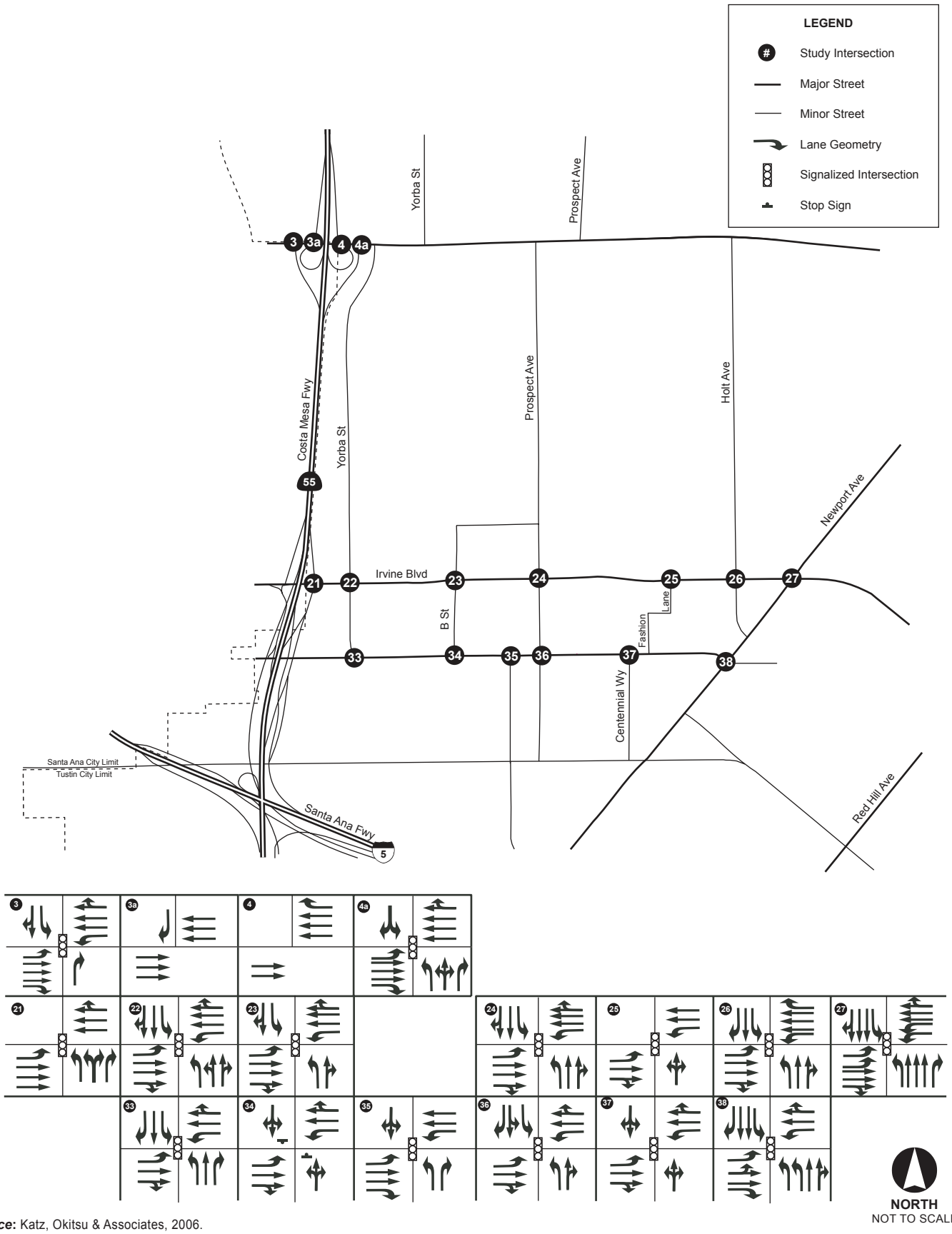

Source: Katz, Okitsu & Associates, 2006.

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FIGURE **4.12-2**
Existing Intersection Geometry (Tustin)

D20950.01

City of Santa Ana

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First Street

First Street is a major east-west arterial passing through the southern part of the project area. The street provides 2–3 through lanes in each direction, with a posted speed limit of 35 mph. First Street has a striped median west of Cabrillo Park Drive and has a raised landscaped median east of Cabrillo Park Drive. The street has a striped median between Cabrillo Park Drive and Tustin Avenue. Intersections with Mabury Street, Cabrillo Park Drive, Golden Circle, and Tustin Avenue are signalized. Most intersections along this segment of First Street have both eastbound and westbound left turn pockets. Right turns are made from shared through and right-turn lanes. Land use adjacent to this segment of First Street has a variety of commercial uses including hotels, office buildings, strip commercial centers, and restaurants. Major buildings include the Xerox Center, the Pridemark Building, Colton Midtown Plaza, and the URS Building. The Santa Ana Zoo is located immediately south of First Street and west of the I-5 Freeway. Traffic volumes along this segment of First Street are about 17,000 per day.

First Street has two through lanes in each direction east of Tustin Avenue, with a raised landscaped median. The posted speed limit is 35 mph. Intersections are signalized at Tustin Avenue, Yorba Street, El Camino Real, Prospect Avenue, Centennial Way, and Newport Avenue. All signalized intersections have both eastbound and westbound left-turn pockets. Right turns are generally made from shared through and right-turn lanes (except at El Camino Real and Newport Avenue, which have right-turn pockets. This segment of First Street has a mix of office, strip commercial, and retail land uses. Major buildings/commercial centers include Healthsouth, CR Commercial, the U.S. Post Office, Wellington Plaza, Bank of the West, and Bank America. Traffic volumes along this segment of First Street are about 17,000–18,000 per day. First Street provides access to I-5 immediately west of the Overlay Zone, and passes over SR-55 immediately east of the Overlay Zone.

Fourth Street

Fourth Street is a major east-west arterial bisecting the project area. West of Cabrillo Park Drive the roadway has a painted median with three eastbound and three westbound through lanes (with some lane drops/lane adds at freeway on- and off-ramps). Between Cabrillo Park Drive and Tustin Avenue the street provides three through lanes in each direction with a raised landscaped median. The speed limit is 40 mph. Intersections with the I-5 ramps, Cabrillo Park Drive, Golden Circle, and Tustin Avenue are signalized. Most signalized intersection have left-turn pockets, but shared through and right-turn lanes. Land uses along this segment of Fourth Street are primarily commercial/retail and office. Major buildings/centers include the State Insurance Fund Building, Kaiser Permanente, Town Center Plaza, Citizen's Business Bank, and the Parkcenter 400 building. Daily traffic volumes along this segment of Fourth Street are about 23,200 west of Tustin Avenue and 29,400 west of Cabrillo Park Drive.

East of Tustin Avenue Fourth Street becomes Irvine Boulevard, and has three through lanes in each direction with a raised median. The posted speed limit is 40 mph. Intersections with Tustin Avenue, SR-55 northbound and southbound ramps, Yorba Street, Prospect Avenue, Fashion Lane, Holt Avenue, and Newport Avenue are signalized. All signalized intersections have both eastbound and westbound left-turn pockets. Right turns are generally made from shared through and right-turn lanes (except at Newport Avenue, which has a westbound right-turn pocket. This segment of First Street has a mix of

office, strip commercial, and retail land uses. Major commercial centers include Granada Plaza, the Modjeska Building, Citibank , Tustin Corporate Center, and Lafayette Plaza. Daily traffic volumes along this segment of Fourth Street are about 36,000 near the freeway ramps and 28,000 – 29,000 between Yorba Street and Newport Avenue. Fourth Street provides full access with SR-55 immediately east of the Overlay Zone, and access to and from northbound I-5 at the western limit of the study area.

Sixth Street

Sixth Street is a local east-west street serving the low-rise commercial and office buildings currently in the central part of the study area. The roadway is undivided, providing one lane each way. The speed limit on Sixth Street is 25 mph. The intersection with Tustin Avenue is stop controlled on the minor leg only (Sixth Street). Land uses along Sixth Street are office, commercial, and vacant. Daily traffic volumes along Sixth Street are about 1,100 – 1,300.

Fruit Street

Fruit Street is an east-west collector street serving the primarily residential area in the northern part of the study area. The roadway is undivided, with one lane each way. The speed limit on Fruit Street is 35 mph. Intersections are stop-controlled, except for Tustin Avenue, which is signalized with permitted left-turn phasing. Land uses along Fruit Street are a mix of single-family residential, apartments, tennis courts, and a community park ("Cabrillo Park") west of Parkcenter Drive. East of Parkcenter are apartments and offices. At Tustin Avenue Calvary Chapel, a large church, occupies the northwest corner property, and a strip commercial center occupies the southwest corner property. Traffic volumes along Fruit Street are about 3,000 – 4,000 per day.

Wellington Avenue

Wellington Avenue is an east-west street north of the study area. The roadway is undivided, with one lane each way. The speed limit on Wellington Avenue is 30 mph. The intersection with Cabrillo Park Drive is stop-controlled on the minor leg only (Wellington Avenue). The intersection with Tustin Avenue is signalized. Land uses along Wellington Avenue are primarily residential (both apartments and single-family homes). Near Tustin Avenue there are office uses (Parkcenter Medical Building and Westcoast Radiology). Daily traffic volumes along Wellington Avenue are about 3,000 near Cabrillo Park Drive and about 6,000 near Tustin Avenue.

Cabrillo Park Drive

Cabrillo Park Drive is a 4-lane north-south arterial street located in the western portion of the study area. The roadway provides two lanes in each direction with a raised landscaped median and left-turn lanes. Right turns are made from shared through and right-turn lanes. Land uses along Cabrillo Park Drive in the project vicinity are primarily residential and a City park, with a mix of single-family dwelling units and apartments. Commercial and office land uses are south of Parkcourt Place. Kaiser Permanente and the State Insurance Fund Building are at the intersection of Cabrillo Park Drive and Fourth Street. The intersections of Cabrillo Park Drive and Seventeenth Street, Fourth Street, and First Street are signalized.

The posted speed limit on Cabrillo Park Drive is 35 mph. Daily traffic volumes are about 9,500 south of Fruit Street.

Parkcenter Drive

Parkcenter Drive is a local north-south 2-lane undivided street located near the center of the study area. The street provides access to several low-rise commercial/office complexes that would be replaced by the proposed project. There is no posted speed limit on Parkcenter Drive. A limit of 25 mph would therefore apply. The daily traffic volume near the Overlay Zone is approximately 3,000 vehicles per day. All intersections are stop-controlled on the minor leg (Parkcenter), except the intersection with Fourth street, which is signalized.

Tustin Avenue

Tustin Avenue is a major north-south arterial located immediately east of the Overlay Zone. In the project vicinity, the roadway provides three lanes in each direction, divided by a two-way left-turn lane. The roadway has left-turn pockets at most intersections. Most land use along Tustin Avenue is commercial and office, with some convenience commercial, medical office, a hospital, apartments, and a church. Major buildings/commercial centers along the street include "The Center on Seventeenth", Fireman's Fund, Tustin Centre, the Parkcenter Medical Building, Westcoast Radiology, Western Medical Center, Open Advantage MRI, Calvary Church, and Creekside Plaza. The intersections of Tustin Avenue at Seventeenth Street, Tustin Avenue at Wellington Avenue, Tustin Avenue at Fourth Street, Tustin Avenue at First Street, and Tustin Avenue at Fruit Street are signalized. The intersection of Tustin Avenue at Sixth Street is stop-controlled on the minor street (Sixth Street). The posted speed limit is 40 mph. The daily traffic volume near the Overlay Zone is approximately 17,000 vehicles per day south of Fourth Street, and 24,700 vehicles per day north of Fruit Street.

Area Freeways

Regional circulation is provided by Interstate 5 (I-5) west and south of the proposed Overlay Zone, and State Route 55 (SR-55), which is east of the proposed Overlay Zone. I-5 is a major route between Los Angeles, Orange, and San Diego Counties, serving many major employment centers and residential areas, including significant portions of Anaheim, Santa Ana, Tustin, and Irvine. SR-55 is a major north-south freeway in Orange County, serving the cities of Anaheim, Orange, Tustin, Santa Ana, Irvine, and Costa Mesa, and providing access to many major employment centers. It also serves commuter traffic traveling between Orange County and the Inland Empire.

Study Area Intersections

The traffic study area was determined through initial consultation with the Cities of Santa Ana and Tustin. It was adjusted based upon the results of regional traffic forecasts. The study area consists of the following 38 intersections (25 in the City of Santa Ana and 13 in the City of Tustin):

City of Santa Ana Intersections:

- First Street at Tustin Avenue
- First Street at Golden Circle Drive
- First Street at Cabrillo Park Drive
- First Street at Elk Lane
- First Street at I-5 Southbound On-Ramp
- Fourth Street at SR 55 Southbound Ramps
- Fourth Street at Tustin Avenue
- Fourth Street at Parkcenter Drive
- Fourth Street at Golden Circle Drive
- Fourth Street at Cabrillo Park Drive
- Fourth Street at I-5 Northbound Ramps
- Fourth Street at I-5 Southbound Off-Ramp/Elk Lane
- Tustin Avenue at Sixth Street
- Tustin Avenue at Fruit Street
- Seventeenth Street at Tustin Avenue
- Seventeenth Street at Cabrillo Park Drive
- Seventeenth Street at SR 55 Northbound Ramps
- Seventeenth Street at SR 55 Southbound Ramps
- Sixth Street at Parkcenter Drive
- Parkcourt Place at Cabrillo Park Drive
- Fruit Street at Mabury Street
- Fruit Street at Cabrillo Park Drive
- Fruit Street at Parkcenter Drive
- Wellington Avenue at Cabrillo Park Drive
- Wellington Avenue at Tustin Avenue

City of Tustin Intersections:

- First Street at Yorba Street
- First Street at B Street
- First Street at El Camino Real
- First Street at Prospect Avenue
- First Street at Centennial Way
- First Street at Newport Avenue
- Irvine Boulevard (Fourth Street) at SR 55 Northbound Ramps
- Irvine Boulevard at Yorba Street
- Irvine Boulevard at B Street
- Irvine Boulevard at Prospect Avenue
- Irvine Boulevard at Fashion Lane
- Irvine Boulevard at Holt Avenue
- Irvine Boulevard at Newport Avenue

Public Transportation

Public bus service is provided by Orange County Transportation Authority (OCTA). An established network of bus routes provides access to employment centers, shopping and recreational areas within the

City. OCTA periodically updates a county-wide Bus Service Implementation Program (BSIP) which includes changes to service levels and route configurations. The following routes serve the proposed Overlay Zone Area:

- Route 64 (Huntington Beach to Tustin via Bolsa Avenue and First Street)
- Route 71 (Yorba Linda to Balboa via Tustin Avenue and Redhill Avenue

In addition to bus service, the City of Santa Ana is served by commuter rail service commonly known as Metrolink, provided by the Southern California Regional Rail Authority (SCRRA). The Orange County Line–Santa Ana Station is located approximately 0.66 miles to the north west of the Overlay Zone Area, and provides connections to OCTA bus and commuter rail, as well as Metrolink service to the Inland Empire, Los Angeles and San Diego areas. The following bus lines have connections with the Santa Ana Metrolink Station.

- Line 59 (Brea to Irvine)
- Line 62 (Hunting Beach to Santa Ana)
- Line 205 (Anaheim to Laguna Hill Express via the I-5 Freeway)
- Line 206 (Santa Ana to Lake Forest Express via the I-5 Freeway)
- Line 462 (The Depot at Santa Ana to Civic Center of Santa Ana, local route)
- Line 463 (The Depot at Santa Ana to Hutton Center, connects to Line 64 at Grand Avenue and First Street)
- Line 464 (The Depot at Santa Ana to Costa Mesa)

Air Travel

Air travel for residents, workers, and visitors in Santa Ana is most conveniently available at John Wayne Airport (JWA), located approximately five miles south in the City of Irvine. In addition to JWA, air travel is provided at Los Angeles International, Long Beach, Ontario and various other regional airports.

Existing Traffic Volumes and Level of Service

Level of Service Methodology

The analysis of peak hour intersection conditions was conducted using the TRAFFIX software program developed by Dowling Associates. The following peak periods were selected for analysis:

- Weekday AM (peak hour between 7:00 A.M. and 9:00 A.M.)
- Weekday PM (peak hour between 4:00 A.M. and 6:00 A.M.)

Traffic conditions on roadway facilities are normally analyzed using the principles or the specific analysis methods contained in the Highway Capacity Manual, 2000 Edition (HCM), a publication of the Transportation Research Board, a branch of the Federal Government. Chapter 9 of the HCM is devoted to analysis of signalized intersections and Chapter 10 is devoted to the analysis of unsignalized intersections. The methodologies in the HCM for signalized and unsignalized intersections are based upon measurements or forecasts of delay for traffic utilizing all approaches to the intersection.

Traffic conditions at signalized intersections in Southern California are also often evaluated during peak hours at intersections using a methodology known as the Intersection Capacity Utilization (ICU)

technique. This is the preferred analysis method for analyzing signalized intersections in Orange County and in the cities of Santa Ana and Tustin. This analysis method is widely accepted and essentially measures the amount of traffic signal "green" time required for the intersection. It is a significant variation from the HCM method; however it produces results that are generally similar. The Cities of Santa Ana and Tustin generally use this method, so all signalized intersections were analyzed based on this method, based upon Orange County Congestion Management Plan (CMP) guidelines, a lane capacity of 1,700 vphpl and a 5 percent loss time were used. Unsignalized intersections were analyzed using the HCM 2000 method for unsignalized intersections. Table 4.12-1 (Level of Service Definitions for Signalized Intersections) shows the relationship between Level of Service (LOS) and Volume/Capacity (V/C) criteria for signalized intersections, and delay for unsignalized intersections.

Table 4.12-1 Level of Service Definitions for Signalized Intersections

Level of Service (LOS)	Signalized Intersection Volume/Capacity (V/C) Ratio	Unsignalized Intersection Control Delay (seconds)	Definition
A	0.000–0.600	0–10	At LOS A, there are no cycles that are fully loaded, and few are even close to loaded. No approach phase is fully utilized by traffic and no vehicle waits longer than one red indication. Typically, the approach appears quite open, turning movements are easily made, and nearly all drivers find freedom of operation.
B	0.601–0.700	10–15	LOS B represents stable operations. An occasional approach phase is fully utilized and a substantial number are approaching full use. Many drivers begin to feel somewhat restricted with platoons of vehicles.
C	0.701–0.800	15–25	At LOS C stable operations continue. Full signal cycle loading is still intermittent, but more frequent. Occasionally drivers may have to wait through more than one red signal indication, and back-ups may develop behind turning vehicles.
D	0.801–0.900	25–35	LOS D encompasses a zone of increasing restriction, approaching instability. Delays to approaching vehicles may be substantial during short peaks within the peak period, but enough cycles with lower demand occur to permit periodic clearance of developing queues, thus preventing excessive back-ups.
E	0.901–1.000	35–50	LOS E represents the most vehicles that any particular intersection approach can accommodate. At capacity (V/C = 1.00) there may be long queues of vehicles waiting upstream of the intersection and delays may be great (up to several signal cycles.
F	> 1.000	50 or more	LOS F represents jammed conditions. Backups from locations downstream or on cross streets may restrict or prevent movement of vehicles out of the intersection approaches; volumes carried are unpredictable. V/C values are highly variable because full utilization of the approach may be prevented by outside conditions.

SOURCE: Metro, Congestion Management Program for Los Angeles County, 2004.

Existing Traffic Volumes

Figures 4.12-3 and 4.12-4 (Existing Traffic Volumes AM Peak Hour) illustrate existing peak hour traffic volumes during the A.M. peak hour. Figures 4.12-5 and 4.12-6 (Existing Traffic Volumes PM Peak Hour) illustrate existing peak hour traffic volumes during the P.M. peak hour. Based on these existing traffic

volumes, LOS analyses were conducted for the 38 study intersections. The results of these analyses are summarized in Table 4.12-2 (Intersection Capacity Analysis Summary—Existing Conditions [2006]) for signalized and unsignalized intersections.

As shown in Table 4.12-2, all of the 29 signalized intersections operate at LOS D or better under existing conditions. Additionally, 8 of the 9 unsignalized intersections operate at LOS D or better under existing conditions. One unsignalized intersection, First Street at B Street, which is in the City of Tustin, operates at LOS E in the PM peak hour.

Table 4.12-2 Intersection Capacity Analysis Summary—Existing Conditions (2006)

Signalized Intersections

	AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS
First Street at Tustin Avenue (Santa Ana)	0.351	A	0.474	A
First Street at Golden Circle Drive (Santa Ana)	0.306	A	0.326	A
First Street at Cabrillo Park Drive (Santa Ana)	0.408	A	0.636	B
First Street at Elk Lane (Santa Ana)	0.655	B	0.805	D
First Street at I-5 Southbound On-Ramp (Santa Ana)	0.434	A	0.559	A
Fourth Street at SR-55 Southbound Ramps (Santa Ana)	0.897	D	0.796	C
Fourth Street at Tustin Avenue (Santa Ana)	0.689	B	0.743	C
Fourth Street at Golden Circle Drive (Santa Ana)	0.406	A	0.486	A
Fourth Street at Cabrillo Park Drive (Santa Ana)	0.522	A	0.714	C
Fourth Street at I-5 Northbound Ramps (Santa Ana)	0.500	A	0.836	D
Fourth Street at I-5 Southbound Off-Ramp (Santa Ana)	0.358	A	0.443	A
Tustin Avenue at Fruit Street (Santa Ana)	0.558	A	0.435	A
Tustin Avenue at Wellington Avenue (Santa Ana)	0.591	A	0.395	A
Seventeenth Street at Tustin Avenue (Santa Ana)	0.676	B	0.718	C
Seventeenth Street at Cabrillo Park Drive (Santa Ana)	0.539	A	0.662	B
Seventeenth Street at SR-55 Northbound Ramps (Santa Ana)	0.447	A	0.542	A
Seventeenth Street at SR-55 Southbound Ramps (Santa Ana)	0.419	A	0.465	A
First Street at Yorba Street (Tustin)	0.418	A	0.579	A
First Street at El Camino Real (Tustin)	0.343	A	0.434	A
First Street at Prospect Avenue (Tustin)	0.415	A	0.576	A
First Street at Centennial Way (Tustin)	0.361	A	0.516	A
First Street at Newport Avenue (Tustin)	0.708	C	0.612	B
Irvine Boulevard at SR-55 Northbound Ramps (Tustin)	0.716	C	0.822	D
Irvine Boulevard at Yorba Street (Tustin)	0.701	C	0.614	B
Irvine Boulevard at B Street (Tustin)	0.548	A	0.491	A

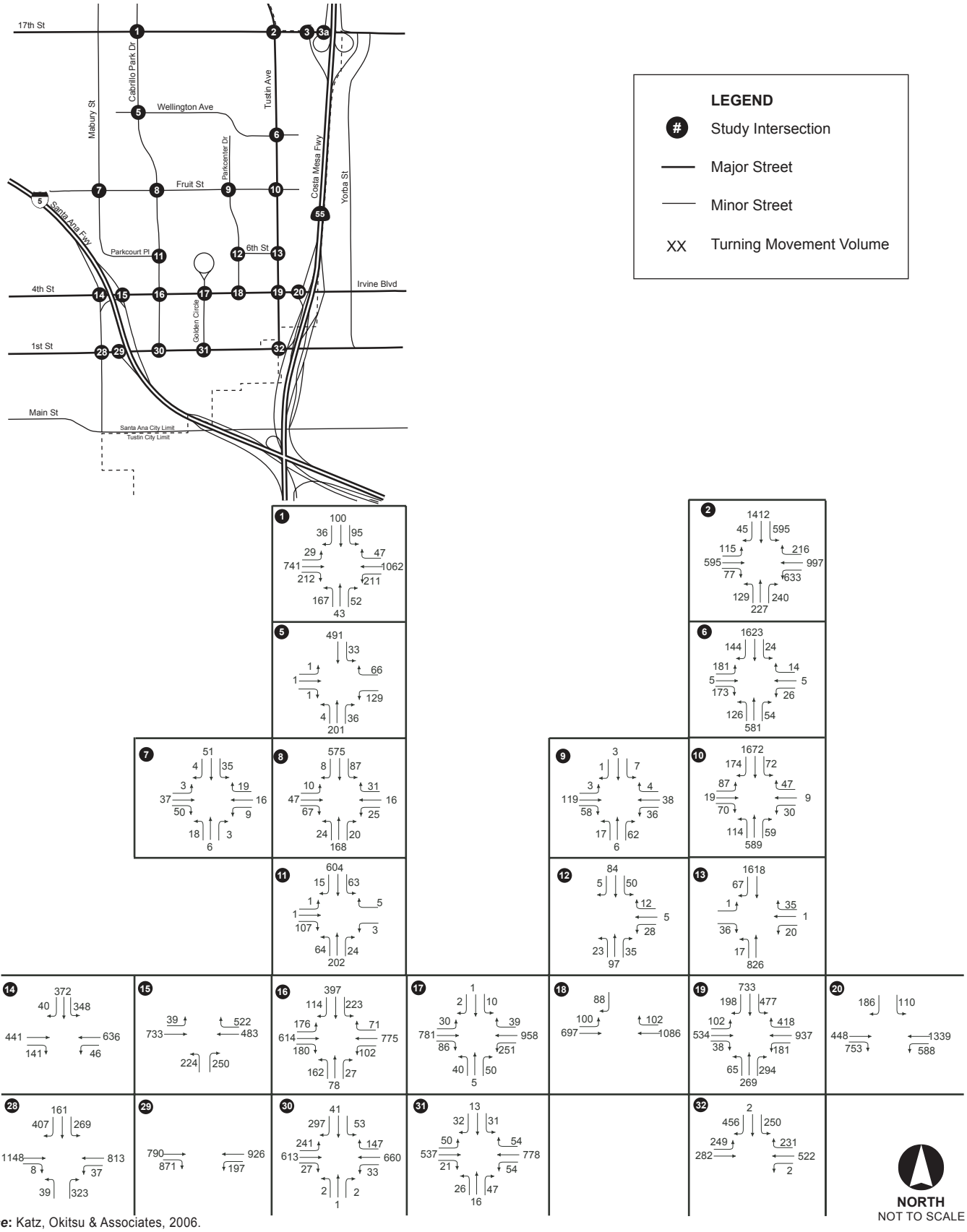
Table 4.12-2 Intersection Capacity Analysis Summary—Existing Conditions (2006)

Signalized Intersections	AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS
Irvine Boulevard at Prospect Avenue (Tustin)	0.579	A	0.607	B
Irvine Boulevard at Fashion Lane (Tustin)	0.606	B	0.546	A
Irvine Boulevard at Holt Avenue (Tustin)	0.556	A	0.522	A
Irvine Boulevard at Newport Avenue (Tustin)	0.686	B	0.560	A

Unsignalized Intersections	Average Delay	Worst Case Delay	LOS	Average Delay	Worst Case Delay	LOS
Sixth Street at Parkcenter Drive (Santa Ana)	3.0	10.7	B	2.8	10.2	B
Parkcourt Place at Cabrillo Park Drive (Santa Ana)	2.2	13.6	B	4.1	21.3	C
Fruit Street at Mabury Street (Santa Ana)	7.8	7.8	A	7.6	7.6	A
Fruit Street at Cabrillo Park Drive (Santa Ana)	10.7	10.7	B	12.1	12.1	B
Fruit Street at Parkcenter Drive (Santa Ana)	3.6	10.9	B	5.3	11.1	B
Wellington Avenue at Cabrillo Park Drive (Santa Ana)	3.6	16.2	C	2.7	17.6	C
Tustin Avenue at Sixth Street (Santa Ana)	1.0	33.1	D	1.8	32.5	D
Fourth Street at Parkcenter Drive (Santa Ana)	1.1	12.3	B	1.3	11.8	B
First Street at B Street (Tustin)	2.8	31.4	D	2.5	36.0	E

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

It should be noted that the existing intersection levels of service documented in the Traffic Impact Study assume that traffic signal timing is optimized. However, based on field observations, it is apparent that the timing of some traffic signals in the study area is not optimized. For example, at Tustin Avenue and Seventeenth Street, there appears to be too much green time allocated to the northbound and southbound left-turn movements, causing unnecessary delay to the through movements on Tustin Avenue.



***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-3**

Existing Traffic Volumes AM Peak Hour (Santa Ana)

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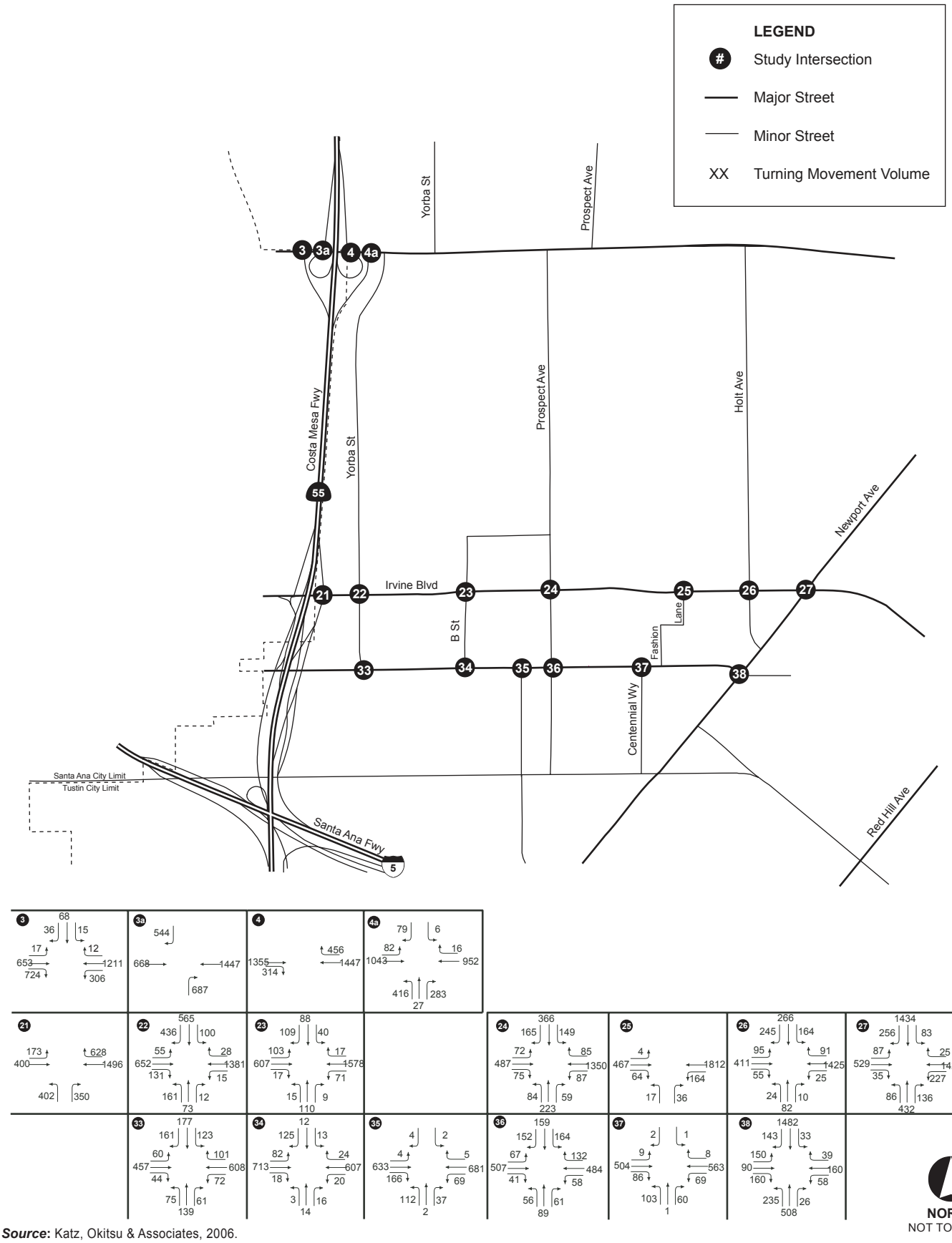

***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-4**

Existing Traffic Volumes AM Peak Hour (Tustin)

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City of Santa Ana

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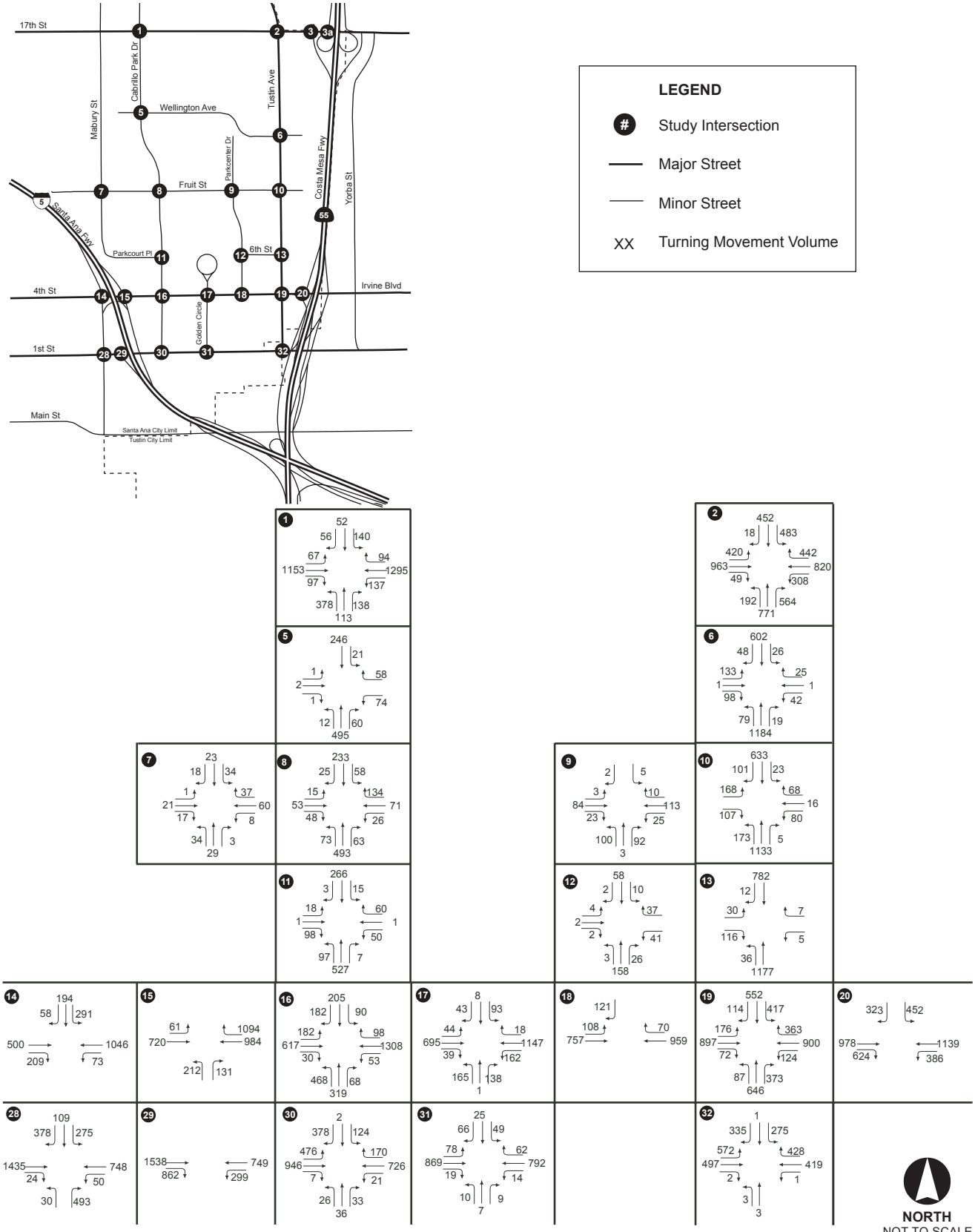

***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-5**

Existing Traffic Volumes PM Peak Hour (Santa Ana)

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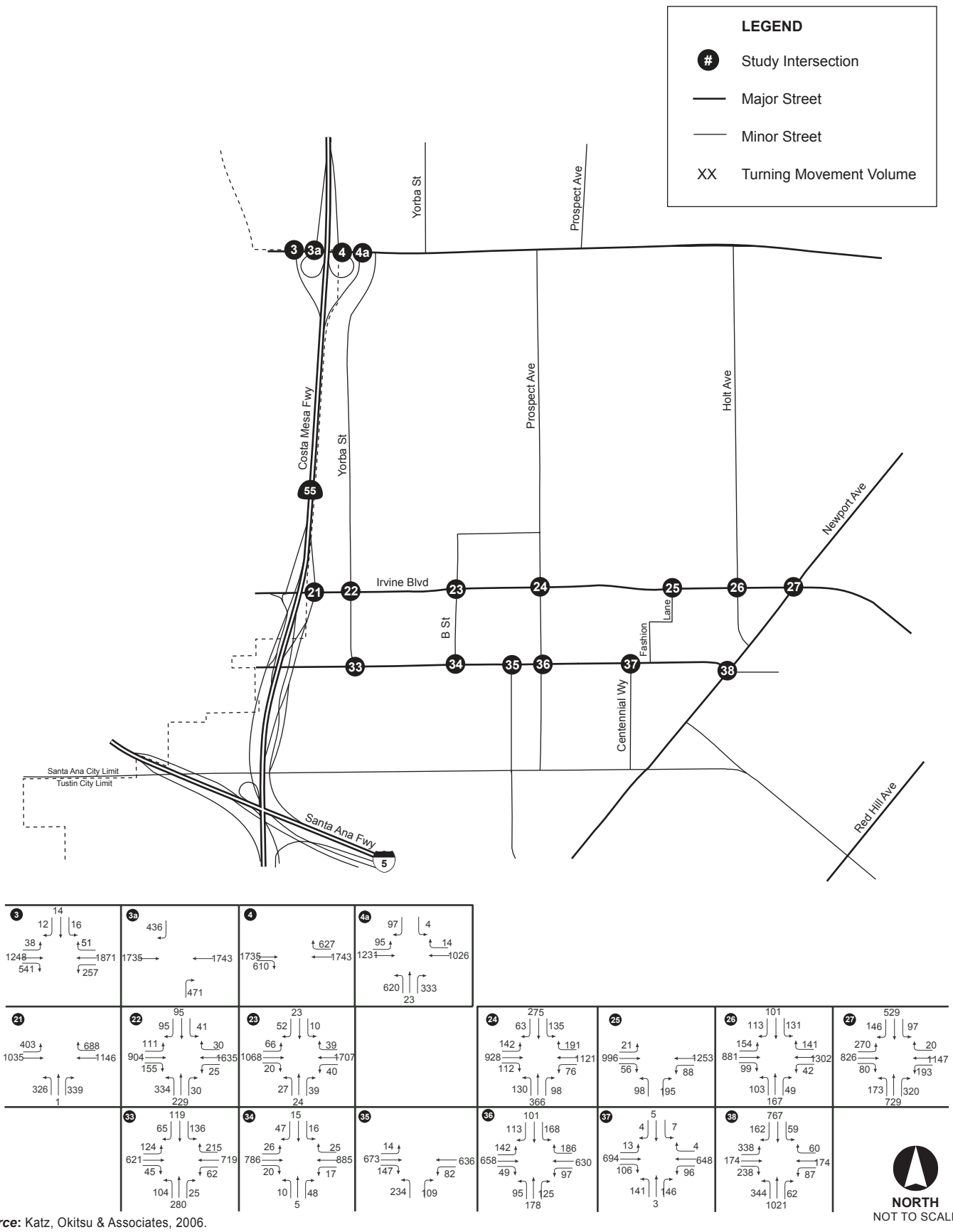
City of Santa Ana

10244 | JCS | 06



***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-6**

Existing Traffic Volumes PM Peak Hour (Tustin)

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D20950.01

City of Santa Ana

10244 | JCS | 06

4.12.2 Regulatory Framework

Federal

There are no federal regulations related to transportation/traffic that apply to the proposed Overlay Zone.

State

Statewide Transportation Improvement Program (STIP)

The California Department of Transportation (Caltrans) administers transportation programming. Transportation programming is the public decision making process which sets priorities and funds projects envisioned in long-range transportation plans. It commits expected revenues over a multi-year period to transportation projects. The STIP is a multi-year capital improvement program of transportation projects on and off the State Highway System, funded with revenues from the State Highway Account and other funding sources.

Regional

Orange County Congestion Management Plan

The Congestion Management Plan (CMP) requires that a traffic impact analysis be conducted for any project generating 2,400 or more daily trips, or 1,600 or more daily trips for projects that directly access the CMP Highway System (HS). Per the CMP guidelines, this number is based on the desire to analyze any impacts that will be three percent or more of the existing CMP highway system facilities' capacity. The CMPHS includes specific roadways, which include State Highways and Super Streets, which are now known as Smart Streets, and CMP arterial monitoring locations/intersections. There are three CMP intersections that were evaluated within the traffic study area for the proposed project, which include:

- First Street at 1-5 South Bound On Ramp (Santa Ana)
- Fourth Street at SR-55 Southbound Ramps (Santa Ana)
- Irvine Boulevard at SR-55 Northbound Ramps (Tustin)

Therefore, the CMP traffic impact analysis (TIA) requirements relate to the potential impacts only on the specified CMPHS Intersections.

Orange County Growth Management Plan

In August 1988, Orange County adopted a Growth Management Plan, which presents a conceptual framework for coordinating traffic facilities and public facilities and services with new development. The Growth Management Plan also spawned several plans and programs, including the Development Monitoring Program, which evaluates the extent of new development and compliance with phasing

requirements, and the Facilities Implementation Plans, which evaluate public facility needs and propose financing mechanisms.

The most comprehensive legislation affecting growth management is Measure M, approved by the County voters in November, 1990, and re-approved in 2006. The measure requires each jurisdiction in the County to adopt a Growth Management Element with specific contents and guidelines.

Local

City of Santa Ana

General Plan

The General Plan Circulation Element for City of Santa Ana was reviewed for goals and policies that would be applicable to the proposed project. Goals and policies presented in the Circulation Element of the General Plan related to traffic that are potentially relevant to the proposed project are identified below.

Goal 1.0 Provide and maintain a comprehensive circulation system that facilitates the efficient movement of people and goods throughout the City, and enhances its economic viability.

- **Policy 1.1** Coordinate transportation improvements in a manner which minimizes disruptions to the community.
- **Policy 1.4** Maintain at least a level of service "D" on arterial street intersections, except in major development areas.
- **Policy 1.6** Improve intersection capacity on major arterials to accommodate increased traffic demands.

Goal 3.0 Provide a full spectrum of travel alternatives for the community's residents, employees, and visitors.

- **Policy 3.4** Encourage the development of multi-modal transit opportunities within major development areas.
- **Policy 3.5** Enhance sidewalks and pedestrian systems to promote their use as a means of travel.

Goal 4.0 Fully coordinate transportation and land use planning activities.

- **Policy 4.2** Assess land use and transportation project impacts through the development review process.
- **Policy 4.3** Assess all development projects in order to identify their traffic impacts and require that they pay their fair-share of the system improvements necessary to accommodate traffic generated by the project.

Goal 5.0 Create attractive circulation corridors to enhance the City's image.

Policy 5.1 Preserve rights-of-way along circulation corridors to provide landscaped parkways and set-back areas.

Policy 5.2 Enhance street design standards to promote attractive circulation corridors.

Policy 5.3 Provide landscaped medians on major arterials.

Goal 6.0 Protect local streets from through traffic to preserve neighborhood character.

Policy 6.1 Implement street design features that discourage through traffic on residential streets.

Goal 7.0 Utilize alternative parking strategies as a means of managing transportation demand.

Policy 7.1 Encourage large employers to utilize parking control measures to reduce vehicle trips, and enhance the use of alternative travel modes.

Policy 7.2 Encourage the joint use of parking facilities.

Goal 8.0 Strengthen the coordination of transportation and land use planning activities with adjacent jurisdictions and regional agencies

Policy 8.1 Participate in interjurisdictional planning forums and other inter-agency opportunities to coordinate transportation and land use projects.

Consistency Analysis

As described under Impact 4.12-7, the proposed project would potentially result in one intersection within the jurisdiction of the City to operate below a level of service "D." However this intersection (Fourth Street and Tustin Avenue), is within a major development area, therefore, the potential decrease in the level of service would be consistent with General Plan Policy 1.4. Further and as described under Impact 4.12-5, the proposed project is intended to provide a live-work community that would reduce daily vehicle trips, thereby encouraging alternative transportation via pedestrian and bicycle traffic. The transportation impacts of the proposed project have been assessed and the proposed project encourages coordination with agencies outside the City's jurisdiction. Consequently, implementation of the proposed project would not conflict with the above-listed policies.

Municipal Code

Guidelines and provisions related to transportation and parking are addressed in Chapter 36 (Traffic) and Chapter 41 (Zoning Code) of the City's Municipal Code. Any development project that would generate two hundred fifty (250) or more employees may adversely impact existing transportation and parking facilities, resulting in deteriorating levels of traffic service, increased motor vehicle emissions, and possibly significant additional capital expenditures to augment and improve the existing transportation system. All such projects are required to prepare and submit a transportation demand management

(TDM) strategy plan to the city. In order to more efficiently utilize the existing and planned transportation system and to reduce vehicle emissions, it is the policy of the City to do the following:

- Reduce the number of peak period vehicle trips generated in association with additional development
- Promote and encourage the use of alternative transportation modes such as ridesharing, carpools, vanpools, public bus and rail transit, bicycles and walking, as well as those facilities that support such modes
- Promote and encourage the implementation of flexible working hours and parking management strategies
- Achieve related reductions in vehicle trips, traffic congestion and public expenditure and achieve air quality improvements through utilization of existing local mechanisms and procedures for project review and permit processing
- Promote coordinated interjurisdictional implementation of strategies to reduce transportation demand and increase transportation system capacity
- Achieve the most efficient use of local resources through coordinated regional and local TDM and TSM programs
- Complement, not duplicate, the South Coast Air Quality Management District's Regulation XV and Appendix IV-E, Control Measures of the 1991 Air Quality Management Plan
- Assure perpetual compliance with approved TDM programs regardless of changes in property ownership through recorded covenants, conditions and restrictions (CC&R's)

City of Tustin

Joint Powers Authority with Tustin

In cooperation with the Cities of Orange and Tustin, Santa Ana has established two Joint Powers Authorities (JPAs) designed to address land development and infrastructure issues which affect the adjacent jurisdiction. Developments and circulation improvements which occur within the designated boundaries are coordinated through the JPA. As the proposed project area is adjacent to the City of Tustin, the proposed project would be required to coordinate and comply with transportation and traffic-related provisions of the City of Tustin.

Municipal Code

Guidelines and provisions related to transportation and parking are addressed in Chapter 9 (Transportation Demand Management Requirements) of the City Municipal Code. The intent of this Chapter is to meet the requirements of State law for development of a trip reduction and travel demand element as part of the City's Congestion Management Program (CMP), as well as the implementation of a trip reduction and travel demand ordinance. New commercial, industrial, and mixed-use development including employment centers of one hundred (100) persons or more may adversely impact existing transportation and parking facilities, resulting in increased motor vehicle emissions, deteriorating levels of service, and possibly significant additional capital expenditures to augment and improve the existing transportation system. The following objectives of this chapter are provided below:

- Reduce the number of peak-period vehicle trips generated in association with additional development

- Promote and encourage the use of alternative transportation modes such as ridesharing, carpools, vanpools, public bus and rail transit, bicycles and walking, as well as those facilities that support such modes
- Achieve related reductions in vehicle trips, traffic congestion, and public expenditure and achieve air quality improvements through utilization of existing local mechanisms and procedures for project review and permit processing
- Promote coordinated implementation of strategies on a countywide basis to reduce transportation demand
- Achieve the most efficient use of local resources through coordinated and consistent regional and/or local transportation demand management (hereafter referred to as TDM) programs. (Ord. No. 1062, Sec. 1, 4-15-91)

4.12.3 Project Impacts and Mitigation

Analytic Method

As stated previously, street system operating conditions are typically described in terms of "level of service." LOS is a report-card scale used to indicate the quality of traffic flow on roadway segments and at intersections. LOS ranges from Level A (free flow, little congestion) to Level F (forced flow, extreme congestion). The cities of Santa Ana and Tustin have slightly different thresholds for determining the level of significance of a traffic impact, due to the study area location.

Based upon the Circulation and Land use Elements of the City of Santa Ana, for intersections located outside of Major Development Areas (MDA), the City considers LOS D as the threshold for an acceptable service level. However, for intersections located within an MDA, the City of Santa Ana considers LOS E as the maximum threshold for acceptable service levels. These criteria are consistent with Measure M target levels, and are either more stringent than, or meet CMP criteria which designates LOS E as the minimum acceptable level of service. Thus, for the purposes of this analysis, the proposed project is considered to have a significant traffic impact at an intersection if traffic level of service deteriorates to an unacceptable level of service (i.e., LOS E or F at intersections outside of MDA; LOS F within MDA) with the addition of project traffic.

The City of Tustin has determined that LOS D (peak hour ICU <= 0.90 for signalized intersections, stop delay <= 25 seconds for unsignalized intersections) is the minimum acceptable level of service for peak hour operation in the City. Thresholds of significance are set by the CMP. If the project contribution is greater than .03 at CMP intersections (the impact threshold specified in the CMP), and if the location is at LOS E or poorer, the impact is significant. However, if the contribution of the project is less than 0.03 the project is not deemed to impact the location.

Project Traffic

The proposed project would allow for mixed-use development with an emphasis on residential, commercial, and office uses in an area of the City that is currently developed with low-scale commercial and office buildings. Specifically, buildout of the Overlay Zone (assumed to be 2030) would consist of approximately 5,551 residential units, over 3.4 million square feet (sf) of office space, and 1.3 million sf

of commercial space. This mixed-use residential/office/commercial development is expected to generate additional traffic volumes, as documented below.

For the purposes of this study, the Overlay Zone was divided into 15 subzones ("traffic analysis zones"), each containing from one to eleven parcels of land. Each of the traffic analysis zones is bounded by a street, a barrier to travel, or other logical boundary. The trip generation for the Overlay zone was computed individually for each parcel and land use within the parcels. The project trips generated were then aggregated into the traffic analysis zones for the purpose of traffic assignment.

The trip generation rates for the Overlay Zone are shown in Table 4.12-3 (Trip Generation Rates). The trip generation rates summarized in this table are provided by ITE Trip Generation, 7th Edition with consideration of comparable trip generation rates for similar uses in this region. The trip generation for the project based on these rates is summarized in Table 4.12-4 (Metro East Overlay Zone Proposed Project Trip Generation). Table 4.12-4 shows the proposed use trips, existing use trips, internal trip capture, and net vehicle trips for the Overlay Zone. It should be noted that any future development within the proposed Overlay Zone, with the exception of First and Cabrillo Towers (refer to Volume II of this EIR) would prepare a separate traffic study, specific to the individual projects that are proposed. Any subsequent traffic studies for future developments within the Overlay Zone must also use trip generation rates which are specific for the individual development and are approved by the City.

Table 4.12-3 Trip Generation Rates

Land Use	Measure	Daily	AM Peak Hour			PM Peak Hour		
			Total	In	Out	Total	In	Out
Trip Generation Rates, Proposed Uses								
High-Rise Residential Condominium ITE Code 232	DU	4.18	0.34	0.065	0.275	0.38	0.236	0.144
Shopping Center ITE Code 820	1,000 sf	42.94	1.03	0.63	0.40	3.75	1.80	1.95
Office ITE Code 710	1,000 sf	11.01	1.55	1.36	0.19	1.49	0.25	1.24
Motel ITE Code 320	Rooms	5.63	0.45	0.17	0.28	0.47	0.25	0.22
Auto-Related Service / Retail ITE Code	1,000 sf	61.91	2.21	1.13	1.08	5.98	2.93	3.05
Medical Office ITE Code 720	1,000 sf	36.13	2.48	1.96	0.52	3.72	1.00	2.72
Nursing Homes ITE Code 620	Beds	2.37	0.17	0.09	0.08	0.22	0.07	0.15

[a] ITE Code 814 rate not available. Average rate for similar uses used.

As shown in Table 4.12-4 below, the proposed project is expected to generate approximately 115,521 daily trips in 2030. Of this amount, 8,487 are expected to be in the AM peak hour, including 5,799 trips entering and 2,688 trips exiting the Overlay Zone. There are expected to be 11,974 trips during the PM peak hour, including 4,467 trips entering and 7,507 trips exiting the Overlay Zone.

The trip credits from the existing land use are 38,597 daily trips, including 4,593 trips in the AM peak hour and 4,858 trips in the PM peak hour. The internal trip capture trip reductions are 9,232 daily trips, including 661 trips in the AM peak hour and 988 trips in the PM peak hour. These reductions apply to the retail/commercial and office components of the project and the corresponding residential trip ends. There are no pass-by trips, per City direction.

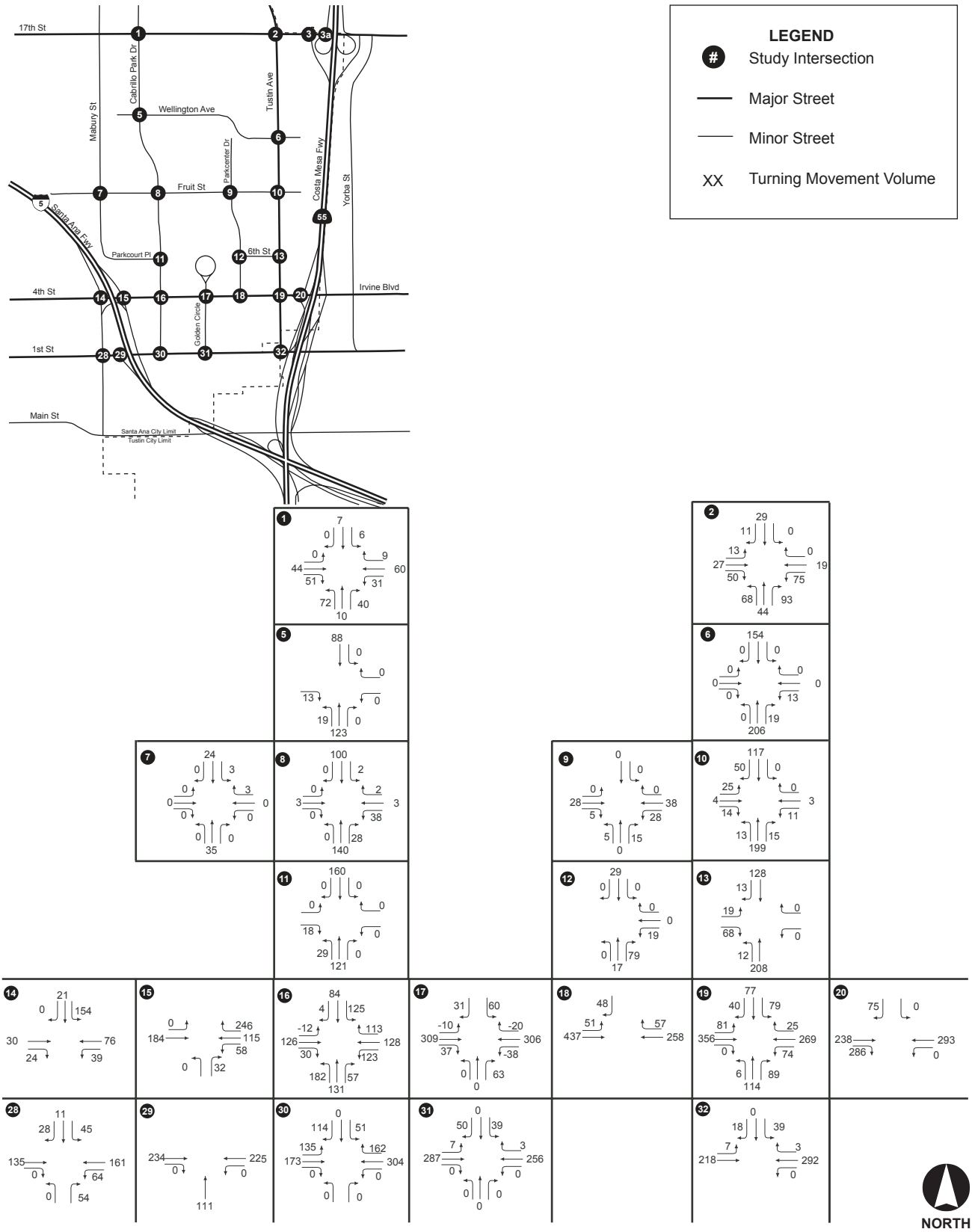
The net project vehicle trips from the proposed project consist of the project trip generation less the trip credits and internal trip capture. These net project vehicle trips are approximately 67,692 daily trips. Of this amount, 3,233 are expected to be in the AM peak hour, including 1,337 trips entering and 1,896 trips exiting the Overlay Zone. There are expected to be 6,128 net project trips during the PM peak hour, including 3,113 trips entering and 3,015 trips exiting the Overlay Zone. The "NET Project Vehicle Trips" are shown in Table 4.12-4. In addition, Figures 4.12-7 (Net Project Traffic Volumes, Year 2030 AM Peak Hour) through 4.12-10 (Net Project Traffic Volumes, Year 2030 PM Peak Hour) show the net project traffic volumes during the AM and PM peak hours in the cities of Santa Ana and Tustin, respectively.

Table 4.12-4 Metro East Overlay Zone Proposed Project Trip Generation[a]

Land Use	*Measure*	*Daily*	*AM Peak Hour*			*PM Peak Hour*		
			Total	*In*	*Out*	*Total*	*In*	*Out*
VEHICLE TRIPS								
Existing Use (Trip Credits)								
Office—ITE Code 710	2,720,168 sf	29,949	4,216	3,699	517	4,053	680	3373
Shopping/Commercial—ITE Code 820	65,961 sf	2,832	68	42	26	247	119	128
Motel—ITE Code	180 rooms	1,013	81	31	50	85	45	40
Auto-Related Service/Retail—ITE Code	49,959 sf	3,093	110	56	54	299	146	153
Medical Office—ITE Code 720	40,846 sf	1,476	101	80	21	152	41	111
Nursing Homes—ITE Code 620	99 Beds	234	17	9	8	22	7	15
Subtotal, Existing Use	N/A	38,597	4,593	3,917	676	4,858	1,038	3,820
Proposed Use								
High-Rise Residential Condominium ITE Code 232	5,551 units	23,204	1,887	359	1528	2,109	1,307	802
Shopping/Commercial Center ITE Code 814	1,275,440 sf	54,767	1,314	802	512	4,783	2,296	2,487
Office ITE Code	3,410,507 sf	37,550	5,286	4,638	648	5,082	864	4,218
Subtotal, Proposed Use	N/A	115,521	8,487	5,799	2,688	11,974	4,467	7,507
Trip Reductions								
Internal Trip Capture (5%)[b]	N/A	9,232	661	545	116	988	316	672
Net Project Vehicle Trips		67,692	3,233	1,337	1,896	6,128	3,113	3,015

[a] Please see Appendix H for calculation of trip generation by parcel and net vehicle trips by study zone.

[b] 5% of retail trips + corresponding residential trip end.



***Source*:** Katz, Okitsu & Associates, 2006.

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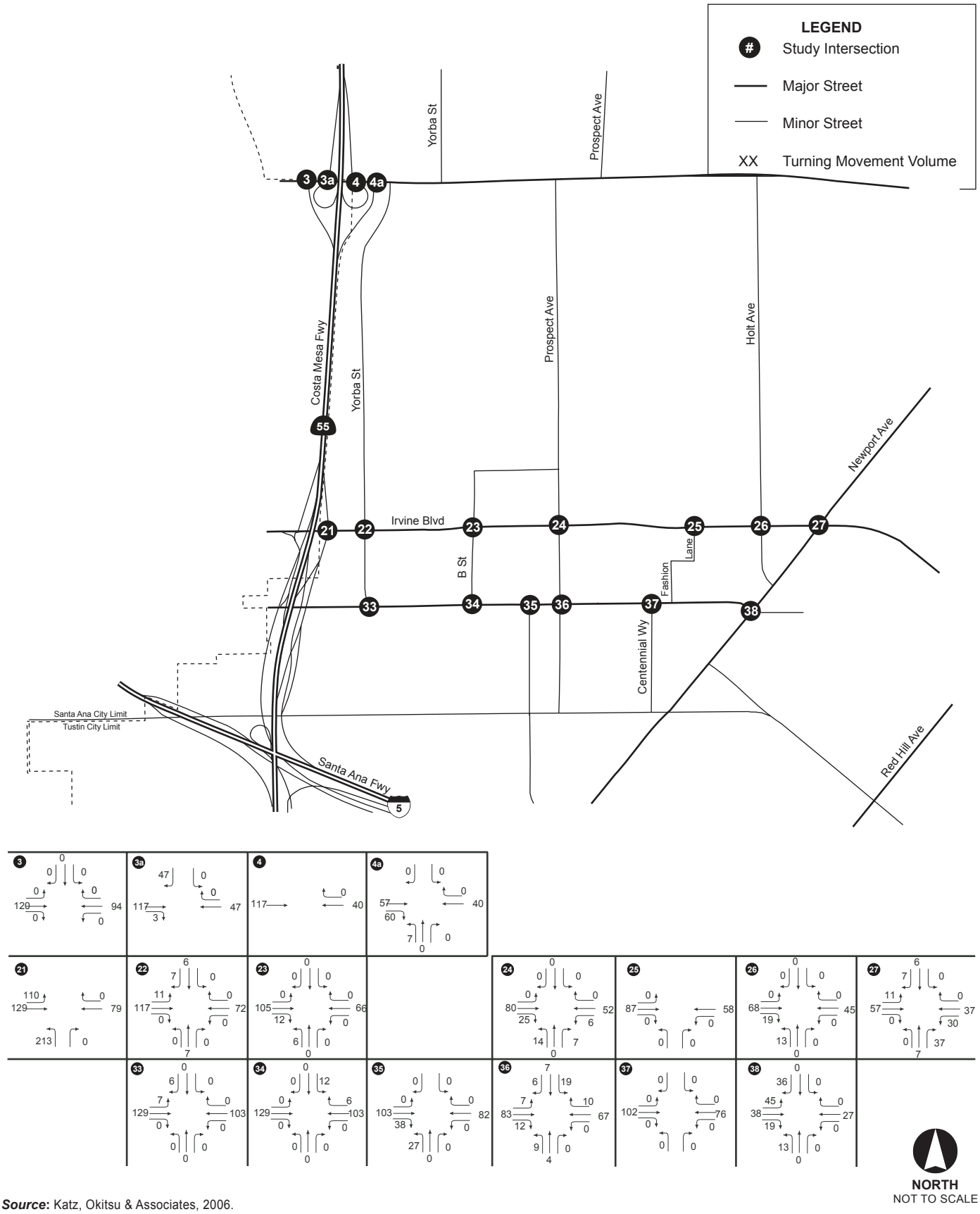
FIGURE **4.12-7**

Net Project Traffic Volumes, Year 2030 AM Peak Hour (Santa Ana)

D20950.01

City of Santa Ana

10244 | JCS | 06



Source: Katz, Okitsu & Associates, 2006.

NORTH
NOT TO SCALE

FIGURE **4.12-8**

Net Project Traffic Volumes, Year 2030 AM Peak Hour (Tustin)

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D20950.01

City of Santa Ana

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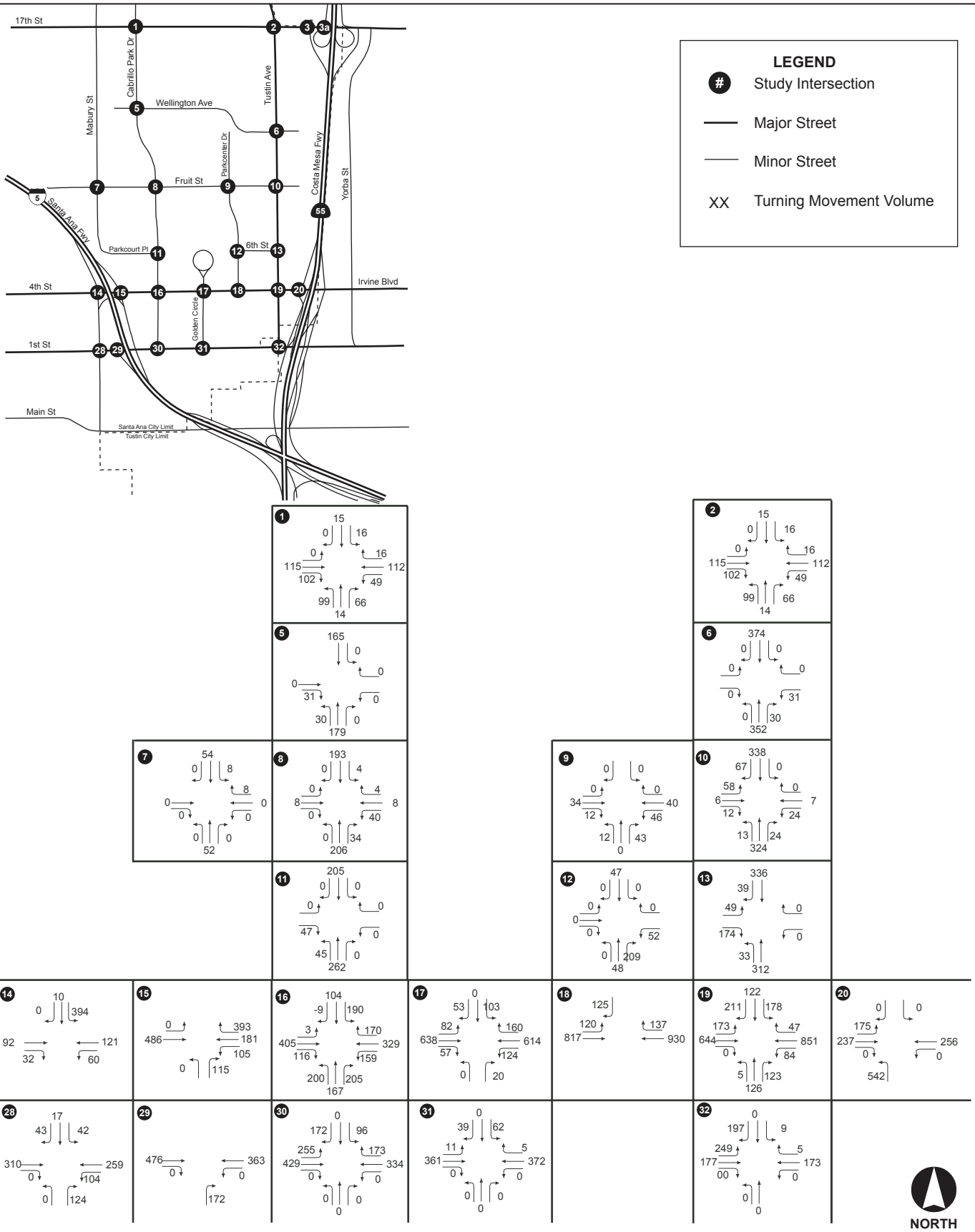

***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-9**

Net Project Traffic Volumes, Year 2030 PM Peak Hour (Santa Ana)

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City of Santa Ana

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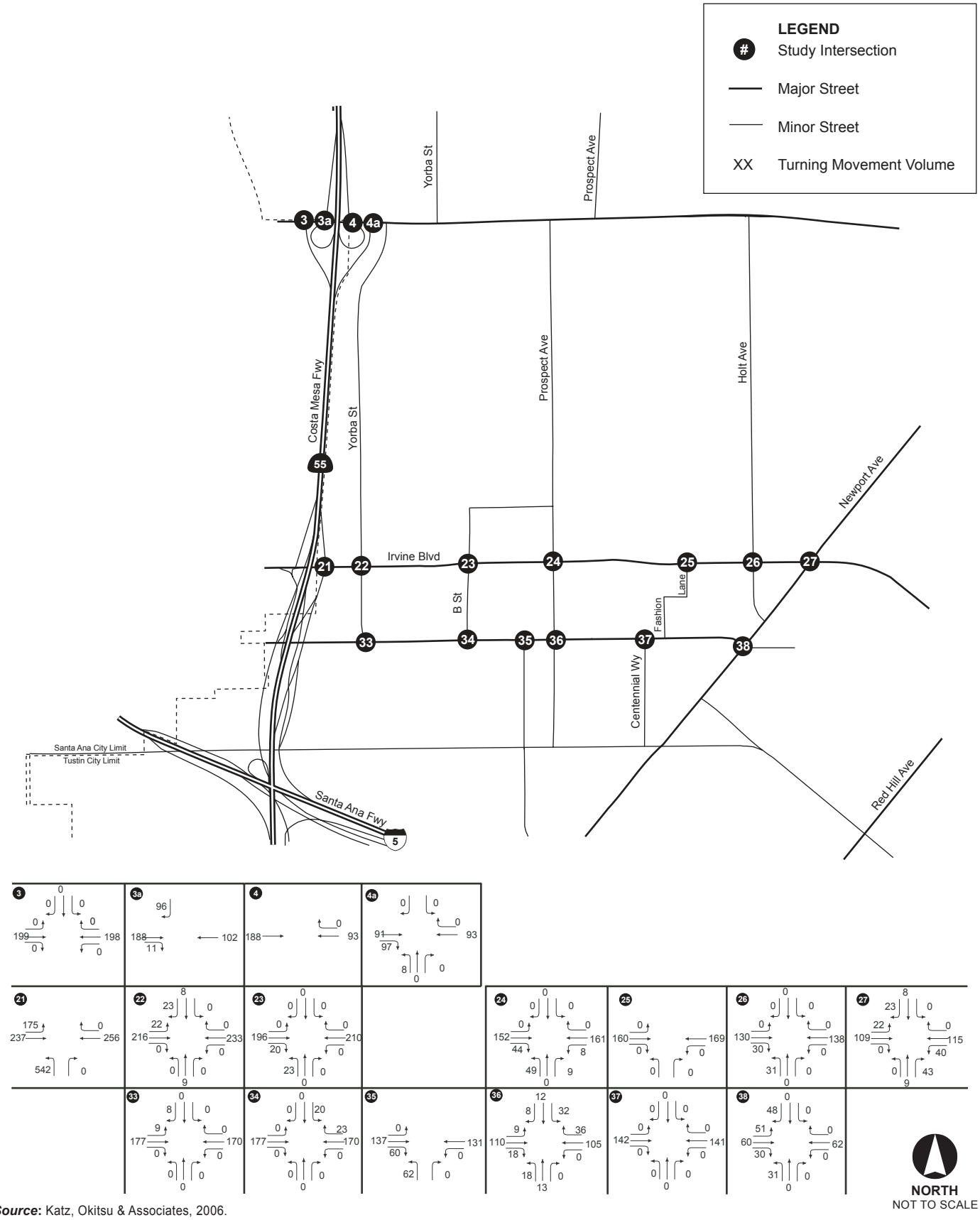

***Source*:** Katz, Okitsu & Associates, 2006.

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FIGURE **4.12-10**

Net Project Traffic Volumes, Year 2030 PM Peak Hour (Tustin)

D20950.01

City of Santa Ana

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Future Traffic Conditions

The analysis of potential impacts is accomplished through the analysis of existing conditions in the study area (described above under the Existing Conditions section) in conjunction with an evaluation of future study area conditions for two scenarios (with and without project conditions). The proposed project has assumed a completion date of Year 2030. Thus, in order to properly evaluate the potential impact of the proposed project on the local streets, it is necessary to develop estimates of the Year 2030 traffic conditions and the study area intersections, with and without project-related traffic.

Without Project Scenario

This section documents the buildout (2030) traffic conditions without the addition of project-related traffic to the surrounding street system. It includes development of the buildout traffic conditions in the study area based on traffic growth projections provided by the OCTAM model applied to existing traffic patterns. The year 2030 was selected for analysis per direction from the City. Year 2030 also corresponds with the OCTAM-3 traffic model buildout year.

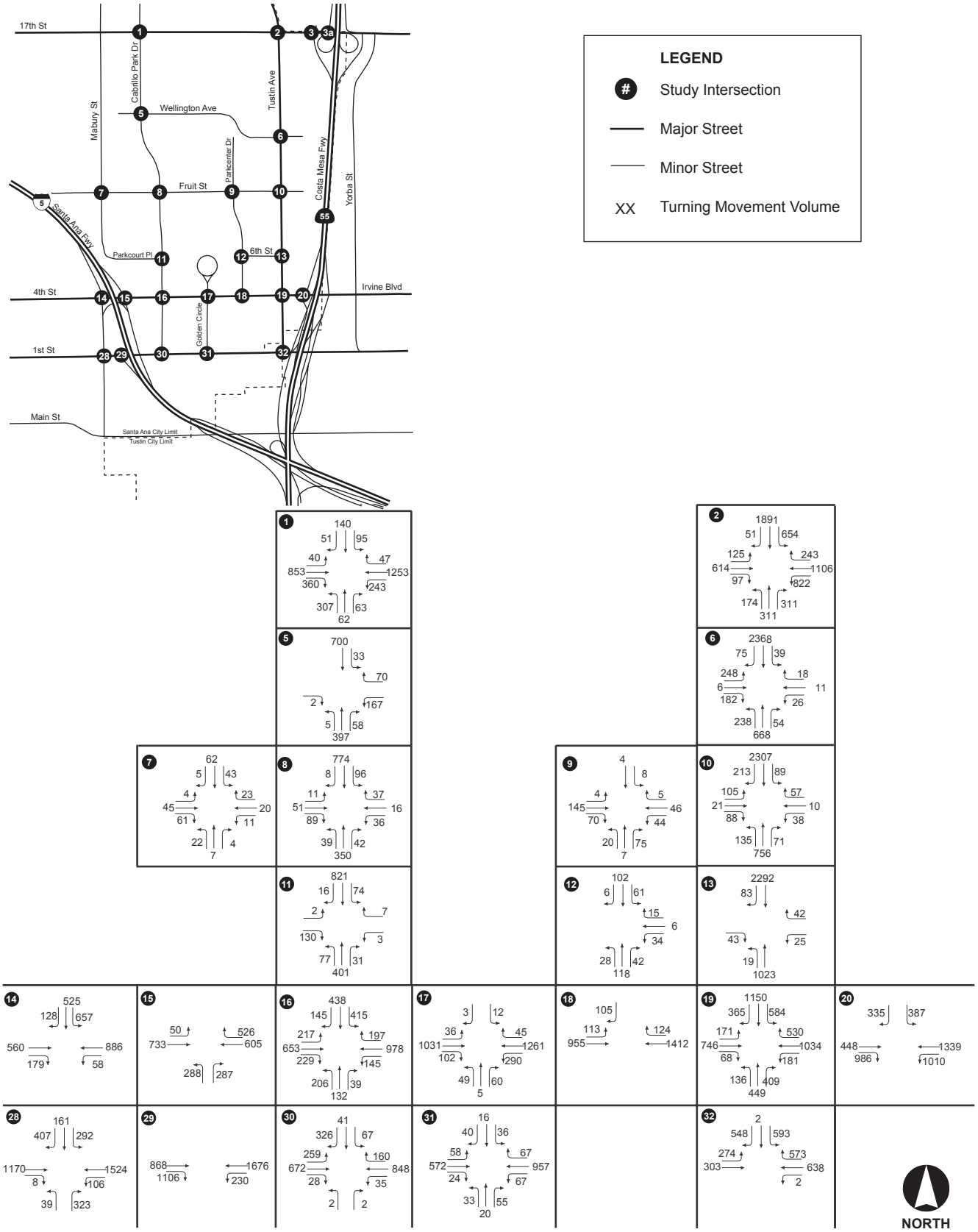
To simulate growth conditions for the year 2030, ambient peak hour background traffic volumes were derived from the base year and buildout year County traffic model and from existing observed traffic volumes to simulate buildout traffic conditions without the proposed project. Figures 4.12-11 and 4.12-12 illustrate the resulting buildout AM peak hour volumes, while Figures 4.12-13 and 4.12-14 illustrate the resulting buildout PM peak hour volumes. Table 4.12-5 (Peak Hour Intersection Conditions, Buildout without Project Conditions, Year 2030) summarizes the results of the level of service analyses for this scenario.

As shown in Table 4.12-5, 29 of the 38 intersections are expected to operate at Level of Service D or better under the Buildout without Project condition for the year 2030. Five signalized and four unsignalized intersections will operate at Level of Service E or worse in the AM or PM peak hour, or both.

With Project Scenario

This section documents the buildout (2030) traffic conditions with the addition of Overlay Zone project-related traffic to the surrounding street system. To simulate the buildout traffic conditions for the year 2030, the without Project peak hour background traffic volumes shown in Figures 4.12-11 through 4.12-14 were increased by the project–related traffic volumes shown in Figures 4.12-7 through 4.12-10.

Table 4.12-6 (Peak Hour Intersection Conditions, Buildout with Project Conditions, Year 2030) summarizes the results of the level of service analyses for this scenario. As shown in Table 4.12-6, half (19) of the 38 intersections are expected to operate at LOS D or better under the Buildout with project condition for the year 2030. However, 13 signalized intersections and 6 unsignalized intersections will operate at LOS E or worse in either the AM or PM peak hour, or both. Figures 4.12-15 through 4.12-18 illustrate the AM and PM peak hour traffic volumes for the Future with Project conditions.



***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-11**

Buildout Without Project Traffic Volumes, AM Peak Hour (Santa Ana)

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D20950.01

City of Santa Ana

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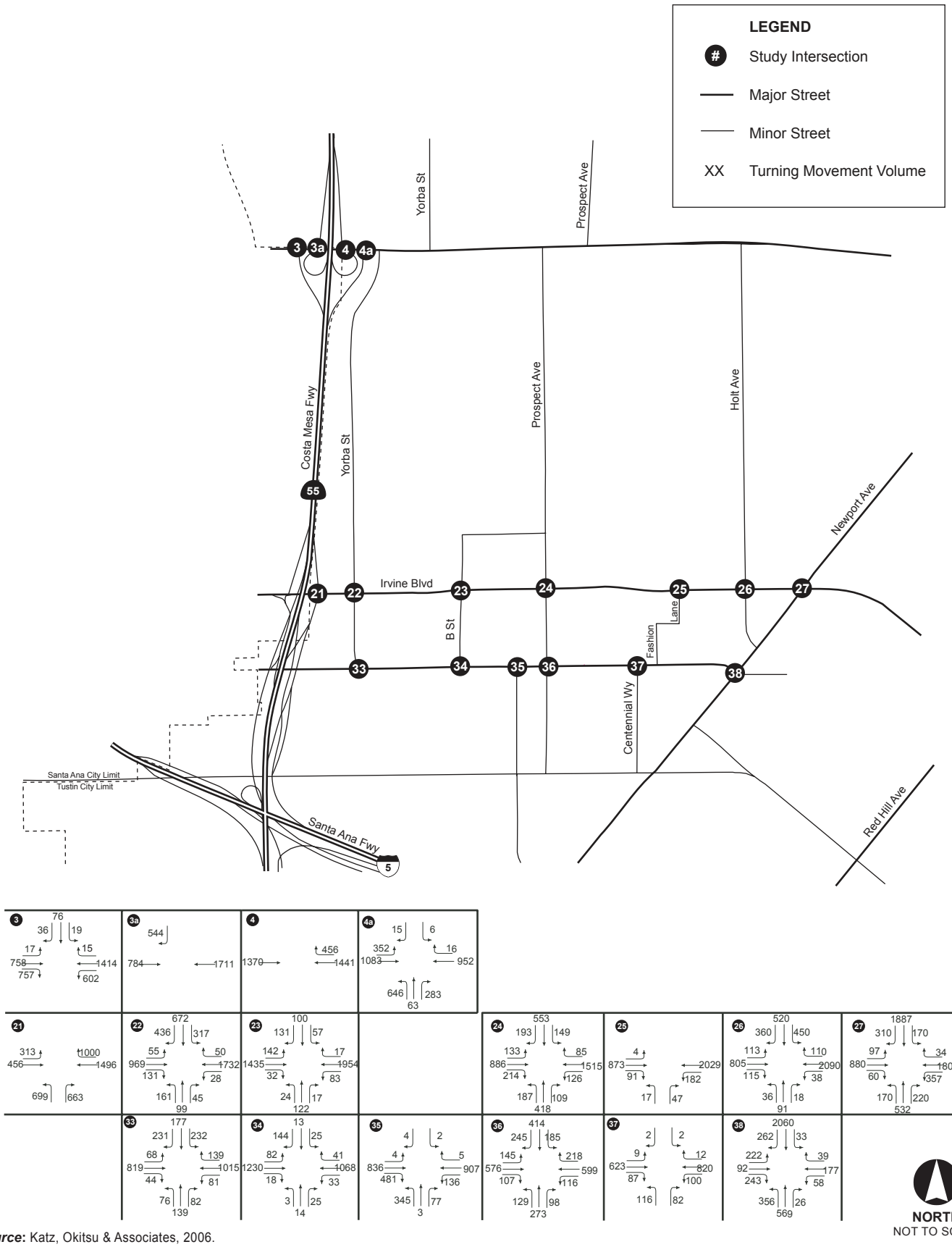

***Source*:** Katz, Okitsu & Associates, 2006.

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FIGURE **4.12-12**

Buildout Without Project Traffic Volumes, AM Peak Hour (Tustin)

D20950.01

City of Santa Ana

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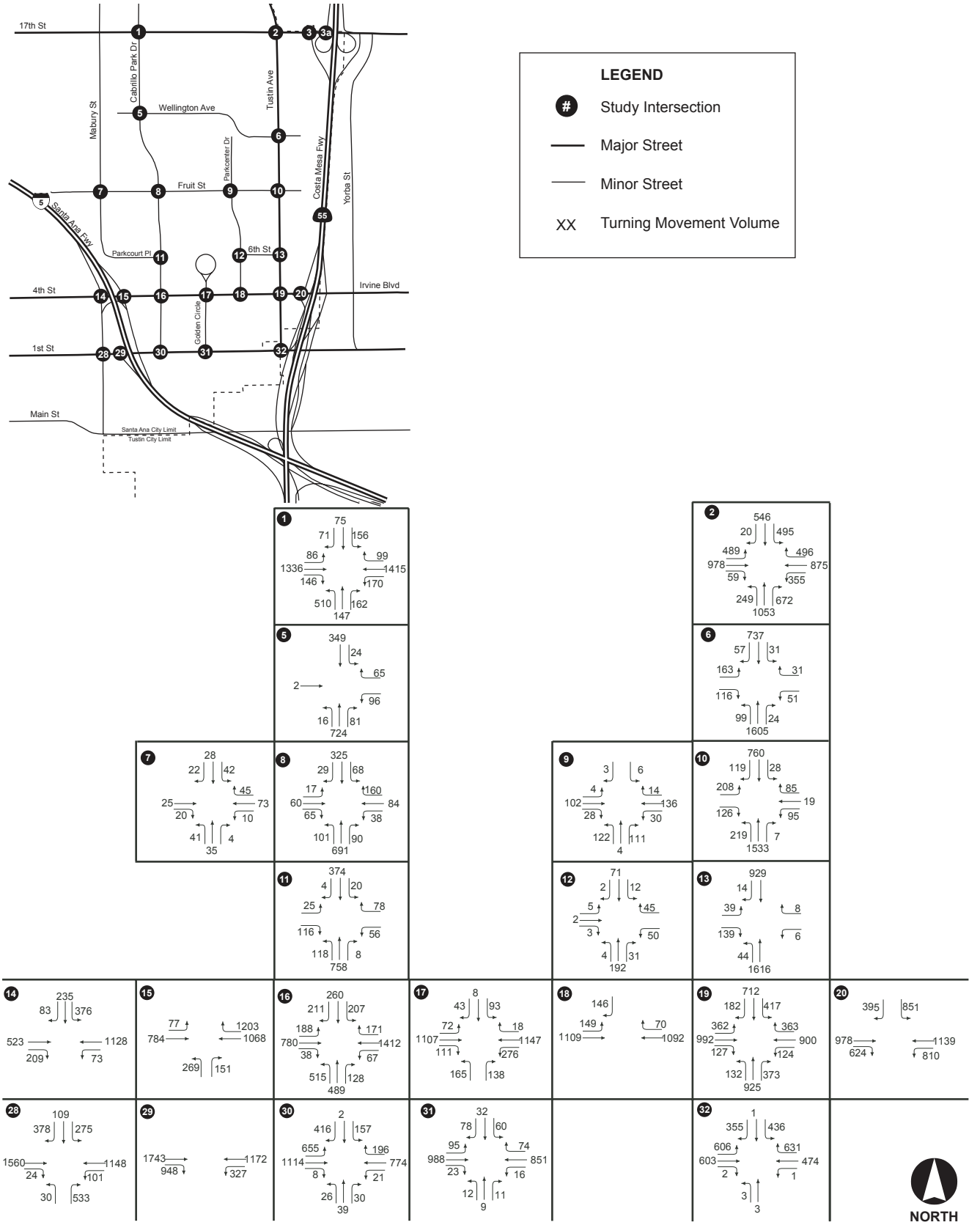

***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-13**

Buildout Without Project Traffic Volumes, PM Peak Hour (Santa Ana)

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City of Santa Ana

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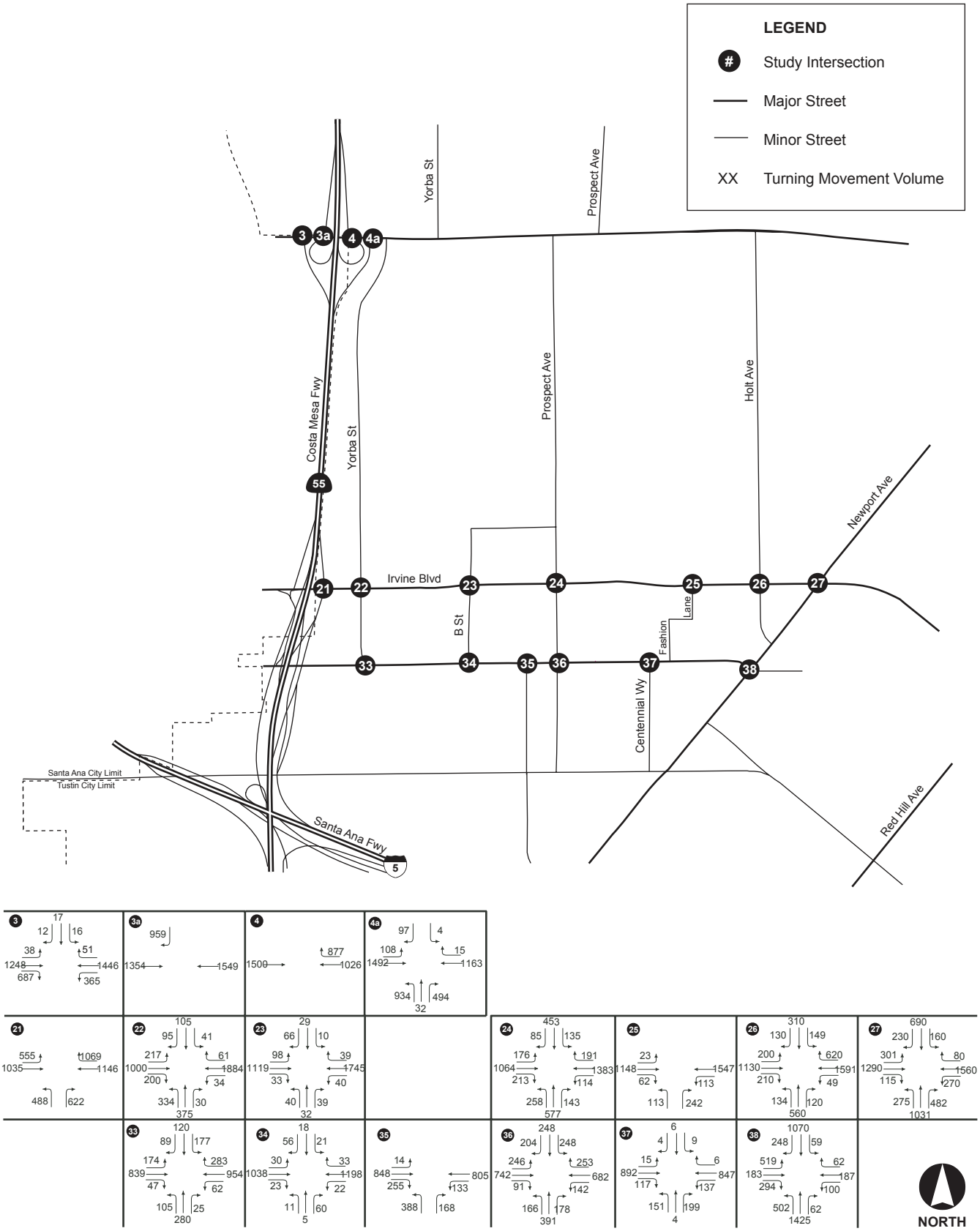

***Source*:** Katz, Okitsu & Associates, 2006.

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FIGURE **4.12-14**

Buildout Without Project Traffic Volumes, PM Peak Hour (Tustin)

D20950.01

City of Santa Ana

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Table 4.12-5 Peak Hour Intersection Conditions, Buildout without Project Conditions, Year 2030

Signalized Intersections

	AM Peak Hour		PM Peak Hour	
	V/C	LOS	V/C	LOS
First Street at Tustin Avenue (Santa Ana)	0.493	A	0.603	B
First Street at Golden Circle Drive (Santa Ana)	0.362	A	0.364	A
First Street at Cabrillo Park Drive (Santa Ana)	0.466	A	0.759	C
First Street at Elk Lane (Santa Ana)	0.707	C	0.883	D
First Street at I-5 Southbound On-Ramp (Santa Ana)	0.505	A	0.674	B
Fourth Street at SR-55 Southbound Ramps (Santa Ana)	1.367	F	1.144	F
Fourth Street at Tustin Avenue (Santa Ana)	0.881	D	0.888	D
Fourth Street at Golden Circle Drive (Santa Ana)	0.488	A	0.633	B
Fourth Street at Cabrillo Park Drive (Santa Ana)	0.726	C	0.832	D
Fourth Street at I-5 Northbound Ramps (Santa Ana)	0.544	A	0.939	E
Fourth Street at I-5 Southbound Off-Ramp (Santa Ana)	0.504	A	0.492	A
Tustin Avenue at Fruit Street (Santa Ana)	0.719	C	0.541	A
Tustin Avenue at Wellington Avenue (Santa Ana)	0.832	D	0.502	A
Seventeenth Street at Tustin Avenue (Santa Ana)	0.844	D	0.821	D
Seventeenth Street at Cabrillo Park Drive (Santa Ana)	0.724	C	0.826	D
Seventeenth Street at SR-55 Northbound Ramps (Santa Ana)	1.211	F	0.688	B
Seventeenth Street at SR-55 Southbound Ramps (Santa Ana)	0.619	B	0.526	A
First Street at Yorba Street (Tustin)	0.607	B	0.702	C
First Street at El Camino Real (Tustin)	0.616	B	0.606	B
First Street at Prospect Avenue (Tustin)	0.773	C	0.877	D
First Street at Centennial Way (Tustin)	0.435	A	0.641	B
First Street at Newport Avenue (Tustin)	0.967	E	0.768	C
Irvine Boulevard at SR-55 Northbound Ramps (Tustin)	1.089	F	1.223	F
Irvine Boulevard at Yorba Street (Tustin)	0.818	D	0.763	C
Irvine Boulevard at B Street (Tustin)	0.670	B	0.537	A
Irvine Boulevard at Prospect Avenue (Tustin)	0.771	C	0.772	C
Irvine Boulevard at Fashion Lane (Tustin)	0.677	B	0.661	B
Irvine Boulevard at Holt Avenue (Tustin)	0.853	D	0.794	C
Irvine Boulevard at Newport Avenue (Tustin)	0.901	E	0.741	C

Unsignalized Intersections

	Average Delay	Worst Case Delay	LOS	Average Delay	Worst Case Delay	LOS
Sixth Street at Parkcenter Drive (Santa Ana)	3.2	11.4	B	2.9	10.8	B
Parkcourt Place at Cabrillo Park Drive (Santa Ana)	2.2	18.4	C	6.5	49.9	E
Fruit Street at Mabury Street (Santa Ana)	8.0	8.0	A	8.1	8.1	A
Fruit Street at Cabrillo Park Drive (Santa Ana)	14.7	14.7	B	18.1	18.1	C
Fruit Street at Parkcenter Drive (Santa Ana)	3.7	11.9	B	5.8	12.2	B
Wellington Avenue at Cabrillo Park Drive (Santa Ana)	7.8	45.5	E	5.0	39.6	E

Table 4.12-5 Peak Hour Intersection Conditions, Buildout without Project Conditions, Year 2030						
Tustin Avenue at Sixth Street (Santa Ana)	2.3	101.4	F	4.0	85.0	F
Fourth Street at Parkcenter Drive (Santa Ana)	1.2	16.0	C	1.5	12.8	B
First Street at B Street (Tustin)	19.8	274.8	F	9.6	169.5	F

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

[a] Delay shown in seconds per vehicle

[b] Level of Service shown for worst-case approach

Table 4.12-6 Peak Hour Intersection Conditions, Buildout with Project Conditions, Year 2030				
Signalized Intersections				
	AM Peak Hour		*PM Peak Hour*	
	V/C	*LOS*	*V/C*	*LOS*
First Street at Tustin Avenue (Santa Ana)	0.584	A	0.679	B
First Street at Golden Circle Drive (Santa Ana)	0.437	A	0.467	A
First Street at Cabrillo Park Drive (Santa Ana)	0.667	B	1.065	F
First Street at Elk Lane (Santa Ana)	0.814	D	1.098	F
First Street at I-5 Southbound On-Ramp (Santa Ana)	0.551	A	0.799	C
Fourth Street at SR-55 Southbound Ramps (Santa Ana)	1.550	F	1.487	F
Fourth Street at Tustin Avenue (Santa Ana)	1.047	F	1.267	F
Fourth Street at Golden Circle Drive (Santa Ana)	0.606	B	0.934	E
Fourth Street at Cabrillo Park Drive (Santa Ana)	0.912	E	1.139	F
Fourth Street at I-5 Northbound Ramps (Santa Ana)	0.688	B	1.170	F
Fourth Street at I-5 Southbound Off-Ramp (Santa Ana)	0.571	A	0.644	B
Tustin Avenue at Fruit Street (Santa Ana)	0.774	C	0.645	B
Tustin Avenue at Wellington Avenue (Santa Ana)	0.865	D	0.577	A
Seventeenth Street at Tustin Avenue (Santa Ana)	0.902	E	0.881	D
Seventeenth Street at Cabrillo Park Drive (Santa Ana)	0.807	D	0.965	E
Seventeenth Street at SR-55 Northbound Ramps (Santa Ana)	1.217	F	0.706	C
Seventeenth Street at SR-55 Southbound Ramps (Santa Ana)	0.642	B	0.565	A
First Street at Yorba Street (Tustin)	0.641	B	0.757	C
First Street at El Camino Real (Tustin)	0.654	B	0.683	B
First Street at Prospect Avenue (Tustin)	0.804	D	0.934	E
First Street at Centennial Way (Tustin)	0.465	A	0.683	B
First Street at Newport Avenue (Tustin)	0.990	E	0.804	D
Irvine Boulevard at SR-55 Northbound Ramps (Tustin)	1.196	F	1.432	F
Irvine Boulevard at Yorba Street (Tustin)	0.843	D	0.834	D
Irvine Boulevard at B Street (Tustin)	0.686	B	0.592	A
Irvine Boulevard at Prospect Avenue (Tustin)	0.790	C	0.833	D
Irvine Boulevard at Fashion Lane (Tustin)	0.694	B	0.711	C

Table 4.12-6 Peak Hour Intersection Conditions, Buildout with Project Conditions, Year 2030

Irvine Boulevard at Holt Avenue (Tustin)	0.870	D	0.812	D
Irvine Boulevard at Newport Avenue (Tustin)	0.913	E	0.784	C

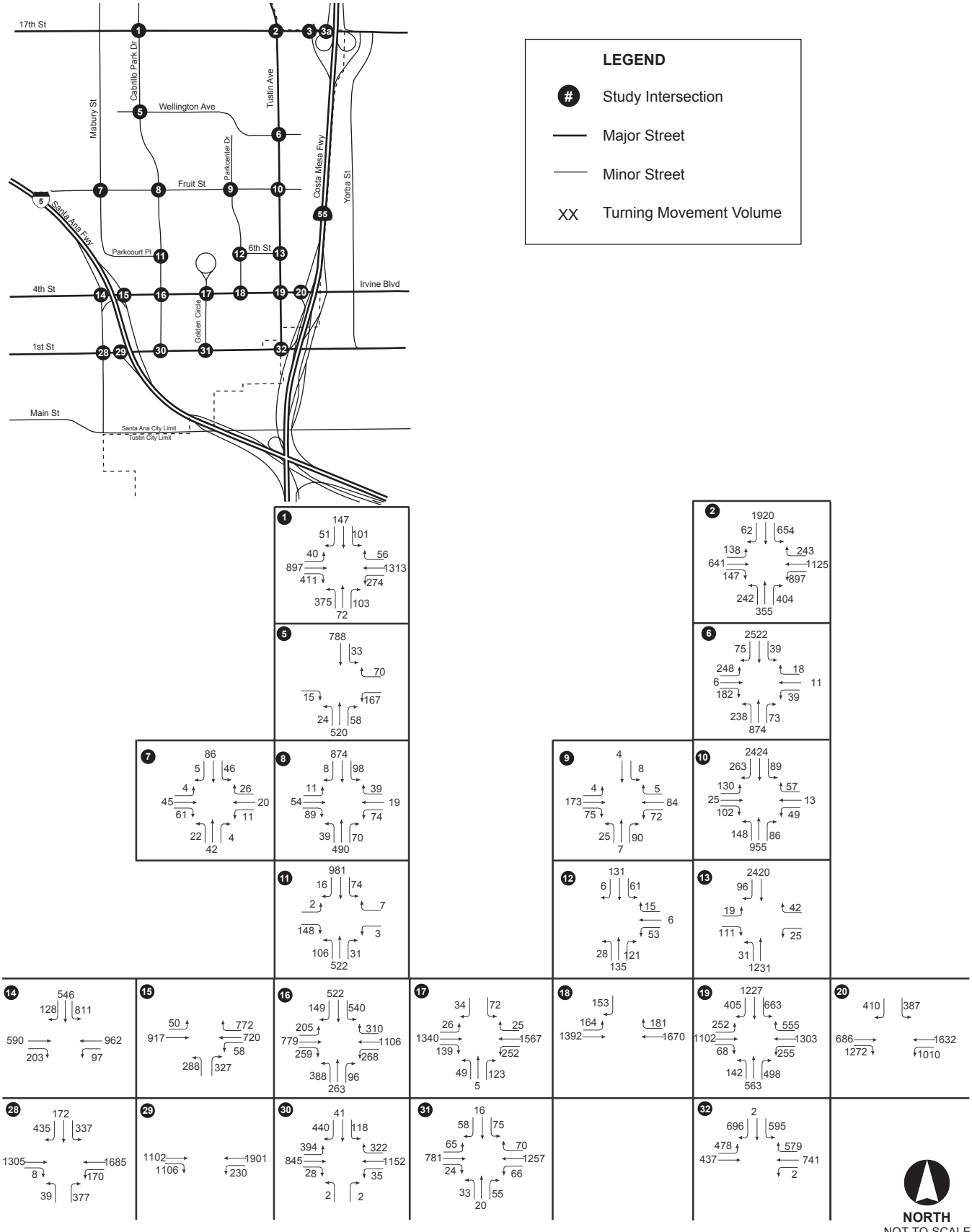
Unsignalized Intersections

	Average Delay	*Worst Case Delay*	*LOS*	*Average Delay*	*Worst Case Delay*	*LOS*
Sixth Street at Parkcenter Drive (Santa Ana)	2.9	12.7	B	3.1	14.7	B
Parkcourt Place at Cabrillo Park Drive (Santa Ana)	2.4	27.1	D	26.3	356.5	F
Fruit Street at Mabury Street (Santa Ana)	8.3	8.3	A	8.7	8.7	A
Fruit Street at Cabrillo Park Drive (Santa Ana)	20.7	20.7	C	44.8	44.8	E
Fruit Street at Parkcenter Drive (Santa Ana)	3.9	13.7	B	7.2	15.9	C
Wellington Avenue at Cabrillo Park Drive (Santa Ana)	19.1	132.1	F	15.0	158.1	F
Tustin Avenue at Sixth Street (Santa Ana)	57.6	>>120	F	147.3	>>120	F
Fourth Street at Parkcenter Drive (Santa Ana)	2.0	26.0	D	10.9	144.4	F
First Street at B Street (Tustin)	120.8	>>120	F	77.0	>>120	F

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

[a] Delay shown in seconds per vehicle

[b] Level of Service shown for worst-case approach



***Source*:** Katz, Okitsu & Associates, 2006.

FIGURE **4.12-15**

Buildout With Project Traffic Volumes, AM Peak Hour (Santa Ana)

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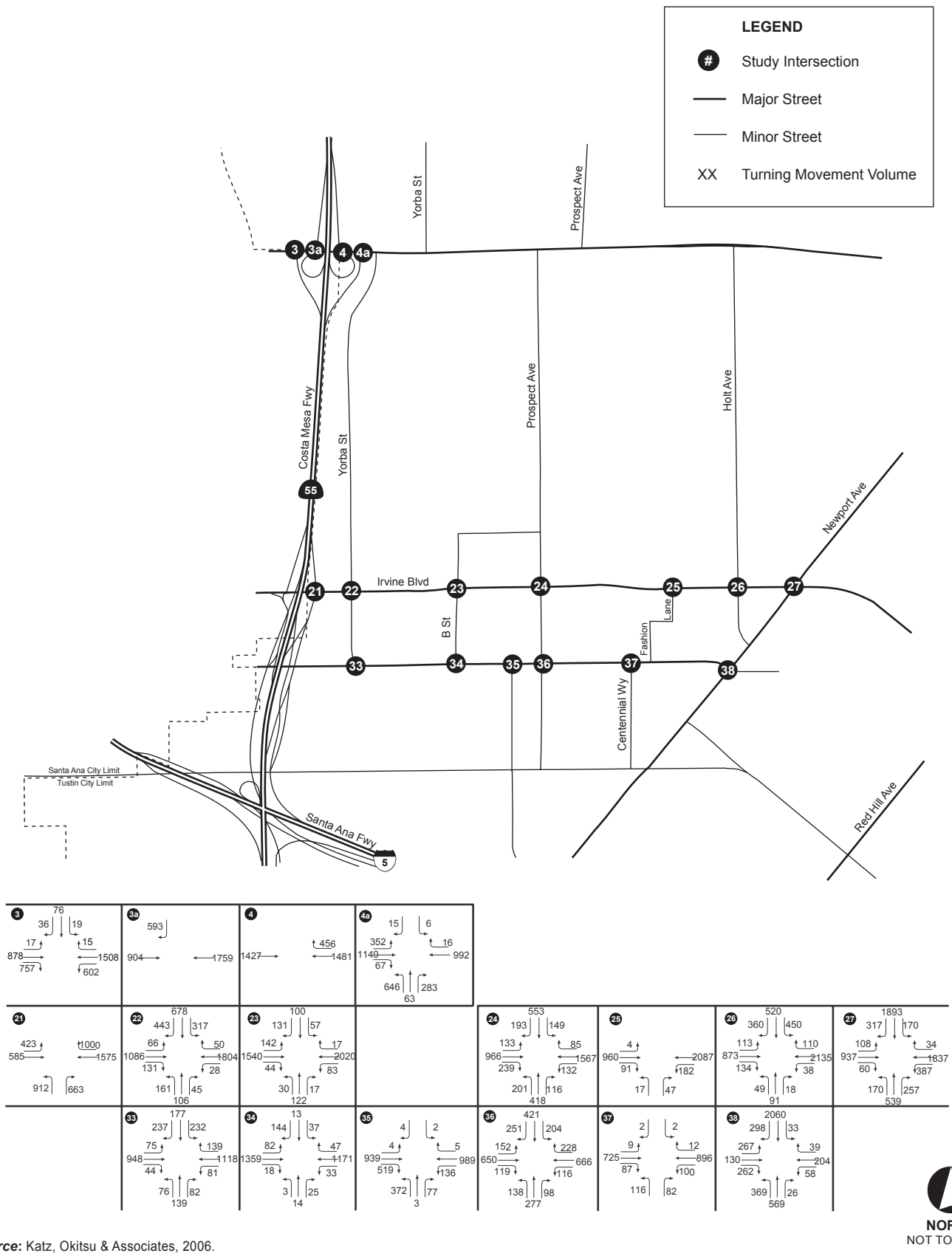
D20950.01

City of Santa Ana

10244 | JCS | 06



***Source*:** Katz, Okitsu & Associates, 2006.

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FIGURE **4.12-16**

Buildout With Project Traffic Volumes, AM Peak Hour (Tustin)

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City of Santa Ana

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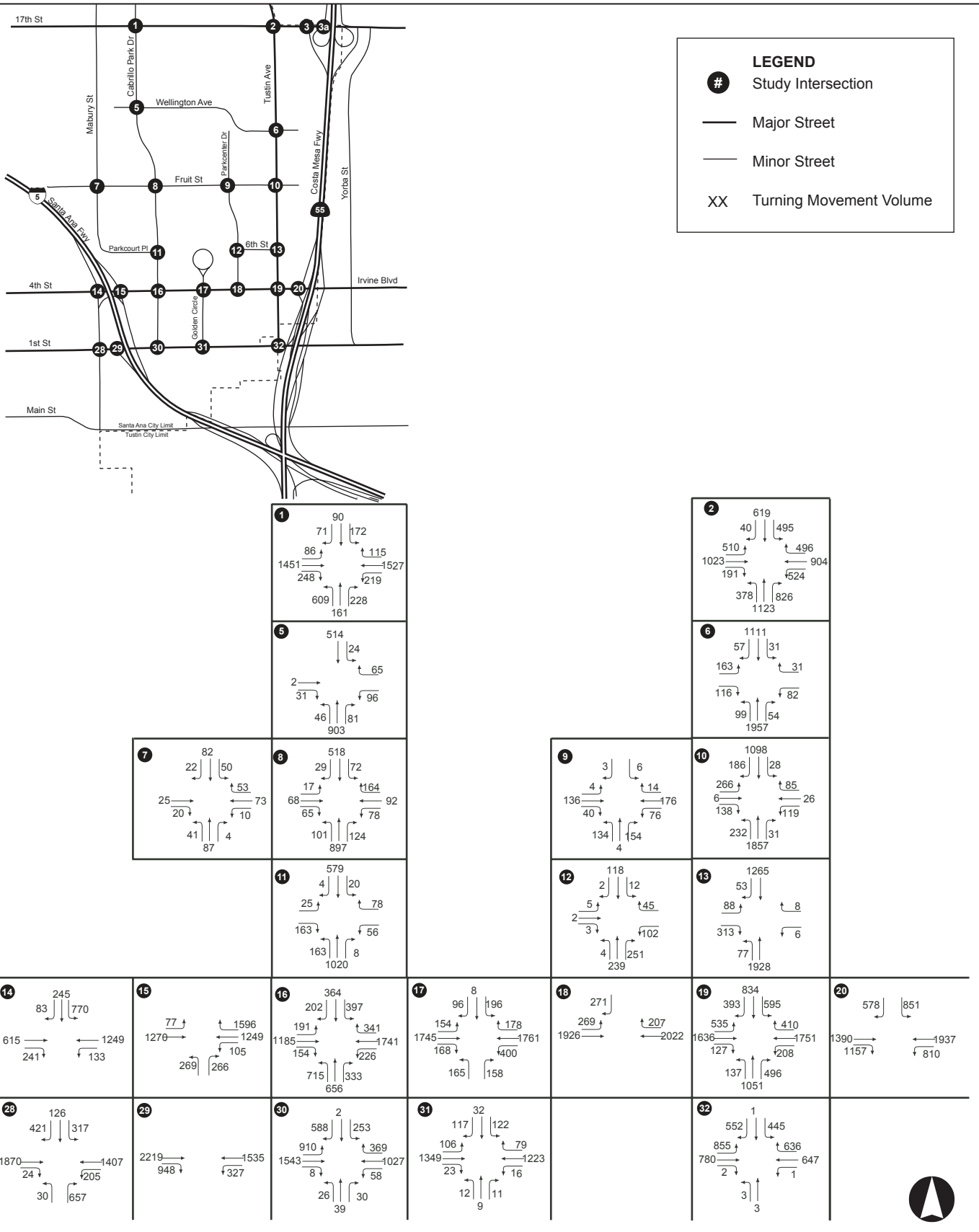

Source: Katz, Okitsu & Associates, 2006.

FIGURE **4.12-17**

Buildout with Project Traffic Volumes, PM Peak Hour (Santa Ana)

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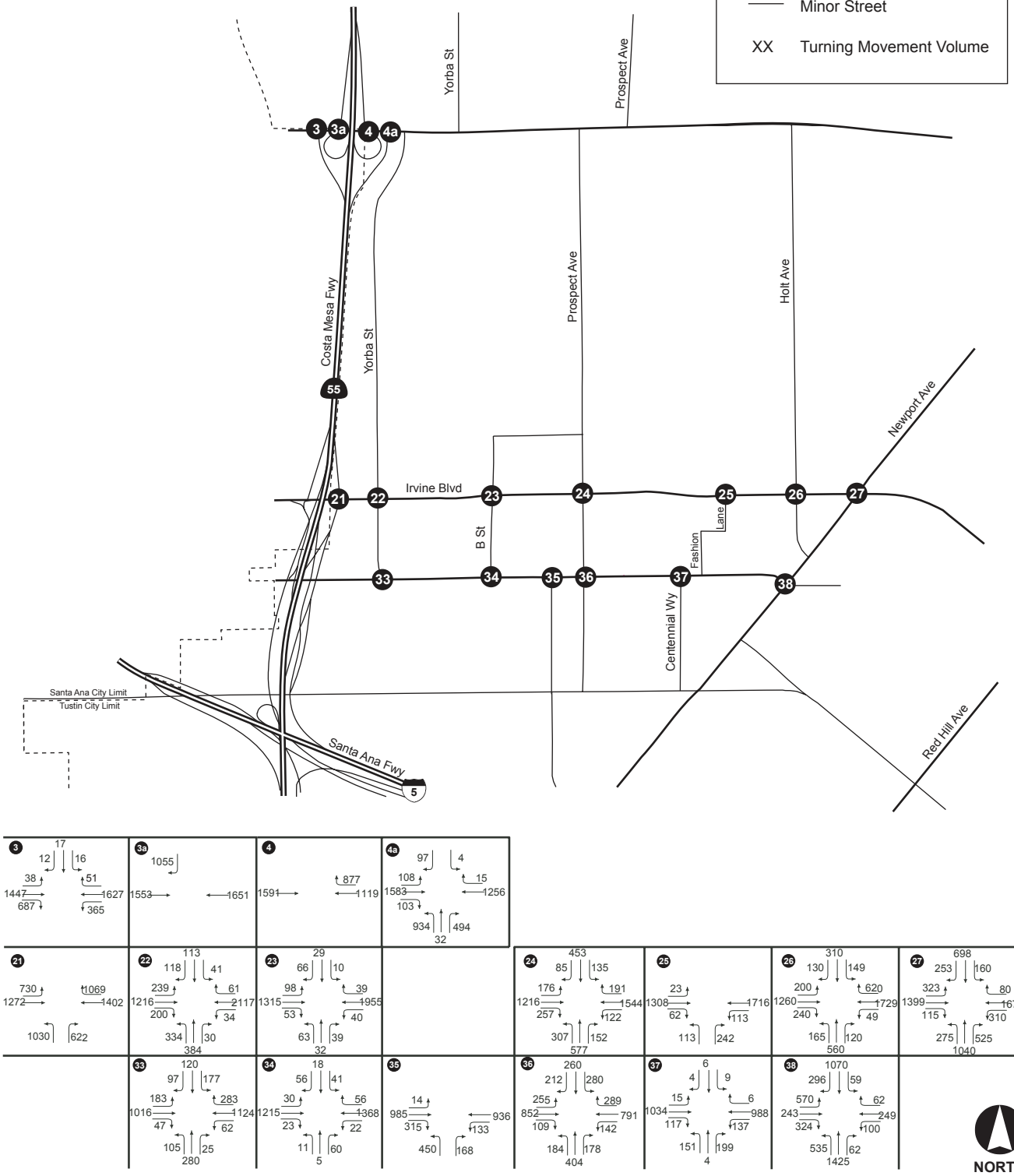

Source: Katz, Okitsu & Associates, 2006.

NORTH
NOT TO SCALE

FIGURE **4.12-18**

Buildout With Project Traffic Volumes, PM Peak Hour (Tustin)

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City of Santa Ana

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Thresholds of Significance

The following thresholds of significance are based on Appendix G of the 2006 CEQA Guidelines. For purposes of this EIR, implementation of the Metro East Overlay Zone may have a significant adverse impact on transportation and traffic if it would result in any of the following:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)
- Exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways
- Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)
- Result in inadequate emergency access
- Result in inadequate parking capacity
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)

Traffic impacts are identified if the proposed project will result in a significant change in traffic conditions on a roadway or at an intersection. A significant impact is normally defined when project related traffic would cause level of service to deteriorate to below the minimum acceptable level by a measurable amount. Impacts may also be significant if the location is already below the minimum acceptable level and project related traffic causes a further decline.

Specifically, for the purposes of this analysis, an impact is deemed significant when the level of service is E or F and the project causes an increase in V/C or delay over the defined threshold. A traffic-related project contribution is considered significant for the City of Santa Ana intersections if the change in ICU is greater than 0.01. An impact is considered significant for the City of Tustin intersections if the project contribution to the change in ICU is greater than 0.03. Additionally, for unsignalized intersections in either City that are at Level of Service E or F, the impact is considered significant if the project contribution to average stop delay at the intersection is greater than one second.

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to transportation and traffic.

Effects Found to Be Less Than Significant

Threshold	Would the proposed project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Impact 4.12-1 **Implementation of the proposed project could result in impacts related to street segment capacity on roadways within and adjacent to the Overlay Zone. This impact would be considered *less than significant*.**

The significance of local street segment impacts related to excess vehicle traffic is usually determined on a case-by-case basis because each street segment has unique characteristics. The City of Santa Ana has established goals for maintaining LOS D or better on local streets. The ability to determine LOS on a local street is very difficult for several reasons. Most importantly, each street is unique in character. Local streets vary considerably in terms of street width, adjacent land uses, density, presence of schools, day care, senior housing, proximity to other major streets and other factors. A level of traffic which may be perceived as too much on one street may be acceptable on another. Furthermore, a lane of traffic, carrying the traditional LOS D volume on an arterial street, would be far too much traffic for most residential streets. The City has established LOS guidelines based on average daily traffic (ADT) along particular street segments depending on the street segment type. The maximum roadway capacities, in ADT, are based on the number of lanes and roadway classification, as shown in Table 4.12-7 (Levels of Service for Arterial Street Segments).

Table 4.12-7 Levels of Service for Arterial Street Segments

Roadway Classification	*Lanes/ Configuration*	*LOS A*	*LOS B*	*LOS C*	*LOS D*	*LOS E*	*LOS F*
Principal Arterial	8 Lanes Divided	45,000	52,500	60,000	67,500	75,000	> 75,000
Major Arterial	6 Lanes Divided	33,900	39,400	45,000	50,600	56,300	> 56,300
Primary Arterial	4 Lanes Divided	22,500	26,300	30,000	33,800	37,500	> 37,500
Secondary Arterial	4 Lanes Undivided	15,000	17,500	20,000	22,500	25,000	> 25,000
Commuter Street	2 Lanes Undivided	7,500	8,800	10,000	11,300	12,500	> 12.500

SOURCE: City of Santa Ana General Plan Circulation Element, 1998.

For the Overlay Zone, the LOS for roadway segments is determined by comparing the ADT traffic volumes for each roadway segment to the appropriate LOS D capacity for that roadway classification. When the ADT volume is within the LOS D volume criteria, the roadway segment is operating at an acceptable LOS. Table 4.12-8 (Level of Service Criteria for Street Segment Analysis) presents the ADT segment analysis for 31 roadway segments in and surrounding the Overlay Zone, both for existing

conditions and assuming full buildout of the Overlay Zone. As shown in the table, one roadway segment (Cabrillo Park Drive between First Street and Fourth Street) is expected to operate at an unacceptable LOS under the proposed project with the expected traffic levels and secondary arterial roadway configuration. However, this roadway is currently constructed with a raised median and can be considered to be four lanes divided, justifying a higher allowable daily capacity of 33,800. As such, implementation of the Overlay Zone would not be anticipated to increase traffic volumes such that street segment volume capacities are exceeded, and impacts would be ***less than significant***.

Table 4.12-8 Level of Service Criteria for Street Segment Analysis

Roadway	*Between*		*Classification*	*Existing ADT Volume*	*Buildout ADT Volume*	*CMP Guideline*	*Buildout Level of Service*
First Street	Elk Lane	I-5	Major Arterial	36,588	47,800	50,600	D
First Street	I-5	Cabrillo Park Drive	Major Arterial	19,904	41,000	50,600	C
First Street	Cabrillo Park Drive	Tustin Avenue	Major Arterial	19,401	29,500	50,600	A
First Street	Tustin Avenue	SR-55	Primary Arterial	16,200	25,000	33,800	C
Fourth Street	Elk Lane	I-5	Primary Arterial	19,984	27,700	33,800	C
Fourth Street	I-5	Cabrillo Park Drive	Major Arterial	29,830	41,000	50,600	C
Fourth Street	Cabrillo Park Drive	Parkcenter Drive	Major Arterial	21,692	45,300	50,600	D
Fourth Street	Parkcenter Drive	Tustin Avenue	Major Arterial	23,171	45,300	50,600	D
Fourth Street	Tustin Avenue	SR-55	Major Arterial	29,890	49,200	50,600	D
Parkcourt	Mabury Street	Cabrillo Park Drive	Commuter Street	2,180	3,500	11,300	A
Sixth Street	Parkcenter Drive	Tustin Avenue	Commuter Street	2,240	5,500	11,300	A
Fruit Street	Cabrillo Park Drive	Tustin Avenue	Commuter Street	3,015	5,600	11,300	A
Wellington Avenue	Cabrillo Park Drive	Tustin Avenue	Commuter Street	2,348	4,400	11,300	A
Seventeenth Street	Grand Avenue	Cabrillo Park Drive	Major Arterial	33,294	39,900	50,600	C
Seventeenth Street	Cabrillo Park Drive	Tustin Avenue	Major Arterial	33,252	35,900	50,600	B
Seventeenth Street	Tustin Avenue	SR-55	Major Arterial	33,970	41,000	50,600	C
Elk Lane	Chestnut Avenue	First Street	Commuter Street	6,610	10,400	11,300	D
Elk Lane	First Street	Fourth Street	Commuter Street	7,620	8,600	11,300	B

Table 4.12-8 Level of Service Criteria for Street Segment Analysis

Roadway	Between		Classification	Existing ADT Volume	Buildout ADT Volume	CMP Guideline	Buildout Level of Service
Mabury Street	Parkcourt	Seventeenth Street	Commuter Street	1,420	2,900	11,300	A
Cabrillo Park Drive	First Street	Fourth Street	Secondary Arterial	11,836	25,500	22,500	F
Cabrillo Park Drive	Fourth Street	Fruit Street	Secondary Arterial	9,130	17,300	22,500	B
Cabrillo Park Drive	Fruit Street	Wellington Avenue	Secondary Arterial	9,671	16,600	22,500	B
Cabrillo Park Drive	Wellington Avenue	Seventeenth Street	Secondary Arterial	10,647	15,400	22,500	B
Golden Circle	First Street	Fourth Street	Commuter Street	4,440	5,900	11,300	A
Golden Circle	Fourth Street	Circle	Commuter Street	2,070	6,300	11,300	A
Parkcenter Drive	Fourth Street	Sixth Street	Commuter Street	3,080	7,600	11,300	A
Parkcenter Drive	Sixth Street	Fruit Street	Commuter Street	2,650	4,200	11,300	A
Tustin Avenue	First Street	Fourth Street	Major Arterial	16,145	26,800	50,600	B
Tustin Avenue	Fourth Street	Fruit Street	Major Arterial	22,859	34,400	50,600	B
Tustin Avenue	Fruit Street	Wellington Avenue	Major Arterial	24,688	34,200	50,600	B
Tustin Avenue	Wellington Avenue	Seventeenth Street	Major Arterial	26,867	35,300	50,600	B

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

Threshold	Would the proposed project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?

Impact 4.12-2 Implementation of the proposed project would not result in a change in air traffic patterns. This impact is considered to be *less than significant*

As discussed in Impact 4.6-5 (Hazards and Hazardous Materials), the proposed project is located approximately 6.5 miles northeast of John Wayne Airport (JWA) and is located outside of the Airport Planning Area for JWA. However, because the proposed project could result in the development of structures that are more than 200 feet above ground level at a project site, filing with the Federal Aviation Administration (FAA) is required. As required by mitigation measure MM-OZ 4.6-4, any future projects within the Overlay Zone that would exceed 200 feet in height (from ground level at the project site) would be required to file a Notice of Proposed Construction or Alteration (FAA Form 7460-1). Therefore, compliance with recommendations or guidelines from the FAA would ensure that future

development would not result in any change to air traffic patterns. This impact would be ***less than significant***.

Threshold	Would the proposed project substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?

Impact 4.12-3 The proposed project would not increase hazards due to a design future or incompatible uses. Impacts would be *less than significant*.

The Overlay Zone will be designed to utilize the existing network of regional and local roadways located within the vicinity of the study area. As shown in Figure 3-4 in the Project Description, three additional street segments may be constructed during implementation of the Overlay Zone in conjunction with reuse of the properties under a private development scenario. Additional proposed changes to road design within the study area as a part of the proposed Overlay Zone could include potential improvement measures, as discussed below in Impact 4.12-7. Most of the identified improvements include the addition of one lane to a road segment, or the addition of a turn lane at an intersection, and would not represent an increase in hazards associated with a design feature. Rather, these recommended improvements are designed to reduce potential hazards due to congestion. As such, this impact would be ***less than significant***.

Threshold	Would the project result in inadequate emergency access?

Impact 4.12-4 The proposed project could result in inadequate emergency access; however, adherence to mitigation measures would ensure impacts remain *less than significant*.

The proposed project would be required to meet all applicable local and State regulatory standards for adequate emergency access. Emergency access within the proposed Overlay Zone Area is covered in-depth within Impact 4.6-8, in Section 4.6 (Hazards and Hazardous Materials) of this EIR. Adherence to applicable local and state regulatory standards and mitigation measures identified within Impact 4.6-8 would ensure this impact remains ***less than significant***.

Threshold	Would the proposed project result in inadequate parking capacity?

Impact 4.12-5 Implementation of the proposed project would not result in inadequate parking capacity. This impact is considered to be *less than significant.*

The proposed Overlay Zone would consist of approximately 5,551 residential units, over 3.4 million sf of office space, and 1.3 million sf of commercial space. The uses in each zone determine the amount of parking required. Parking requirements within the City of Santa Ana are provided in Chapter 41 of the City of Santa Ana Municipal Code. Since the exact uses that would be developed under the Overlay Zone are not known at this time, the precise amount of parking required is not known. Table 4.12-9 below (Estimated Parking Requirements) indicates the assumptions made for the purpose of this EIR to arrive at an estimate of the required parking under Overlay Zone for each of the proposed districts.

Table 4.12-9 Estimated Parking Requirements

*Neighborhood Transitional**	*Village Center**	*Active Urban**	*Office*
Residential: 2.25 parking spaces per unit Non-residential: Per Division 3 of Article 15 of the Municipal Code	Standalone non-residential: Per Division 3 of Article 15 of the Municipal Code Standalone Residential: Per Division 3 of Article 15 of the Municipal Code Mixed-use with <10% of the gross floor area (gfa) devoted to commercial: Minimum of 2.0 spaces per unit, inclusive of guest parking and any non-residential uses. Mixed-use with >10% of the gfa devoted to commercial: No less than 2.25 spaces per unit inclusive of guest parking and any non-residential uses.**		Per Division 3 of Article 15 of the Municipal Code

* In addition to the parking requirements above, new developments in the Overlay Zone shall provide parking such that 1) Guest parking at a rate of 10% of the total required parking spaces shall be set aside and assigned for the exclusive use of guests in any development in the Overlay Zone, and 2) all residential units shall be provided a minimum of one assigned space per unit.

** Any development proposal that devotes 10% or more of the development's gfa to a non-residential use shall be required to provide a parking study to establish an adequate parking requirement for the mixture of uses.

As the City's Municipal Code currently regulates the amount of parking necessary for development within the City, future development within the Overlay Zone would be required to adhere to existing regulations, as well as the guidelines listed above in Table 4.12-9. Any future development projects within the Overlay Zone would be subject to review to ensure compliance with the City's parking requirements of the Overlay Zone and Municipal Code. Thus, future development projects would be required to provide adequate parking, and this impact would be ***less than significant***.

Threshold	Would the proposed project conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks)?

Impact 4.12-6 The proposed project would not conflict with adopted policies, plans, or programs supporting alternative transportation. This impact is considered to be *less than significant*.

The Overlay Zone would not conflict with adopted policies, plans, or programs supporting alternative transportation. The proposed project would comply with City of Santa Ana Municipal Code requirements and would provide bicycle racks, parking spaces for carpool/vanpool vehicles, and display rideshare information. In addition, the proposed project is intended to provide a live-work community that would reduce daily vehicle trips, thereby encouraging alternative transportation via pedestrian and bicycle traffic. After analyzing public transit within two miles of the Overlay Zone, the following facilities and/or programs could be incorporated into the project to help encourage public transit patronage for program-related trips. Note that the implementation responsibility for some of these facilities and programs would fall on agencies other than Santa Ana, the lead agency for this project. Thus, coordination between the City of Santa Ana, local and regional transit providers, and the project developer will be required on several of these items. The following mitigation measure shall be implemented, as required by applicable local, state, or federal laws or regulations, or the Overlay Zone:

MM-OZ 4.12-1 As part of the project, the City of Santa Ana and the project sponsors shall work with the transit providers to implement various transit-related measures to improve and expand bus

system service within the Overlay Zone. These measures may include, but are not limited to, the following:

- *Adding bus stops to the Overlay Zone along existing and proposed roadways*
- *Changing bus service headways to respond to increased demand*
- *Changing bus service destinations to respond to changing demand*
- *Adding local shuttle service for employees and patrons of the Overlay Zone*

The details of bus service improvements shall be determined in coordination with OCTA. The following recommendations would help encourage public transit patronage for project-related trips:

- ***Bus Stop Locations**—Relocation of existing bus stops and the provision of additional bus stops should be considered to accommodate transit users at convenient locations.*
- ***Days of Operation**—The City should work with OCTA to consider changes to route times to serve nighttime and weekend project visitors and employees.*
- ***Headway**—The City should work with OCTA to review route headways to determine if it would be appropriate to reduce them to accommodate transit riders within the Overlay Zone.*

As the proposed Overlay Zone would be consistent with the City's goals and policies pertaining to expanding alternative transportation, and because the proposed project is designed to facilitate alternative transportation, this impact would be ***less than significant***.

Effects Found to Be Significant

Threshold	Would the proposed project cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume to capacity ratio on roads, or congestion at intersections)?

Impact 4.12-7 **Implementation of the proposed project would cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system. Implementation of mitigation measures would reduce this impact; however not to a less-than-significant level. Therefore, this impact would be considered *significant and unavoidable*.**

As identified in the tables above, 29 intersections in the study area would remain at LOS D or better under the "Buildout without Project" conditions, while only 19 of the intersections would operate at LOS D or better under the "Buildout with Project" conditions. Traffic impacts created by the project can be evaluated by comparing these scenarios (with and without project conditions).

Table 4.12-10 (LOS Analysis/Determination of Impacts, Future Conditions—A.M. Peak Hour) provides a comparison of the levels of service and volume/capacity ratios or delay of all study scenarios for the Buildout condition in the AM peak hour.

Table 4.12-10 LOS Analysis/Determination of Impacts Future Conditions—AM Peak Hour

Intersection	Existing	Future w/o Project	Future w/Project	Increase/ Decrease	Significant?
Signalized Intersections (LOS / V/C)					
First Street at Tustin Avenue (Santa Ana)	A/0.351	A/0.493	A/0.584	0.091	No
First Street at Golden Circle Drive (Santa Ana)	A/0.306	A/0.362	A/0.437	0.075	No
First Street at Cabrillo Park Drive (Santa Ana)	A/0.408	A/0.466	B/0.667	0.201	No
First Street at Elk Lane (Santa Ana)	B/0.655	C/0.707	D/0.814	0.107	No
First Street at I-5 Southbound On-Ramp (Santa Ana)	A/0.384	A/0.505	B/0.616	0.111	No
Fourth Street at SR-55 Sorthbound Ramps (Santa Ana)	D/0.897	F/1.367	F/1.550	0.183	Yes
Fourth Street at Tustin Avenue (Santa Ana)	B/0.689	D/0.881	F/1.047	0.169	Yes
Fourth Street at Golden Circle Drive (Santa Ana)	A/0.406	A/0.488	B/0.606	0.118	No
Fourth Street at Cabrillo Park Drive (Santa Ana)	A/0.522	C/0.726	E/0.912	0.186	Yes
Fourth Street at I-5 Northbound Ramps (Santa Ana)	A/0.500	A/0.544	B/0.688	0.144	No
Fourth Street at I-5 Southbound Off-Ramp (Santa Ana)	A/0.358	A/0.504	A/0.571	0.067	No
Tustin Avenue at Fruit Street (Santa Ana)	A/0.558	C/0.719	C/0.774	0.055	No
Tustin Avenue at Wellington Avenue (Santa Ana)	A/0.591	D/0.832	D/0.865	0.033	No
Seventeenth Street at Tustin Avenue (Santa Ana)	B/0.676	D/0.844	E/0.902	0.058	Yes
Seventeenth Street at Cabrillo Park Drive (Santa Ana)	A/0.539	C/0.724	D/0.807	0.083	No
Seventeenth Street at SR-55 Northbound Ramps (Santa Ana)	A/0.447	F/1.211	F/1.217	0.006	No
Seventeenth Street at SR-55 Southbound Ramps (Santa Ana)	A/0.419	B/0.619	B/0.642	0.023	No
First Street at Yorba Street (Tustin)	A/0.418	B/0.607	B/0.641	0.034	No
First Street at El Camino Real (Tustin)	A/0.343	B/0.616	B/0.654	0.038	No
First Street at Prospect Avenue (Tustin)	A/0.415	C/0.773	D/0.804	0.031	No
First Street at Centennial Way (Tustin)	A/0.361	A/0.435	A/0.465	0.03	No
First Street at Newport Avenue (Tustin)	C/0.708	E/0.967	E/0.990	0.023	No
Irvine Boulevard at SR-55 Northbound Ramps (Tustin)	C/0.716	F/1.089	F/1.196	0.107	Yes
Irvine Boulevard at Yorba Street (Tustin)	C/0.701	D/0.818	D/0.843	0.025	No
Irvine Boulevard at B Street (Tustin)	A/0.548	B/0.670	B/0.686	0.016	No
Irvine Boulevard at Prospect Avenue (Tustin)	A/0.579	C/0.771	C/0.790	0.019	No
Irvine Boulevard at Fashion Lane (Tustin)	B/0.606	B/0.677	B/0.694	0.017	No
Irvine Boulevard at Holt Avenue (Tustin)	A/0.556	D/0.853	D/0.870	0.017	No
Irvine Boulevard at Newport Avenue (Tustin)	B/0.686	E/0.901	E/0.913	0.012	No
Unsignalized Intersections (LOS / Delay)					
Sixth Street at Parkcenter Drive (Santa Ana)	B/10.7	B/11.4	B/12.7	1.3	No
Parkcourt Place at Cabrillo Park Drive (Santa Ana)	B/13.6	C/18.4	D/27.1	8.7	No
Fruit Street at Mabury Street (Santa Ana)	A/7.5	A/8.0	A/8.3	0.3	No
Fruit Street at Cabrillo Park Drive (Santa Ana)	B/10.7	B/14.7	C/20.7	6.0	No
Fruit Street at Parkcenter Drive (Santa Ana)	B/10.9	B/11.9	B/13.7	1.8	No
Wellington Avenue at Cabrillo Park Drive (Santa Ana)	C/16.2	E/45.5	F/132.1	86.6	Yes
Tustin Avenue at Sixth Street (Santa Ana)	D/33.1	F/101.4	F/>>120	>>120	Yes
Fourth Street at Parkcenter Drive (Santa Ana)	B/12.3	C/16.0	D/26.0	10.0	No

Table 4.12-10 LOS Analysis/Determination of Impacts Future Conditions—AM Peak Hour

Intersection	Existing	Future w/o Project	Future w/Project	Increase/ Decrease	Significant?
First Street at B Street (Tustin)	D/31.4	F/274.8	F/>>120	>>120	Yes

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

As shown in Table 4.12-10, the project will contribute to unacceptable levels of service at eight of the intersections evaluated in the AM peak hour. The project impact at these eight intersections is considered significant based on the identified criteria. It is also important to note that two additional intersections (First Street at Newport Avenue and Irvine Boulevard at Newport Avenue) would also operate at unacceptable levels (LOS E). However, based on the City of Tustin's threshold criteria, these intersections would not be considered significant due to the proposed project because the project's contribution is less than 0.03.

Table 4.12-11 (LOS Analysis/Determination of Impacts Future Conditions—P.M. Peak Hour) provides a comparison of the levels of service and volume/capacity ratios or delay of all study scenarios in the PM peak hour.

Table 4.12-11 LOS Analysis/Determination of Impacts Future Conditions—P.M. Peak Hour

Intersection	Existing	Future w/o Project	Future w/Project	Increase/ Decrease	Significant ?
Signalized Intersections (LOS / V/C)					
First Street at Tustin Avenue (Santa Ana)	A/0.474	B/0.603	B/0.679	0.076	No
First Street at Golden Circle Drive (Santa Ana)	A/0.326	A/0.364	A/0.467	0.103	No
First Street at Cabrillo Park Drive (Santa Ana)	B/0.636	C/0.759	F/1.065	0.306	Yes
First Street at Elk Lane (Santa Ana)	D/0.805	D/0.883	F/1.098	0.215	Yes
First Street at I-5 Southbound On-Ramp (Santa Ana)	A/0.559	B/0.674	C/0.900	0.226	No
Fourth Street at SR-55 Sorthbound Ramps (Santa Ana)	C/0.796	F/1.144	F/1.487	0.343	Yes
Fourth Street at Tustin Avenue (Santa Ana)	C/0.743	D/0.888	F/1.267	0.379	Yes
Fourth Street at Golden Circle Drive (Santa Ana)	A/0.486	B/0.633	E/0.934	0.301	Yes
Fourth Street at Cabrillo Park Drive (Santa Ana)	C/0.714	D/0.832	F/1.139	0.307	Yes
Fourth Street at I-5 Northbound Ramps (Santa Ana)	D/0.836	E/0.939	F/1.170	0.231	Yes
Fourth Street at I-5 Southbound Off-Ramp (Santa Ana)	A/0.443	A/0.492	B/0.644	0.152	No
Tustin Avenue at Fruit Street (Santa Ana)	A/0.435	A/0.541	B/0.645	0.104	No
Tustin Avenue at Wellington Avenue (Santa Ana)	A/0.395	A/0.502	A/0.577	0.075	No
Seventeenth Street at Tustin Avenue (Santa Ana)	C/0.718	D/0.821	D/0.881	0.06	No
Seventeenth Street at Cabrillo Park Drive (Santa Ana)	B/0.662	D/0.826	E/0.965	0.139	Yes
Seventeenth Street at SR-55 Northbound Ramps (Santa Ana)	A/0.542	B/0.688	C/0.706	0.018	No
Seventeenth Street at SR-55 Southbound Ramps (Santa Ana)	A/0.465	A/0.526	A/0.565	0.039	No
First Street at Yorba Street (Tustin)	A/0.579	C/0.702	C/0.757	0.055	No
First Street at El Camino Real (Tustin)	A/0.434	B/0.606	B/0.683	0.077	No

Table 4.12-11 LOS Analysis/Determination of Impacts Future Conditions—P.M. Peak Hour

Intersection	Existing	Future w/o Project	Future w/Project	Increase/ Decrease	Significant ?
First Street at Prospect Avenue (Tustin)	A/0.576	D/0.877	E/0.934	0.057	Yes
First Street at Centennial Way (Tustin)	A/0.516	B/0.641	B/0.683	0.042	No
First Street at Newport Avenue (Tustin)	B/0.612	C/0.768	D/0.804	0.036	No
Irvine Boulevard at SR-55 Northbound Ramps (Tustin)	D/0.822	F/1.223	F/1.432	0.209	Yes
Irvine Boulevard at Yorba Street (Tustin)	B/0.614	C/0.763	D/0.834	0.071	No
Irvine Boulevard at B Street (Tustin)	A/0.491	A/0.537	A/0.592	0.055	No
Irvine Boulevard at Prospect Avenue (Tustin)	B/0.607	C/0.772	D/0.833	0.061	No
Irvine Boulevard at Fashion Lane (Tustin)	A/0.546	B/0.661	C/0.711	0.05	No
Irvine Boulevard at Holt Avenue (Tustin)	A/0.522	C/0.794	D/0.812	0.018	No
Irvine Boulevard at Newport Avenue (Tustin)	A/0.560	C/0.741	C/0.784	0.043	No
Unsignalized Intersections (LOS /Delay)					
Sixth Street at Parkcenter Drive (Santa Ana)	B/10.2	B/10.8	B/14.7	3.9	No
Parkcourt Place at Cabrillo Park Drive (Santa Ana)	C/21.3	E/49.9	F/356.5	306.6	Yes
Fruit Street at Mabury Street (Santa Ana)	A/7.6	A/8.1	A/8.7	0.6	No
Fruit Street at Cabrillo Park Drive (Santa Ana)	B/12.1	C/18.1	E/44.8	26.7	Yes
Fruit Street at Parkcenter Drive (Santa Ana)	B/11.1	B/12.2	C/15.9	3.7	No
Wellington Avenue at Cabrillo Park Drive (Santa Ana)	C/17.6	E/39.6	F/158.1	118.5	Yes
Tustin Avenue at Sixth Street (Santa Ana)	D/32.5	F/85.0	F/>>120	>>120	Yes
Fourth Street at Parkcenter Drive (Santa Ana)	B/11.8	B/12.8	F/144.4	131.6	Yes
First Street at B Street (Tustin)	E/36.0	F169.5	F/>>120	>>120	Yes

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

As shown above in Table 4.12-11, the proposed project would contribute to unacceptable levels of service at 16 of the intersections evaluated in the PM peak hour, which include a majority of the signalized intersections along Fourth Street between the I-5 Freeway and the SR-55 Freeway. The project impact at these intersections is considered significant based on City criteria.

Thus, as shown above in Tables 4.12-10 and 4.12-11, a total of seventeen different intersections would be impacted by buildout of the proposed project during either the AM or PM peak hour, or both, which is considered potentially significant. full buildout of the proposed Overlay Zone is dependant on future individual development projects, of which the exact type and location is presently unknown. As such, this Program EIR has identified potential improvement measures below that would serve to reduce the impacts at the seventeen affected intersections. As development occurs within the Overlay Zone, the following improvement measures may be implemented as part of future development projects, as required. In addition, an improvement measure is also identified for the First Street at Newport Avenue, which is not a project impact, but which does operate at an unacceptable level of service due to background traffic growth.

However, some of the intersections that would operate at unacceptable levels of service are outside of the jurisdiction of the City of Santa Ana. As such, the City cannot ensure implementation of these improvements. If these improvements were not implemented, levels of service would remain below acceptable levels as a result of implementation of the proposed Overlay Zone.

Potential Improvement Measures

- **First Street at Cabrillo Park Drive**—The intersection of First Street at Cabrillo Park Drive currently experiences an acceptable level of service in the AM and PM peak hours. With the addition of background traffic growth and traffic from the proposed project the level of service is expected to decline to LOS F in the PM peak hour. The recommended mitigation for this intersection is restriping for a second eastbound left turn lane, by reducing the eastbound through approach to two lanes. This improvement will fully mitigate project traffic impacts to LOS C.
- **First Street at Elk Lane**—The intersection of First Street at Elk Lane is currently operating at LOS D in the PM peak hour. The addition of background traffic growth and traffic from the proposed project is expected to result in a decline in level of service to LOS F in the PM peak hour. The recommended mitigation for this intersection is the construction of a second northbound right turn lane and northbound right turn overlap signal phasing. These improvements will fully mitigate project traffic impacts to LOS C.
- **Fourth Street at SR-55 Southbound Ramps**—The intersection of Fourth Street at SR-55 Southbound Ramps currently operates at LOS D or better in the AM and PM peak hours. Background traffic growth and traffic from the proposed project is expected to result in a decline in level of service to LOS F in the AM and PM peak hours. The recommended mitigation for this intersection is the construction of an eastbound free-right turn lane, and changing the southbound ramp configuration to two left and two right turn lanes. These improvements fully mitigate project impacts to LOS D.
- **Fourth Street at Tustin Avenue**—The intersection of Fourth Street at Tustin Avenue currently experiences an acceptable level of service (LOS C or better) in the AM and PM peak hours. The addition of background traffic growth and traffic from the proposed project is expected to reduce level of service to LOS F in both the AM and PM peak hours. The recommended mitigation for this intersection is the construction of a westbound right-turn lane, a second eastbound left-turn lane, and a northbound right-turn lane (to allow conversion of the northbound shared thru-right lane to a through lane). Also, northbound right-turn overlap signal phasing should be installed. These improvements will partially mitigate project impacts to LOS E. As such, if the improvement measures were implemented, this intersection would not be mitigated to a level of less than significant.
- **Fourth Street at Golden Circle**—The intersection of Fourth Street at Golden Circle currently operates at Level of Service A in both the AM and PM peak hours. Background traffic growth and traffic from the proposed project is expected to result in a decline in level of service to LOS E in the PM peak hour. The recommended mitigation for this intersection is the construction of an eastbound right turn lane, and a change in the southbound lane configuration to provide one left turn lane and one shared through-right turn lane. These improvements will fully mitigate project traffic impacts to LOS D.
- **Fourth Street at Cabrillo Park Drive**—The intersection of Fourth Street at Cabrillo Park Drive currently experiences an acceptable level of service (LOS C or better) in both the AM and PM

peak hours. The addition of background traffic growth and traffic from the proposed project is expected to reduce level of service to LOS F in the PM peak hour. The recommended mitigation for this intersection is the construction of a westbound right turn lane, a northbound right turn lane, and a southbound right turn lane, and restriping to change the lane configuration of the north/south approaches. The northbound and southbound approaches should be controlled by a split phase intersection control and restriped to provide one left, one shared through-left, one through, and one right turn lane. These improvements are expected to fully mitigate project impacts to LOS D.

- **I-5 Northbound Ramps and Fourth Street**—The intersection of the I-5 northbound ramps and Fourth Street is expected to operate at a poor level of service (LOS F) in the PM peak hour with the addition of background traffic growth and traffic from the proposed project. The recommended mitigation for this intersection is the construction of a second westbound right turn lane. This improvement will fully mitigate project traffic impacts to LOS C; however, as this intersection is outside the jurisdiction of the City of Santa Ana, the City cannot ensure implementation of this improvement.
- **Seventeenth Street at Cabrillo Park Drive**—The intersection of Seventeenth Street at Cabrillo Park Drive currently has a good level of service in both the AM and PM peak hours (LOS B or better). With the addition of background traffic growth and traffic from the proposed project level of service is expected to decline to LOS E in the PM peak hour. The recommended mitigation to address project impacts at this intersection is the restriping of the northbound lane configuration to one left, one shared left-through, and one right turn lane, with split signal phasing. These improvements are expected to fully mitigate project traffic impacts at this intersection to LOS D.
- **Seventeenth Street at Tustin Avenue**—The intersection of 17th Street and Tustin Avenue currently operates at Level of Service C or better in the AM and PM peak hours. Level of service is expected to decline to Level of Service E in the AM peak hour due to growth in background traffic and traffic from the proposed project. The recommended mitigation for this intersection is the construction of a third northbound through/right turn lane and designating the lanes to allow vehicles to turn right from the right turn lane and from the adjacent (new) through lane.These improvements would fully mitigate project traffic impacts at this intersection to LOS D.
- **First Street at Prospect Avenue**—The intersection of First Street at Prospect Avenue is currently operating at LOS A in the AM and PM peak hours. Background traffic growth and traffic from the proposed project is expected to cause a decline in level of service to LOS E in the PM peak hour. The increase in V/C at this intersection is above the impact threshold of 0.03 for the City of Tustin. The recommended mitigation for this intersection is the construction of a northbound right turn lane and northbound right turn overlap signal phasing. These improvements will fully mitigate project traffic impacts to LOS D; however, as this intersection is outside the jurisdiction of the City of Santa Ana, the City cannot ensure implementation of this improvement.
- **First Street at Newport Avenue**—The intersection of First Street at Newport Avenue currently experiences LOS C or better in the AM and PM peak hours. As discussed above, the addition of background traffic growth is expected to result in a decline in level of service at this intersection to LOS E in the AM peak hour. Although the proposed project would not result in a significant impact at this intersection because the project contribution is less than the identified threshold of 0.03, improvements to this intersection are feasible, but not required. The improvements at this intersection include eastbound right turn overlap signal phasing and provision of a third southbound through lane, by constructing a southbound right-turn lane. These improvements will

improve intersection performance to LOS C; however, as this intersection is outside the jurisdiction of the City of Santa Ana, the City cannot ensure implementation of this improvement.

- **Irvine Boulevard at SR-55 Northbound Ramps**—The intersection of Irvine Boulevard at SR-55 Northbound Ramps is currently operating at LOS D or better in the AM and PM peak hours. The addition of background traffic growth and traffic from the proposed project is expected to result in a decline in level of service to LOS F in the AM and PM peak hours. The recommended mitigation for this intersection is the construction of a westbound free-right turn lane and the conversion of the third eastbound through lane to a second eastbound left turn lane. These improvements fully mitigate project traffic impacts at this intersection to LOS D.
- **Parkcourt at Cabrillo Park Drive**—The intersection of Cabrillo Park Drive and Parkcourt currently operates at LOS C or better in the AM and PM peak hours. Level of service is expected to decline to LOS F in the PM peak hour with the addition of background traffic growth and traffic from the proposed project. The recommended mitigation for this intersection is the prohibition of cross-traffic through the use of median islands, diverters, or other means. This improvement will fully mitigate the traffic impacts of the project at this intersection.
- **Fruit Street at Cabrillo Park Drive**—The intersection of Cabrillo Park Drive and Fruit Street currently operates at LOS B in both the AM and PM peak hours. Future background traffic growth and traffic from the proposed project is expected to result in a decline in level of service to LOS E in the PM peak hour. The recommended mitigation for this intersection is the installation of a traffic signal or a roundabout. Either improvement is expected to result in an improvement to LOS C or better, fully mitigating project impacts.
- **Wellington Avenue at Cabrillo Park Drive**—The intersection of Cabrillo Park Drive and Wellington Avenue currently operates at LOS C in both the AM and PM peak hours. Level of service is expected to decline to LOS F in both the AM and PM peak hours due to growth in background traffic and traffic from the proposed project. The recommended mitigation for this intersection is the installation of a traffic signal or a roundabout. Either improvement is expected to result in an improvement to LOS B or better, fully mitigating project impacts.
- **Tustin Avenue and Sixth Street**—The intersection of Tustin Avenue and Sixth Street currently operates at LOS D in both the AM and PM peak hours. Level of service is expected to decline to LOS F in the AM and PM peak hours with the addition of background traffic growth and traffic from the proposed project. The recommended mitigation for this intersection is the prohibition of eastbound-westbound cross-traffic through the construction of median islands or diverters. This improvement will fully mitigate the traffic impacts of the project at this intersection. Intersection performance will improve to LOS D.
- **Fourth Street and Parkcenter**—The intersection of Fourth Street and Parkcenter currently operates at LOS B in both the AM and PM peak hours. Growth in background traffic and traffic from the proposed project is expected to result in a decline to LOS F in the PM peak hour. The recommended mitigation for this intersection is the installation of a traffic signal. Project impacts will be fully mitigated to LOS B.
- **First Street and B Street**—The intersection of First Street and B Street currently operates at LOS E in the PM peak hour. Growth in background traffic and traffic from the proposed project is expected to result in a decline in level of service to LOS F in both the AM and PM peak hours. The recommended mitigation for this intersection is the installation of a traffic signal. Project impacts will be fully mitigated to LOS B at this intersection; however, as this intersection is outside

the jurisdiction of the City of Santa Ana, the City cannot ensure implementation of this improvement.

Summary

The potential intersection improvements described above are expected to fully mitigate all project traffic impacts to an acceptable level of service (LOS D or better), except at one intersection (Fourth Street at Tustin Avenue), as noted above as shown below in Table 4.12-12 (Level of Service Analysis of Improvement Measures for Buildout Conditions [2030]).

The following mitigation measures shall be implemented to reduce the potential impacts that would occur with implementation and full buildout of the proposed Overlay Zone.

MM-OZ 4.12-2 *Future development within the proposed Overlay Zone shall prepare separate traffic studies, specific to the individual projects that are proposed. The traffic studies for future projects shall be prepared by a qualified traffic engineer of the City's choosing. Further, and as determined by the traffic studies, the above identified improvement measures shall be implemented as a condition of the proposed development, either through the direct construction of improvements by the project applicant or through payment of a fee, as required by the program detailed in MM-OZ 4.12-4.*

MM-OZ 4.12-3 *The City of Santa Ana Planning Department, in cooperation with the Department of Public Works, shall monitor the traffic signals within the Overlay Zone Study Area once every five years to ensure that traffic signal timing is optimized.*

MM-OZ 4.12-4 *The City of Santa Ana shall institute a program for systematic mitigation of impacts as development proceeds within the Overlay Zone to ensure mitigation of the individual improvements. The program shall prescribe the method of participation in the mitigation program by individual projects and guide the timely implementation of the mitigation measures. The program should include the following elements:*

- *A funding and improvement program should be established to identify financial resources adequate to construct all identified mitigation measures in a timely basis.*
- *The program should allow for acquisition of entire properties including business relocation where necessary to construct mitigation measures. Funds derived from sale of surplus acquired properties should be returned to the program.*
- *All properties that redevelop within the Overlay Zone should participate in the program on a fair share per new development trip basis. The fair share should be based upon the total cost of all identified mitigation measures, divided by the peak hour trip generation increase forecast. This rate per peak hour trip should be imposed upon the incremental traffic growth for any new development within the Overlay Zone.*
- *The program shall include resources to conduct preliminary engineering studies to complete alignment studies and project specific environmental clearances for Tustin Avenue at Seventeenth Street and at Fourth Street.*
- *The program should raise funds from full development of the Overlay Zone to fund all identified mitigation measures.*

- *The program should monitor phasing development of the Overlay Zone and defer or eliminate improvements if the densities permitted in the Overlay Zone are not occurring.*
- *Program phasing should be monitored through preparation of specific project traffic impact studies for any project that is expected to include more than 100 dwelling units or 100,000 square feet of non-residential development. Traffic impact studies should use traffic generation rates that are deemed to be most appropriate for the actual development proposed.*
- *The program should initiate project development to assure timely completion of the improvements identified to be needed for the First and Cabrillo Towers project by 2010 or as soon after as practically feasible.*
- *Properties within Santa Ana and within one-half mile of the Overlay Zone that redevelop to result in higher traffic generation should also participate in the program to insure equity.*
- *The program should provide for full construction of projects outside of Santa Ana, if the Overlay Zone will create a traffic impact based upon the CMP.*
- *The program should provide fair share contribution to construction costs of other improvements outside of the Overlay Zone if they are identified in this traffic study but they are not impacted as defined by the CMP.*
- *The fair share contribution would presume participation by other developments outside of the City of Santa Ana (generally within the City of Tustin) in proportion to traffic growth at the affected sites.*
- *Traffic impact studies for future projects shall be prepared by a qualified traffic engineer approved or retained by the City.*
- *The City may elect to implement appropriate mitigation measures as a condition of approval of the proposed developments, where appropriate. All or part of the costs of these improvements may be considered to be a negotiated credit toward the program, however the program must be administered in a manner that assures that it can fund necessary improvements to maintain adequate level of service at all intersections within this study. If funding of priority improvements cannot be assured, credit for construction of lower priority improvements may not be assured or may be postponed until more program funds are available.*
- *Traffic studies for future developments within the Overlay Zone must also use trip generation rates which are specific for these projects and are approved by the City. The traffic consultant preparing traffic studies for specific projects in the Overlay Zone must use City-approved trip generation rates specific to these projects. These studies are subject to City review.*

Table 4.12-12 Level of Service Analysis of Improvement Measures for Buildout Conditions (2030)

Intersection	Existing	Buildout without Project	Buildout with Project	Mitigation with Project	Increase/ Decrease	Significant Impact?
Weekday Peak Hour[a] (LOS[b]/ v/c or delay[c])						
First Street/Cabrillo Park Drive	B/0.636	C/0.759	F/1.065	C/0.797	0.038	No
First Street/Elk Lane	D/0.805	D/0.883	F/1.098	C/0.784	-0.099	No
Fourth Street/SR-55 Southbound Ramps	C/0.796	F/1.144	F/1.487	D/0.894	-0.250	No
Fourth Street/Tustin Avenue	C/0.743	D/0.888	F/1.267	E/0.932	0.044	Yes
Fourth Street/Golden Circle	A/0.486	B/0.633	E/0.934	D/0.836	0.203	No
Fourth Street/Cabrillo Park Drive	C/0.714	D/0.832	F/1.139	D/0.863	0.031	No
Fourth Street/I-5 Northbound Ramps	D/0.836	E/0.939	F/1.170	C/0.700	-0.239	No
Seventeenth Street/Cabrillo Park Drive	B/0.662	D/0.826	E/0.965	D/0.840	0.014	No
Seventeenth Street/Tustin Avenue	B/0.676	D/0.844	E/0.902	D/0.856	0.012	No
First Street/Prospect Avenue	A/0.576	D/0.877	E/0.934	D/0.829	-0.048	No
First Street/Newport Avenue (Not a project impact)	C/0.708	E/0.967	E/0.990	C/0.712	-0.255	No
Irvine Boulevard/SR-55 Northbound Ramps	D/0.822	F/1.223	F/1.432	D/0.864	-0.359	No
Parkcourt/Cabrillo Park Drive	C/21.3 sec.	E/49.9 sec.	F/356.5 sec.	B/14.5 sec.	-35.4 sec.	No
Fruit Street/Cabrillo Park Drive	B/12.1 sec.	C/18.1 sec.	E/44.8 sec.	C/25.5 sec.	7.4 sec.	No
Wellington Avenue/Cabrillo Park Drive	C/16.2 sec.	E/39.6 sec.	F/158.1 sec.	B/12.0 sec.	-27.6 sec.	No
Tustin Avenue/Sixth Street	D/33.1 sec.	F/101.4	F/>>120	D/28.7 sec.	-72.7 sec.	No
Fourth Street/Parkcenter Drive	B/11.8 sec.	B/12.8 sec.	F/144.4 sec.	B/14.8 sec.	2.0 sec.	No
First Street/B Street	D/31.4 sec.	F/274.8 sec.	F/>>120	B/.514	-274.3	No

SOURCE: Mixed-Use Overlay Zone Traffic Impact Study, December 2006.

[a] LOS, V/C, Delay shown for worst case peak hour

[b] Note 2: LOS: Level of Service

[c] Delay shown in seconds for unsignalized intersections

As discussed above, some of the significantly impacted intersections would be located outside of the City's jurisdiction; thus, the City of Santa Ana cannot ensure implementation of the suggested improvements. In addition, at least one of the identified intersections would not be mitigated to a less-than-significant level even with mitigation. Therefore, although it is assumed that a majority of the identified improvement measures could be implemented to mitigate impacts, due to a variety of constraints, at least one (if not more) of the intersections would not be improved to an acceptable level of service. Consequently, full buildout of the Overlay Zone would result in an increase in traffic that is substantial in relation to the existing traffic load and capacity of the street system, and this impact would be considered ***significant and unavoidable***.

Threshold	Would the proposed project exceed, either individually or cumulatively, a level of service standard established by the county congestion management agency for designated roads or highways?

Impact 4.12-8 **Implementation of the proposed project would exceed standards established by the Orange County Transportation Authority within the study area. This impact is considered to be *significant and unavoidable*.**

The Orange County Transportation Authority is designated as the Congestion Management Agency (CMA) to oversee the Orange County CMP. The following three intersections are the only CMP intersections within the study area:

- First Street at I-5 South Bound On Ramp (Santa Ana)
- Fourth Street at SR-55 Southbound Ramps (Santa Ana)
- Irvine Boulevard at SR-55 Northbound Ramps (Tustin)

All three CMP intersections are signalized. As discussed above in the Thresholds of Significance, a traffic-related project contribution is considered significant for the City of Santa Ana intersections if the change in ICU is greater than 0.01, which is more stringent than the CMP criteria. In addition, a traffic-related project contribution is considered significant for the City of Tustin intersection if the change in ICU is greater than 0.03, as identified by the CMP.

As discussed above in Impact 4.12-7, two of the CMP intersections, Fourth Street/SR-55 Southbound ramps and Irvine Boulevard/SR-55 Northbound ramps, would experience poor levels of service due to the proposed project. Implementation of the above identified improvement measures for these two intersections would improve the level of service to acceptable operating conditions (LOS D). Therefore, if the improvement measures are implemented in the future under specific development projects, impacts to these intersections would be less than significant. However, implementation of the improvement measures for these intersections cannot be ensured by the City, particularly because one of the intersections (Irvine Boulevard at SR-55 Northbound Ramps) is located outside of the City's jurisdiction. Therefore, this impact would be considered ***significant and unavoidable***.

4.12.4 Cumulative Impacts

The traffic analysis provided in this section considers trips generated by cumulative projects in its development of future baseline conditions. Therefore, the cumulative impact analysis is incorporated into the Year 2030 analyses presented in Section 4.12.3. As identified in Impact 4.12-7, because implementation of the proposed project would contribute to significant impacts at the study area intersections, and because implementation of the potential improvement measures cannot be guaranteed, the proposed project would have a considerable contribution to cumulative impacts. Cumulative traffic impacts would be significant and unavoidable.

4.12.5 References

City of Santa Ana General Plan, *Circulation Element*, Adopted February 2, 1998.

—— Municipal Code, Chapter 36 Traffic, Article XIII Transportation and Management, Section 36-603, (Ord. No. NS-2124, § 1, 4-15-91; Ord. No. NS-2505, § 3, 8-5-02), http://www.municode.com/Resources/gateway.asp?pid=11492&sid=5.

City of Tustin Municipal Code (Codified through Ord. No. 1313, adopted July 3, 2006), Chapter 9 Transportation Demand Managements Requirements, http://www.municode.com/resources/gateway.asp?pid=11307&sid=5.

Katz, Okitsu & Associates. 2006. *Traffic Impact Study/Existing Conditions Report for the Mixed Use Overlay Zone in the City of Santa Ana.* 10 May.

Katz, Okitsu & Associates. 2006. *Traffic Impact Study for the Mixed Use Overlay Zone in the City of Santa Ana.* December.

4.13 UTILITIES AND SERVICE SYSTEMS

This section evaluates the effects on utilities and service systems related to implementation of the Overlay Zone by identifying existing and planned utility availability and the anticipated demand. For purposes of this EIR, utilities include domestic water supply, solid waste collection and disposal, wastewater conveyance and treatment, and energy (electricity and natural gas). Storm water drainage facilities are discussed in Section 4.7 (Hydrology and Water Quality) of this document.

Data used to prepare this section was taken from various sources, including previous environmental documentation prepared for the General Plan Elements, Urban Water Management Plan, other City data sources, and contacts with utility providers. No comment letters were received regarding Utilities and Service Systems in the comment period after the filing of the Notice of Preparation. Full bibliographic entries for all reference materials are provided in Section 4.13.16 (References) of this section.

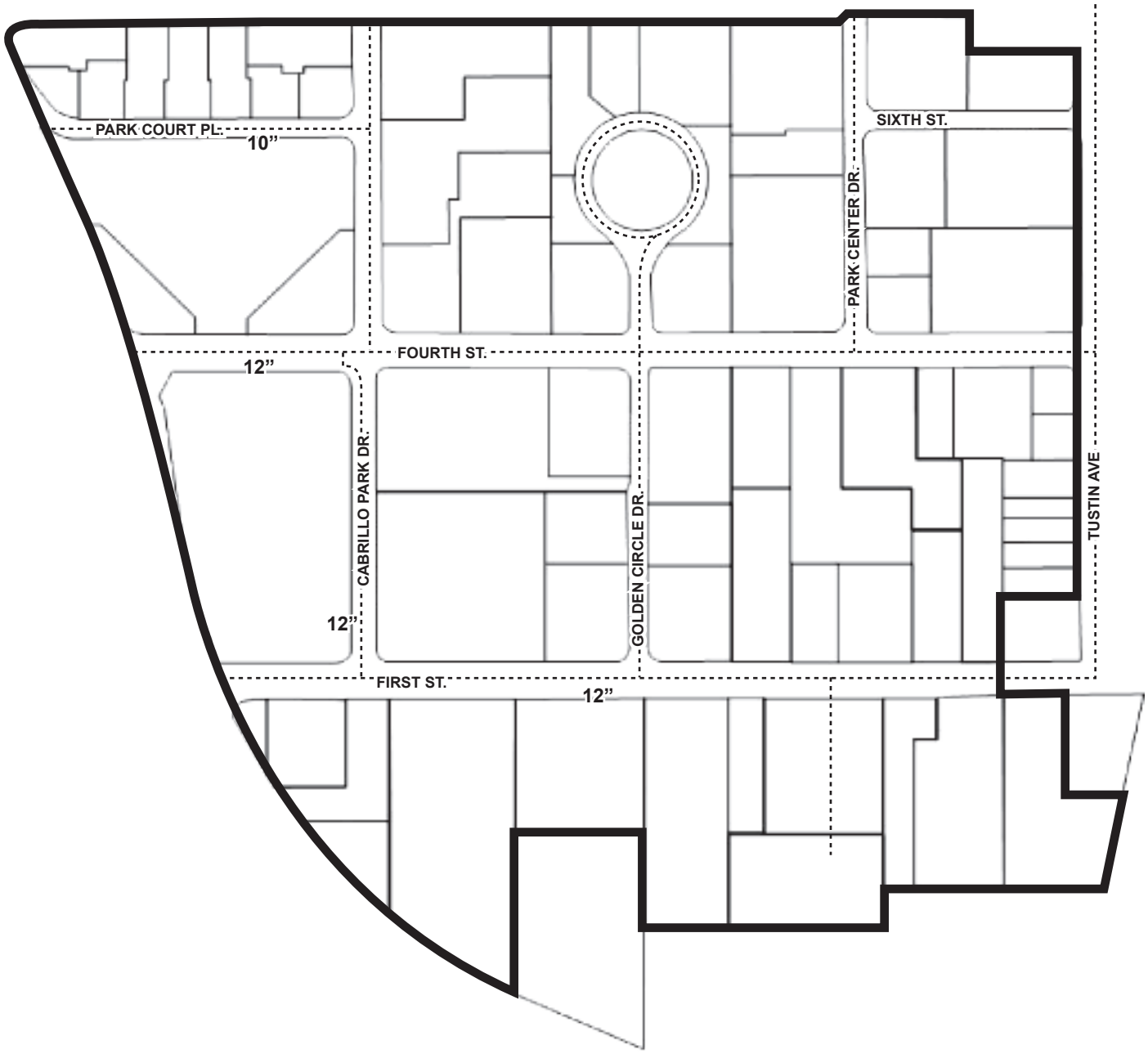
WATER SUPPLY

4.13.1 Environmental Setting

The domestic water services in the project area are provided by the Santa Ana Water Department. The City derives water from two main sources: the groundwater from Orange County Water District underground water basin and imported water from the Metropolitan Water District (MWD). The city supplies 48,722 acre-feet per year (AFY) of water[25]. Out of the MWD water, 69 percent is from groundwater accessing the Santa Ana River groundwater basin through 19 City-owned wells. The City maintains 444 miles of transmission and distribution mains, 8 reservoirs with a storage capacity of 49.3 million gallons, seven pumping stations, 19 wells, and 7 import connections. The city also receives recycled water after the advanced treatment and recycling of waste water from the Orange County Water District (OCWD) facility, Green Acres Project. This offsets the demand for potable water supplies.

Currently the water demand for the existing project site is 0.19 gallons per day (gpd).[26] About 78% of this total water demands can be attributed to office uses while the remaining 22% is due to commercial uses. The site is served by the City of Santa Ana Water Distribution network, including a 10-inch City water main in Park court Place, a 12-inch water main in Cabrillo Park Drive, a 12-inch water main in First Street, and a 12-inch water main located within a public easement along Fourth Street. The existing water lines serving the Overlay Zone are shown in Figure 4.13-1 (Water Supply Lines in Overlay Zone). Based on the water supply assessment (WSA), which is included as Appendix I, the water pressure within the Overlay Zone is considered adequate.

[25] The water demand of the City includes 5% of water for unaccounted uses, that takes into account the water for Fire Fighting purposes.
[26] Based on the Water Supply Assessment, October 2006 by Dudek



Legend

- Overlay Zone Boundary
- Water Supply Line

NORTH
NOT TO SCALE

***Source*:** City of Santa - Public Works Agency; water Atlas, August 26, 1993.

EIP ASSOCIATES
A Division of PBS&J

FIGURE **4.13-1**
Water Supply Lines in Overlay Zone

D20950.01

City of Santa Ana

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Water Quality

OCWD manages the Orange County groundwater basin and conducts a comprehensive water quality monitoring program. The water quality data collected from these wells is used to assess ambient conditions of the basin, monitor the effects of extraction, monitor the effectiveness of the seawater intrusion barriers, evaluate impacts from historic and current land use, address poor water quality areas, and also provide early warning of emerging contaminants of concern. OCWD is compliant with groundwater drinking water regulations and operates under a Department of Health Services' approved monitoring program that includes monitoring all drinking water wells within the OCWD, including each of the City's wells.

The City receives imported water from MWD. The MWD water is treated at either the Robert B. Diemer Filtration Plant located in Yorba Linda, California or the Weymouth Filtration Plant in La Verne, California before being delivered to the City. MWD tests and treats its water for microbial, organic, inorganic, and radioactive contaminants as well as pesticides and herbicides. Protection of MWD's Water System continues to be a top priority. Water quality of imported water could directly impact the amount of water supplies available to the City.

Current water improvement programs include the CALFED Program, Delta Improvement Package, and Source Water Protection are being undertaken to maintain the water quality. OCWD operates an extensive groundwater quality management program that allows them to effectively control water quality. Some of the programs and activities of OCWD include Source Water Protection, Surface Water Monitoring, constructed wetlands, public outreach and regulations like Groundwater Protection Policy. The City also continues to monitor its groundwater wells for the first indication of problems as part of their water management strategy. As discussed above, MWD and OCWD are responsible for ensuring the treatment of all water supplied to the City of Santa Ana. As required by California Department of Health Services, the agencies routinely monitor the water quality of each well and source that supplies potable water. MWD water quality staff performs tests, collects data, reviews results, prepares reports, and researches other treatment technologies to ensure water quality.

The City does not anticipate any changes in its available water supplies due to water quality issues in part because of the mitigation actions undertaken by MWD and OCWD as described above.

Existing and Projected Water Supply

Domestic water for the Planning Area is supplied by both groundwater and imported surface water sources, as previously discussed. Currently, 69 percent of the water supplied by the City's service area is supplied by groundwater from the Orange County Groundwater Basin, and the remaining 31 percent of water supply is provided by MWD, which delivers water imported from the Colorado River and State Water Project. The groundwater supply for the City's water system is extracted from the 19 well sites, as discussed above, established in Santa Ana River basin.

Table 4.13-1 (Current and Projected Water Supply) shows the projected water supply for the City through 2030.

Table 4.13-1 Current and Projected Water Supply

Year	City Supply (AFY)
2005 (Actual)	44,944
2010(Projected)	54,810
2015	57,410
2020	61,560
2025	63,800
2030	62,750

SOURCE: All except Overlay Zone demand, City of Santa Ana 2005 Urban Water Management Plan. Overlay Zone Demand from Dudek Technical Memorandum, October 2006.

According to the City of Santa Ana's 2005 Urban Water Management Plan, water supplies can continue to meet the City's imported water needs until the year 2030. Beyond that date, improvements associated with the State Water Project supply, additional local projects, conservation, and additional water transfers would be needed to adequately serve the City. The Groundwater Replenishment System (GRS), a joint venture by OCWD and the Orange County Sanitation District (OCSD), will help to reduce Orange County and Santa Ana's reliance on imported surface water by taking treated wastewater and injecting it into the groundwater basin. GRS will be online by 2007, and will produce approximately 70,000 acre feet of water per year. OCWD, which provides the groundwater supply to the City, projects that there would be sufficient groundwater supplies to meet any future demand requirements in Santa Ana. As such, the future water supply projections in Table 4.13-1 are based on implementation of City conservation programs, additional recycled water, additional production of groundwater, and efforts to reduce the City's dependence on imported water supplies from MWD.

4.13.2 Regulatory Framework

Federal Regulations

Clean Water Act

The federal *Clean Water Act* (CWA) establishes regulatory requirements for potable water supplies including raw and treated water quality criteria. The City of Newport Beach would be required to monitor water quality and conform to the regulatory requirements of the CWA.

Safe Drinking Water Act

The federal *Safe Drinking Water Act* (SDWA) established standards for contaminants in drinking water supplies. Maximum contaminant levels or treatment techniques were established for each of the contaminants. The listed contaminants include metals, nitrates, asbestos, total dissolved solids, and microbes.

State Regulations

Urban Water Management Planning Act (California Water Code, Division 6, Part 2.6, Section 10610 et seq.*)*

The *Urban Water Management Planning Act* (Act) was developed due to concerns over potential water supply shortages throughout California. It requires information on water supply reliability and water use efficiency measures. Urban water suppliers are required, as part of the Act, to develop and implement UWMPs to describe their efforts to promote efficient use and management of water resources. The City prepared a UWMP, which was adopted by the City Council on December 6, 2005. Specifically, the City's 2005 UWMP described the existing and planned sources of water available to the supplier over a prescribed 5-year period and included a description of all water supply projects and programs that may be undertaken to meet total projected water use over the next 20 years. The City's 2005 UWMP was prepared concurrent with the preparation of the WSA for the Project. In order to ensure analytic compatibility between the two documents, supply and demand projections for the 2005 UWMP were utilized in the Project WSA.

Water Conservation Projects Act

California's requirements for water conservation are codified in the *Water Conservation Projects Act of 1985* (Water Code Sections 11950 – 11954), as reflected below:

> 11952 (a). It is the intent of the Legislature in enacting this chapter to encourage local agencies and private enterprise to implement potential water conservation and reclamation projects by establishing a state program to finance or assist in financing projects which meet state criteria and will result in additional supplies of water for use in areas of need. Water conservation and reclamation projects, including facilities for municipal and industrial advanced waste water treatment, regulatory impoundments, improvements to water supply and delivery systems, tailwater recovery systems, and sprinkler or drip irrigation systems, may result in increased quantities of usable water for beneficial purposes, but may be financially unattractive at the local level if the cost of additional fresh water is less than the cost to conserve or reclaim water.
>
> (b) It is in the interests of both the users of water supplied by the state and the users of local water supplies to undertake water conservation and reclamation projects which supply water for purposes of the State Water Resources Development System at a cost less than the cost of new state water development facilities, and which provide benefits to local water users, including decreased salt concentrations, resulting from increased irrigation efficiency and reduced problems of pollution from waste water discharges. It is not the intent of the Legislature in enacting this chapter to affect or otherwise defer the construction of water facilities necessary to meet the requirements of the people of this state, and nothing in this chapter shall be construed to affect the authority of the department under any other provision of law.

Consistent with California Water Code Sections 11950 – 11954, the City has implemented various water conservation efforts (i.e. DMM 1 through DMM 16 that were previously described), as well as a Water Shortage Contingency Plan that identifies actions that can be taken to respond to a catastrophic interruption of water supply

Water Code §10910 et seq. (Senate Bill 610)

In 2002, the California Legislature adopted legislation concerning water supply planning efforts in the California. Codified at Water Code §10910 et seq., the law coordinates local water supply and land use decisions to assist California's cities and counties with respect to adequate water supplies. Section 10910 requires cities and counties to prepare WSAs when considering approval of certain development projects in order to determine whether projected water supplies can meet the project's anticipated water demand. The projects for which WSAs must be prepared include *(a)* a residential development of more than 500 dwelling units; *(b)* a shopping center or business employing more than 1,000 people or having more than 500,000 square feet (sf) of floor space; *(c)* a commercial office building employing more than 1,000 people or having more than 250,000 sf; *(d)* a hotel or motel with more than 500 rooms; *(e)* an industrial or manufacturing establishment housing more than 1,000 people or having more than 650,000 sf or 40 acres; *(f)* a mixed-use project containing any of the foregoing; or *(g)* any other project that would have a water demand at least equal to a 500-dwelling-unit project. The WSA, which is also required as part of the CEQA process, includes an identification of existing water supply assessments, water rights, or water service contracts relevant to the identified water supply for the proposed project and water received in prior years pursuant to those entitlements, rights, and contracts. If the water demand for the proposed development has been accounted for in a recently adopted UWMP, the water supplier may incorporate information contained in that Plan to satisfy certain requirements of a WSA (California 2005).

Government Code §66473.7 (Senate Bill 221)

Other recent legislation prohibits approval of a tentative map, a parcel map for which a tentative map was not required, or a development agreement for a subdivision of property of more than 500 dwelling units, unless the applicable legislative body or the designated advisory agency provides written verification from the applicable public water system that a sufficient water supply is available or, in the alternative, a specified finding is made by the local agency that sufficient water supplies are, or will be, available prior to completion of the project. Sufficient water supply is the total water supplies available during normal, single-dry, and multiple-dry years within a 20-year projection that will meet the projected demand of the proposed subdivision.

Local Regulations

Integrated Resources Plan

The Integrated Resources Plan (IRP), approved by MWD in May 2004, establishes regional targets for developing water supply. Portions of the IRP address conservation, local supplies, State Water Project supplies, Colorado River Aqueduct supplies, water drawn from regional storage, and Central Valley water transfers. The 2003 Update of the IRP ensures that MWD will have a reliable supply of water through 2025.

4.13.3 Project Impacts and Mitigation

Analytic Method

In preparing this EIR, projected water use was calculated using the generation factors based on the assumption of the unit water demand by area. Dudek had researched unit water demands currently used by the City of Santa Ana, Irvine Ranch Water District, US department of Transportation, City of Anaheim, Palmdale Water District, Rincon Del Diablo Water District, and the City of Mountain View. Unit demand factors were calculated for all three land use categories (residential, office and commercial) within the Overlay Zone. The majority of residential land uses projected in the study area consists of very high density, multi-story apartments or condominium, with a density factor of over 30 dwelling units per acre. The Unit Demand Factors used are given in Table 4.13-2 (United Water Demand Factors):

Table 4.13-2 Unit Water Demand Factors

Land Use Category	*Unit Water Demand Factor*
Residential	6,500 gpd/acre
Office	2,500 gpd/acre
Commercial	3,000 gpd/acre

The Demand generated from the project would be compared with the supply projected in the Urban Water Management Plan to find out the impact of the project on the water supply.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, except where noted. For purposes of this EIR, implementation of the Mixed Use Overlay Zone may have a significant adverse impact on solid waste if it would do any of the following:

- Require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Require new or expanded water entitlements and resources if there are not sufficient water supplies available to serve the project from existing entitlements and resources

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to water supply.

Impacts and Mitigation

Threshold	Would the project require or result in the construction of new water treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Impact 4.13-1 **Implementation of the Metro East Mixed Use Overlay Zone would not require or result in the construction of new or expanded water treatment facilities, the construction of which could cause significant environmental effects. This is considered a *less-than-significant* impact.**

As discussed above, the City's imported surface water supply is primarily treated at the MWD Diemer Filtration Plant, located in Yorba Linda, with a treatment capacity of approximately 520 MGD, flowing at an average of 140 MGD in the winter (27 percent capacity) and 375 MGD in the summer (72 percent capacity). In addition to Diemer-treated imported water, the City also receives potable water from MWD's Weymouth Filtration Plant, which operates at approximately 42 percent capacity during the winter and 65 percent capacity during the summer.

Additional development accommodated under the proposed Overlay Zone would increase water use within the City, thus increasing the need for water treatment services. As discussed above, MWD can meet 100 percent of the City's imported water needs until at least the year 2030. Beyond that date, improvements associated with the State Water Project supply, additional local projects, water conservation, and additional water transfers may be needed to adequately serve the City. OCWD, which provides the groundwater supply to the City, anticipates that there would be sufficient groundwater supplies to meet projected future demand requirements in Santa Ana.

Implementation of the Overlay Zone would not require or result in the construction of new water treatment facilities or the expansion of existing facilities, and impacts would be ***less than significant***. No mitigations would be required.

Threshold	Would the project have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?

Impact 4.13-2 **Implementation of the Metro East Mixed Use Overlay Zone would generate an additional demand for water, but would not require water supplies in excess of existing entitlements and resources or result in the need for new or expanded entitlements. This is considered a *less-than-significant* impact.**

Domestic water for the Overlay Zone is supplied by both groundwater and imported surface water sources, as discussed above. Currently, a majority of water supplied to the Overlay Zone is supplied by groundwater from the Basin. Specifically, approximately 69 percent of the water supplied by the City's service area is supplied by groundwater from the Basin, and the remaining 31 percent of water supply is provided by MWD. Implementation of the proposed General Plan Update would increase the

population and amount of development within the City, which in turn would increase the demand for water supplies.

The project would allow a maximum of 6,661,489 square feet (sf) of residential, 3,410,507 sf of office space and 1,275,440 sf of commercial space at completion. A Water Supply Assessment was done by Dudek to assess the water demand and supply conditions for the project area. Based on the Water Demand Generation factors developed in the Water Supply Assessment mentioned in Table 4.13-2 the projected demand for the Project was calculated. Table 4.13-3 (Current and Projected Water Demand versus Supply) shows the projected water demand for the Overlay Zone based on the generation factors and as in the City's 2005 UWMP. The percent increase per 5-year increment was established by PBS&J: 2010=17%, 2015=38%, 2020=59%, 2025=79%, and 2030=100%. Based on the percent increase of development over the years, the water demand in 5 year increments was calculated for the project as well as the City. The table demonstrates that the existing supply meets the demand for water in the City. The City supply would be able to exceed the demand in 2010 and 2030 as well. The future supply projection assumes that the City will continue to produce groundwater and purchase local water.

Table 4.13-3 Current and Projected Water Demand versus Supply

Year	Water Demand (AFY)			Supply (AFY)
	City	Overlay Zone	Total	
2005 (Actual)	44,944		44,944	44,944
2010(Projected)	50,190	176	50,366	54,810
2015	53,180	392	53,572	57,410
2020	55,970	607	56,577	61,560
2025	59,280	822	60,102	63,800
2030	59,540	1,037	60,577	62,750

SOURCE: All except Overlay Zone demand, City of Santa Ana 2005 Urban Water Management Plan. Overlay Zone Demand from Dudek Technical Memorandum, October 2006.

Based on the calculations, the water supply to the City will be in surplus than the demand factor. This demand factor includes the water for fire fighting purposes as well (5 percent of demand in terms of unaccounted uses). This demand supply balance is consistent with the City's Urban Water Management Plan 2005. The water demand and supply calculated for 5-year increments shows that the City water supply will be surplus for all the scenarios until 2030. Also, the expansion of the existing network of water lines will not be required for the purpose of the project. The existing network would ensure continuous water supply with adequate volume and pressure and quality at all times to the Overlay Zone (Burk 2006). However, should improvements to the existing water system be required or additional facilities be deemed necessary, the property developer would be required to pay its fair share of the cost of all or portions of the needed improvements. Thus, the impact of the Project on water services would be ***less than significant***. No mitigation measures would be required.

4.13.4 Cumulative Impacts

The geographic context for the analysis of cumulative impacts associated with water systems would be the water provider projections for the Overlay Zone.

Currently, the City and MWD provide water service to the Overlay Zone. Although all water providers are required to prepare plans to ensure that adequate water supplies exist for future growth, there is ongoing controversy surrounding the state's water supply and distribution efforts. MWD, the City's provider of imported water have indicated they can accommodate the additional demand from the proposed Overlay Zone in addition to future growth assumed in the UWMP. In addition, the implementation of conservation measures would be required on a project-specific basis and water shortage contingency plans would further reduce additional water demand. Finally, future development is required to adhere to Section 10910 of the California Water Code. Therefore, the cumulative impact to water supply would be ***less than significant***.

SEWER SERVICES

4.13.5 Environmental Setting

The Water Resources Division of the Public Works Department handles the wastewater collection within the City by maintaining the 500 miles of local sewer lines, while the Orange County Sanitation District (OCSD) handles the trunk sewer lines and the sewage treatment facilities. The OCSD service area includes 470 square miles of central and northwest Orange County, which are divided into Districts. A large portion of the City lies within the District No.1 with areas within Districts Nos. 2, 3, and 7.

Currently the sewage from the City is diverted to Reclamation Plant No. 1 in the City of Fountain Valley. If the Plant is operating at the capacity, it diverts sewage to Reclamation Plant No. 2 in the City of Huntington Beach. The combined capacity of the 2 plants is about 400 million gallons per day (mgd) while they are operating at an average daily capacity of 243 mgd. The OCSD Reclamation Plant No. 1 currently maintains a design capacity of 174 million gallons per day (mgd) and treats an average of 90 mgd. Treatment Plant No. 2 maintains a design capacity of 276 mgd and currently treats on average a flow of 153 mgd. Currently Plant No. 1 and Plant No. 2 are operating at 52 percent and 55 percent of design capacity, respectively.[27] The OCSD wastewater treatment plants are divided into several operating systems that work together. The major processes are preliminary treatment, primary treatment, anaerobic digestion, secondary treatment, and solids handling.[28]

Wastewater treated by the OCSD is discharged into the ocean through a 120-inch-diameter ocean outfall pipe that extends five miles offshore to a discharge point 180 feet below the ocean surface.[29] The treatment levels meet all current state and federal requirements. OCSD also reclaims up to 10 million

[27] City of Huntington Beach, Lowe's Home Improvement Warehouse/Northeast Corner of Beach and Warner Project EIR (http://www.ci.huntington-beach.ca.us/files/users/planning/IV_L_3_UTILS_Sewer.pdf), 2003.
[28]Orange County Sanitation District, Treating Wastewater, Webpage: http://www.ocsd.com/info/treating_wastewater/default.asp, 2004.
[29] City of Newport Beach, Urban Water Management Plan, 2000.

gallons of treated wastewater every day, which is sent for further processing and then used for landscape irrigation and for injection into the groundwater seawater intrusion barrier.

Two OCSD trunk sewer lines are located within and/or in the immediate vicinity of the Overlay Zone. The West Relief Trunk Sewer, an 18-inch line runs south along Cabrillo Park Drive and continues past First Street and under the Santa Ana Freeway. The Sunflower Trunk Sewer, a 15-inch line, runs westward along First Street until it runs into the West Relief Trunk Sewer, at which point it continues southward underneath the Santa Ana Freeway, similar to the West Relief Trunk Sewer. The existing sewer mains of the OCSD are identified in Figure 4.13-2 (Sewer Lines in Overlay Zone). In addition, the existing storm water drains within the Overlay Zone are shown in Figure 4.13-3 (Storm Drains in Overlay Zone).

Expansion plans by OCSD are ongoing and designed to address the incremental increase in sewage generation as a result of a new development. The City of Santa Ana also continues to maintain local sewer lines and upgrades being made as part of individual projects.

4.13.6 Regulatory Framework

Federal Regulations

National Pollution Discharge Elimination System (NPDES) Permits

The NPDES permit system was established in the Clean Water Act (CWA) to regulate both point source discharges (a municipal or industrial discharge at a specific location or pipe) and nonpoint source discharges (diffuse runoff of water from adjacent land uses) to surface waters of the United States. For point source discharges, such as sewer outfalls, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge.

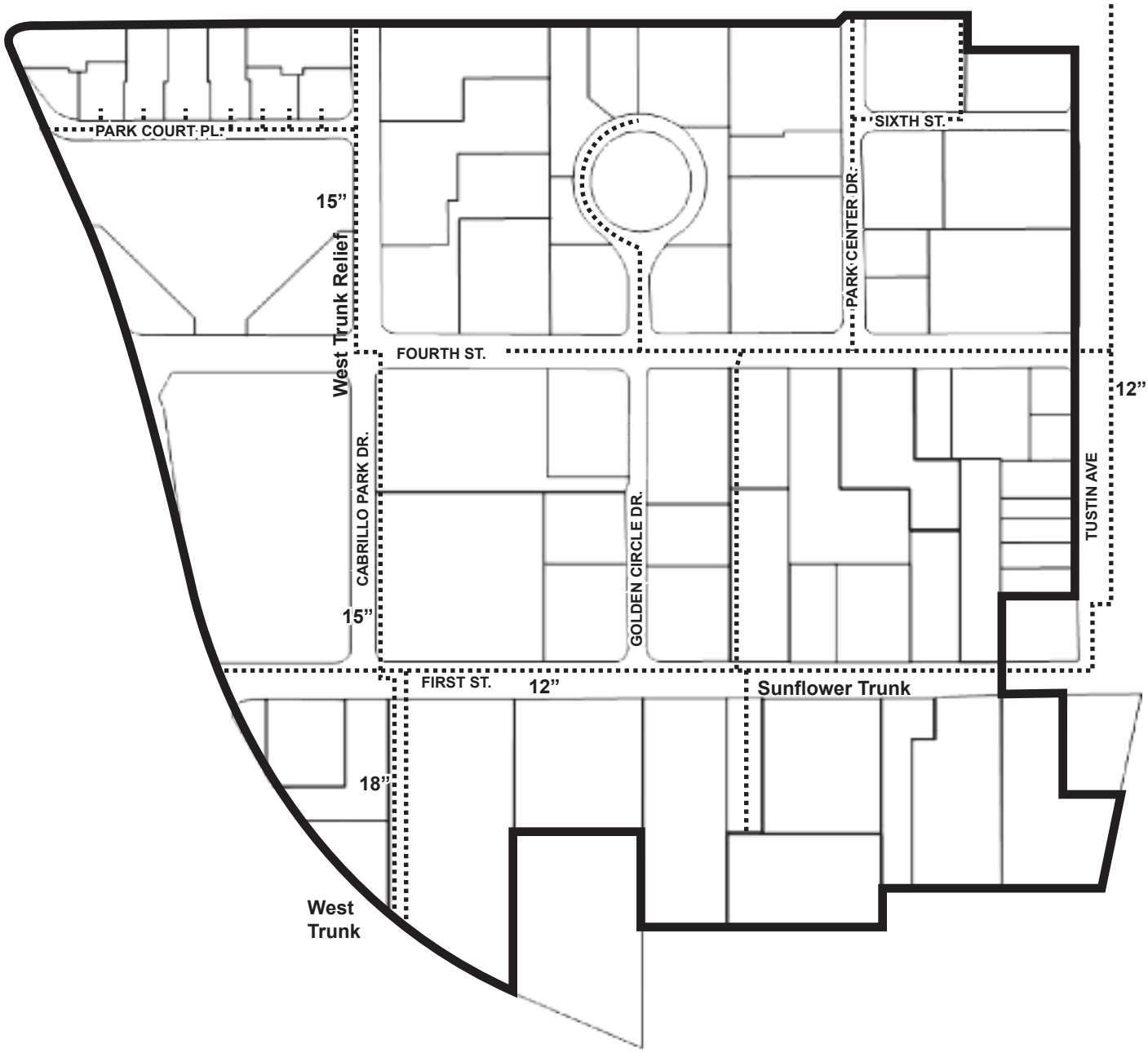
Disposal of Biosolids

Title 40 of the Code of Federal Regulations (CFR) Part 503, Title 23 California Code of Regulations, and standards established by the RWQCB regulate the disposal of biosolids.

Water Conservation Projects Act

California's requirements for water conservation are codified in the *Water Conservation Projects Act of 1985* (Water Code Sections 11950–11954), as reflected below:

> *11952. (a)* It is the intent of the Legislature in enacting this chapter to encourage local agencies and private enterprise to implement potential water conservation and reclamation projects….



Legend

- Overlay Zone Boundary
- Sewer Line

NORTH
NOT TO SCALE

***Source*:** Sewer Atlas, Public Works Agency, City of Santa Ana, 3/90 & 11/90, sheets H12, H13, and G12.

EIP ASSOCIATES
A Division of PBS&J

FIGURE **4.13-2**
Sewer Lines in Overlay Zone

D20950.01

City of Santa Ana

10244 | JCS | 06

Legend

- Overlay Zone Boundary
- Catch Basin
- Street Flow Direction

NORTH
NOT TO SCALE

***Source*:** City of Santa Ana.

EIP ASSOCIATES
A Division of PBS&J

FIGURE **4.13-3**
Storm Drains in Overlay Zone

D20950.01

City of Santa Ana

10244 | JCS | 06

4.13.7 Project Impacts and Mitigation

Analytic Method

Wastewater flows are based upon the estimated current service area population and influent flows to the plant. This generation rate is then multiplied by the estimated increase in population as a result of the Overlay Zone. Estimated future wastewater flows are then compared to the remaining capacity of the conveyance and treatment systems serving the Overlay Zone to determine whether sufficient capacity exists and/or whether there is the need for additional wastewater treatment systems.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the Metro east Mixed Use Overlay Zone may have a significant adverse impact on wastewater conveyance systems or treatment facilities if it would do any of the following:

- Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board
- Require or result in the construction of new wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Result in a determination by the wastewater treatment provider which serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments[30]

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to wastewater.

Effects Found to Be Less Than Significant

Threshold	Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

Impact 4.13-3 **Implementation of the Overlay Zone would not exceed wastewater treatment requirements of the Regional Water Quality Control Board. This is considered a *less-than-significant* impact.**

The City of Santa Ana requires NPDES permits, as administered by the Regional Water Quality Control Board (RWQCB), according to federal regulations for both point source discharges (a municipal or industrial discharge at a specific location or pipe) and nonpoint source discharges (diffuse runoff of water from adjacent land uses) to surface waters of the United States. For point source discharges, such as

[30] This standard has been re-written to change it from a positive sense ("has adequate capacity") to a negative sense ("has inadequate capacity") for ease of comprehension

sewer outfalls, each NPDES permit contains limits on allowable concentrations and mass emissions of pollutants contained in the discharge.

New development under implementation of the proposed Overlay Zone would continue to comply with all provisions of the NPDES program, as enforced by the RWQCB. Therefore, the proposed Overlay Zone would not result in an exceeding of wastewater treatment requirements. Additionally, the NPDES Phase I and Phase II requirements would regulate discharge from construction sites. All future projects under the proposed Overlay Zone would be required to comply with all applicable wastewater discharge requirements issued by the State Water Resources Control Board (SWRCB) and RWQCB. Therefore, implementation of the proposed project would not exceed applicable wastewater treatment requirements of the RWQCB with respect to discharges to the sewer system or stormwater system within the City. A ***less-than-significant*** impact would occur, and no mitigation is required.

Threshold	Would the project require or result in the construction of new or expanded wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Impact 4.13-4 **Implementation of the Metro East Mixed Use Overlay Zone could require the construction of new or expanded wastewater conveyance systems, the construction of which would not cause significant environmental effects. This is considered a *less-than-significant* impact.**

The implementation of the Overlay Zone is estimated to generate an average flow of 1.7 mgd, as shown in Table 4.13-4 (Wastewater Generated from Existing and Proposed Development). This represents a 1.106 mgd increase over the existing average flows from the project area.

Table 4.13-4 Wastewater Generated from Existing and Proposed Development

		Existing		*Proposed*	
Land Use	*Wastewater Generation Rates (gallons/unit/day)*	*No. of Units*	*Wastewater Generated (gpd)*	*No. of Units*	*Wastewater Generated (gpd)*
Residential	156 gallons/dwelling unit/day	—	—	5,551 dwelling units	865,956
Commercial/ Retail	150 gallons/ksf/day	65,961sf	9,900	1,275,439 sf	191,250
Motel	125 gallons/bed/day	119,695 sf	22,500	—	—
Auto Repair	100 gallons/ksf/day	49,959 sf	5,000	—	—
Office	200 gallons/ksf/day	2,720,168 sf	544,000	3,410,507sf	682,000
Rehabilitation Facility	125 gallons/bed/day	76,671sf	14,231	—	—
Total			*593,775 gpd*		*1,739,206*
			0.594 mgd		*1.7 mgd*

SOURCE: PBS&J 2006

Generation factors are based upon the City of Santa Ana Draft Land Use Element EIR (1997).

As stated previously, OCSD maintains certain trunk sewer lines that may require expansion on an as-needed basis due to incremental increases in sewage generation as a result of a new development. The City would also maintain local sewer lines and upgrades as part of individual projects. Implementation of

the following mitigation measure would ensure that any new development within the Overlay Zone does not result in an exceedance of an existing sewer conveyance capacity for City and OCSD facilities.

MM-OZ 4.13-1 *The developer is required to undertake a site-specific sewer evaluation, including flow monitoring and modeling, may be required as part of the project design to determine the adequacy of the existing sewer pipe capacity in the affected project area lines.*

Also, In addition, because wastewater generation is correlated with water usage, continued water conservation practices would reduce the volume of wastewater generated. As a result of the mitigation measure and the conservation practices, the impact of development under the Overlay Zone to the wastewater conveyance system would be ***less than significant***, and no mitigation is required.

Threshold	Would the project result in a determination by the wastewater treatment provider that serves or may serve the project that it has inadequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Impact 4.13-5 **Implementation of the Metro East Mixed Use Overlay Zone would not increase wastewater generation such that treatment facilities would be inadequate to serve the project's projected demand in addition to the provider's existing commitments. This is considered a *less-than-significant* impact.**

Implementation of the proposed Overlay Zone would generate additional demand on the existing sewer system from increased sewage flows. New residential, commercial and office growth would generate wastewater that would require treatment. As described in the Existing Conditions section, wastewater service within the project area is provided by the City and OCSD. Wastewater from the City's system and OCSD is treated by the OCSD at their two treatment plants. The OCSD Treatment Plant No. 1 currently maintains a design capacity of 174 mgd and treats on average a flow of 90 mgd. Treatment Plant No. 2 maintains a design capacity of 276 mgd and currently treats on average a flow of 153 mgd. Currently Plant No. 1 and Plant No. 2 are operating at 52 percent and 55 percent of design capacity, respectively. Therefore, each of the treatment plants serving the City is operating below their design capacity.

The additional 1.106 mgd of wastewater, as stated above under Impact 4.13-4, would be distributed between OCSD Treatment Plant No. 1 and Treatment Plant No. 2. Each of these plants has the capacity to treat the full increase in sewage from the proposed Overlay Zone. To illustrate the most conservative analysis, if the entire Overlay Zone's wastewater went to Treatment Plant No. 1, its average flow would increase to approximately 91 mgd, an increase of 1.1 percent, and the plant would still operate below its design capacity. If the entire City's sewage were directed to Treatment Plant No. 2, its average flow would increase to approximately 154 mgd, an increase of 0.6 percent, and the plant would operate below its design capacity. Because increased wastewater due to implementation of the proposed General Plan Update could be accommodated within the existing treatment infrastructure, expansion would not be required. Therefore, impacts to the wastewater treatment facilities associated with increased growth in the City would be ***less than significant*** and no mitigation is required.

4.13.8 Cumulative Impacts

The geographic context for the analysis of cumulative impacts associated with sewage treatment systems and recycled water conveyance systems would be the wastewater service providers' areas for the project area.

Currently, the City of Santa Ana and OCSD provide wastewater infrastructure to the project area. OCSD provides regional wastewater treatment service. Development of cumulative projects within the wastewater service providers' areas, including the proposed project, would generate additional quantities of wastewater, depending on net increases in population, square footage, and intensification of uses. Cumulative projects would contribute to the overall regional demand for wastewater treatment service.

The design capacities of the wastewater treatment facilities are based on the regional growth forecast adopted by SCAG, which in turn is based on cities' general plans and other forecasts of SCAG's member cities. Although the proposed project is not included within SCAG's growth forecast, the existing treatment plants operate well below their design capacity. Thus, it is anticipated that cumulative development would not exceed the capacity of the wastewater treatment system. This cumulative impact is considered ***less than significant***. The City would continue to implement water conservation measures that would result in a decrease in wastewater generation, and each of the wastewater treatment plants would still have excess capacity. Consequently, the proposed Overlay Zone would not result in a cumulatively considerable contribution to an impact on wastewater treatment. The cumulative impact of the project would be ***less than significant***.

Cumulative growth in the wastewater service providers' areas could result in the need for additional wastewater conveyance infrastructure, which could result in significant cumulative impacts depending upon the nature and extent of the proposed improvements. However, any person connecting to the sewer system is required to pay connection fees in accordance with existing regulations. Existing regulations ensure that all users pay their fair share for any necessary expansion of the system, including expansion to wastewater treatment facilities and would ensure that the cumulative impact is less than significant. Therefore, the project's cumulative impact would be ***less than significant***.

SOLID WASTE

4.13.9 Environmental Setting

The Orange County Integrated Waste Management Department (OCIWMD) operates the landfills in Orange County. The City contracts with the Waste Management of Orange County in Santa Ana to collect and dispose of the City's solid waste. The solid waste is disposed of at the Frank R. Bowerman Landfill located in Irvine. It is a 725 acre landfill that opened in 1990 and is operating at a maximum daily permitting capacity of 8500 tons per day. It has a remaining airspace capacity of 71.5 million cubic yards (as of June, 2006) and is expected to remain open until 2022. However, a Final Certified EIR has been passed (August 15, 2006), that has permitted the expansion of the landfill. The permits for the project are expected in summer 2007. This will increase the daily permitted capacity of the landfill to 11500 tons/day and allowing the landfill to operate until 2053. (John Arnau, September, 2006)

Table 4.13-5 (Solid Waste Generated from Existing Development) shows the existing solid waste generated within the Overlay Zone. According to the table, the existing solid waste generated is approximately 9.54 tons/day.

Table 4.13-5 Solid Waste Generated from Existing Development

Land Use	*Solid Waste Generation Rates (lbs/unit/day)*	*Existing*	
		No. of Units	*Waste Generated (lbs/day)*
		65,961sf	396
Motel	0.0108 lbs/sf/day	119,695 sf	1,292
Auto Repair	0.0108 lbs/sf/day	49,959 sf	540
Office	0.006 lbs/sf/day	2,720,168 sf	16,321
Rehabilitation Facility	0.007 lbs/sf/day	76,671sf	537
Total			*19,086*
			9.54 tons/day

SOURCE: Estimated Solid Waste Generation Rates by California Integrated Waste Management Board http://www.ciwmb.ca.gov/wastechar/wastegenrates/

The City of Santa Ana has a Source Reduction and Recycling Element (SRRE) started in 1992 that aims at recycling, composting, special waste disposal, and education and public information programs. This program aimed at diverting 50% of the solid waste generated by the City by 2000, in compliance with AB939,discussed below. The City presently diverts 60% of the solid waste generated.

Federal

With the exception of determining where disposal sites are located and operational standards, there are no applicable federal laws, regulations, or policies that pertain to solid waste.

State

At the state level, the management of solid waste is governed by regulations established by the California Integrated Waste Management Board (CIWMB), which delegates local permitting, enforcement, and inspection responsibilities to Local Enforcement Agencies. In 1997, some of the regulations adopted by the State Water Quality Control Board pertaining to landfills (Title 23, Chapter 15) were incorporated with CIWMB regulations (Title 14) to form Title 27 of the California Code of Regulations.

AB 939—California Integrated Waste Management Act

In 1989, the Legislature adopted the California Integrated Waste Management Act of 1989 (AB 939), which established an integrated waste management hierarchy that consists of the following in order of importance: source reduction, recycling, composting, and land disposal of solid waste. The law also required that each county prepare a new Integrated Waste Management Plan. The Act further required each city to prepare a Source Reduction and Recycling Element (SRRE) by July 1, 1991. Each source reduction element includes a plan for achieving a solid waste goal of 25 percent by January 1, 1995, and

50 percent by January 1, 2000. Senate Bill (SB) 2202 made a number of changes to the municipal solid waste diversion requirements under the Integrated Waste Management Act. These changes included a revision to the statutory requirement for 50 percent diversion of solid waste to clarify that local government shall continue to divert 50 percent of all solid waste on and after January 1, 2000.

4.13.10 Project Impacts and Mitigation

Analytic Method

The solid waste generation both under the existing conditions and with the proposed development was calculated using the generation rates based on the land uses given by the California Integrated Waste Management Board. To determine the impacts on solid waste disposal resulting from the implementation of the proposed project, solid waste generation was compared to the total anticipated capacity at landfill that serves the area.

Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines. For purposes of this EIR, implementation of the Mixed Use Overlay Zone may have a significant adverse impact on solid waste if it would do any of the following:

- Be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs[31]
- Fail to comply with applicable federal, state, and local statutes and regulations related to solid waste[32]

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to solid waste.

Effects Found to Be Less Than Significant

Threshold	Would the project be served by a landfill with insufficient permitted capacity to accommodate the project's solid waste disposal needs?

Impact 4.13-6 **Implementation of the proposed project would not generate solid waste that exceeds the permitted capacity of landfills serving the Overlay Zone. This is considered a *less-than-significant* impact.**

Based on the existing uses, the Overlay Zone generates a total of 9.54 tons of waste everyday. The entire waste generated is hauled to the Frank R. Bowerman Landfill. The solid waste generation based on the

[31] This standard has been re-written from a positive sense ("sufficient") to a negative sense ("insufficient") for ease of comprehension.
[32] This standard has been re-written from a positive sense ("Comply") to a negative sense ("Fail to comply") for ease of comprehension.

proposed use according to the Mixed Use Overlay Zone will be 25.16 tons/day. Table 4.13-6 (Solid Waste Generated from Existing and Proposed Development) compares the level of solid waste generated by the existing and proposed development of the Overlay Zone. According to the table, the solid waste generation is expected to increase by 15.62 tons/day or 164%.

Table 4.13-6 Solid Waste Generated from Existing and Proposed Development

Land Use	Solid Waste Generation Rates (lbs/unit/day)[33]	Existing		Proposed	
		No. of Units	Waste Generated (lbs/day)	No. of Units	Waste Generated (lbs/day)
Residential	4 lbs/ dwelling unit/ day			5,551 dwelling units	22,205
Commercial/ Retail	0.006 lbs/sf/day	65961sf	396	1,275,439 sf	7,653
Motel	0.0108 lbs/sf/day	119695 sf	1,292		
Auto Repair	0.0108 lbs/sf/day	49959 sf	540		
Office	0.006 lbs/sf/day	2720168 sf	16,321	3,410,507sf	20,463
Rehabilitation Facility	0.007 lbs/sf/day	76671sf	537		
Total			*19,086*		*50,321*
			9.54 tons/ Day		*25.16 tons/day*

SOURCE: Estimated Solid Waste Generation Rates by California Integrated Waste Management Board http://www.ciwmb.ca.gov/wastechar/wastegenrates/

However, the amount signifies less than one percent of the existing maximum permitted capacity of 8,500 tons per day of the landfill. Compliance with the City's recycling program would further reduce long-term solid waste disposal service impacts. Thus, the project would have a ***less than significant*** impact on the landfill capacity. No mitigation is required.

Threshold	Would the project fail to comply with applicable federal, state, and local statutes and regulations related to solid waste?

Impact 4.13-7 Implementation of the Metro East Mixed Use Overlay Zone would comply with all applicable federal, state, and local statutes and regulations related to solid waste. This is considered a *less-than-significant* impact.

As described above, the *California Integrated Waste Management Act of 1989* (AB 939) requires that local jurisdictions divert at least 50 percent of all solid waste generated by January 1, 2000. Per the City Program, individual projects within the Overlay zone would be required to comply with the Source Reduction and Recycling Element (SRRE) program for diverting the solid waste. The City already diverts 60% of its solid waste generated and is well above the compliance levels. Under the SRRE program, implementation of the Overlay Zone would be consistent with AB 939 as well. Thus, a ***less-than-significant*** impact would occur. No mitigation is required.

[33] Estimated Solid Waste Generation Rates by California Integrated Waste Management Board. http://www.ciwmb.ca.gov/wastechar/wastegenrates/. Accessed on 26th September, 2006

4.13.11 Cumulative Impacts

It is considered that, without approved specific plans for substantial expansion of the landfill facilities that serve the County, solid waste generation from approved and foreseeable cumulative projects in the project area vicinity would exacerbate regional landfill capacity issues in the future. That is, any additional solid waste incrementally added to existing facilities will decrease the amount of time until they are completely full. The implementation of source reduction measures would be required on a project-specific basis and plans such as those for recycling would partially address landfill capacity issues by diverting additional solid waste at the source of generation. But the proposed expansion of the Bowerman landfill to 11,500 tons/day will increase the life of the landfill until 2053. So the project itself, as well as in combination with other projects in the region would be anticipated to have a ***less than significant*** impact.

All cumulative development within the project area and Orange County would be required to comply with all applicable Federal, state, and local statutes and regulations related to solid waste. This includes compliance with AB 939, which requires a 50 percent diversion of all solid waste from disposal in local landfills. There is ***no cumulative impact*** related to compliance with applicable regulations.

ENERGY

4.13.12 Environmental Setting

Electricity

Southern California Edison Company (SCE) is the primary distribution provider for electricity in the Overlay Zone.[34] SCE is a regulated electrical utility and as such maintains electrical facilities and infrastructure within the City and surrounding areas. Those facilities and infrastructure are expected to be used to provide service to the Planning Area under the applicable rules and tariffs approved by the California Public Utilities Commission (CPUC). Currently, SCE has no immediate plans for expansion within the City of Santa Ana, as most of the City is built out. However, every year SCE expands and improves existing facilities according to demand.[35]

SCE derives its electricity from a variety of sources, as shown in Table 4.13-7 (Southern California Edison Power Content). Nearly half of its electricity comes from natural gas, with renewable resources constituting another nearly 20 percent.

The 2005 Integrated Energy Policy Report prepared by the California Energy Commission (CEC) summarizes California's electrical and natural gas supplies. Despite improvements in power plant licensing, highly successful energy efficiency programs and continued technological advances, development of new energy supplies is not keeping pace with the state's increasing demands. A key constraint in energy is the state's electricity transmission system. Under most circumstances, the state's

[34] SCE website 2003, 30 September
[35] Leanne Swanson, personal communication, 2003, 30 September

power grid is able to reliably delivery energy to consumers; for the majority of the days during the year adequate energy supplies are reliably provided to consumers. California's electricity demand is driven by short summer peaks, such that reducing peak demand is the essential factor in adequately planning for the state's electrical needs. These peak demands include a few hours to several days each year, such that managing demand, rather than developing supplies at new power plants for this limited time appears the most efficient method to meet state needs on peak days. The CEC has developed an action plan which includes increasing energy capacity in investor-owned utilities, incentives for combined heat and power projects (cogeneration), energy efficiency programs, expansion of renewable energy programs.

Table 4.13-7 Southern California Edison Power Content

Energy Resources	*SCE Power Mix (projected)*
Eligible Renewable	19%
Biomass & Waste	2%
Geothermal	11%
Small hydroelectric	1%
Solar	1%
Wind	4%
Coal	11%
Large Hydroelectric	4%
Natural Gas	49%
Nuclear	17%
Other	<1%
Total	*100%*

SOURCE: Tran 2004

Percentages are estimated annually by the California Energy Commission based on electricity sold to California consumers during the previous year.

Natural Gas

This section defines the existing natural gas service provided to the City of Santa Ana. Information was obtained from communication with service providers and online resources.

Southern California Gas Company (SCGC) provides natural gas service for the Planning Area. Natural gas is a "fossil fuel," indicating that it comes from the ground, similar to other hydrocarbons such as coal or oil. SCGC purchases natural gas from several bordering states.

Most of the major natural gas transmission pipelines within the Planning Area are owned and operated by SCGC. However, if a customer within Santa Ana meets the requirements to purchase gas from a contracted marketer or agent they may do so.[36] SCGC customers have the option of purchasing their

[36] Ella Abidere, personal communication, 2003

natural gas from a list of natural gas suppliers. The list of approved natural gas suppliers is available on the Southern California Gas web site, which is updated periodically.[37]

The Public Utilities Commission (PUC) regulates SCGC, who is the default provider required by state law, for natural gas delivery to the Planning Area. SCGC has the capacity and resources to deliver gas except in certain situations that are noted in state law. As development occurs, SCGC will continue to extend its service to accommodate development and supply the necessary gas lines. SCGC does not base its service levels on the demands of the project area; rather it makes periodic upgrades to provide service for particular projects and new development. Approximately two months before construction commences on a project, SCGC requests that the developer contact them with detailed information about the project's natural gas requirements. If necessary, SCGC customizes pipelines and mains to better serve newly constructed facilities. The cost for such service differs from project to project.[38] SCGC is continuously expanding its network of gas pipelines to meet the needs of new commercial and residential developments in Southern California.

California has not experienced a widespread natural gas shortage in many years. Current supplies are adequate to meet demands, although natural gas storage could be expanded to improve reliability. The state imports 87 percent of its statewide natural gas supply.

SCGC maintains medium pressure facilities in nearly every street of the City. The gas consumption of the new development can be estimated only after building sizes and fuel requirements of gas appliances has been established. The major gas lines in the Overlay Zone can be seen in Figure 4.13-4 (Natural Gas Lines in Overlay Zone).

4.13.13 Regulatory Framework

Federal

No federal policies related to energy apply to the proposed project.

State

California Code of Regulations Title 24

New buildings in California are required to conform to energy conservation standards specified in Title 24 of the California Code of Regulations (CCR). The standards establish "energy budgets" for different types of residential and nonresidential buildings, with which all new buildings must comply. The energy budget has a space-conditioning component and a water-heating component, both expressed in terms of energy (BTU) consumed per year. The regulations allow for trade-offs within and between the components to meet the overall budget.

[37] SCE website 2003, 3 November
[38] Ella Abidere, personal communication, 2003

Energy consumption of new buildings in California is regulated by the State Building Energy Efficiency Standards, embodied in Title 24 of the CCR. The efficiency standards apply to new construction of both residential and nonresidential buildings, and regulate energy consumed for heating, cooling, ventilation, water heating, and lighting. The building efficiency standards are enforced through the local building or individual agency permit and approval processes. Figure 4.13-4 (Natural Gas Lines in Overlay Zone) shows the existing natural gas lines in the project area.

4.13.14 Project Impacts and Mitigation

Analytic Method

To determine impacts on electricity supply resulting from implementation of the Metro East Mixed Use Overlay Zone, the projected increase in electricity and gas demands was determined to evaluate whether there will be an adequate and reliable source of energy for the Overlay Zone and whether any infrastructure improvements would be necessary.

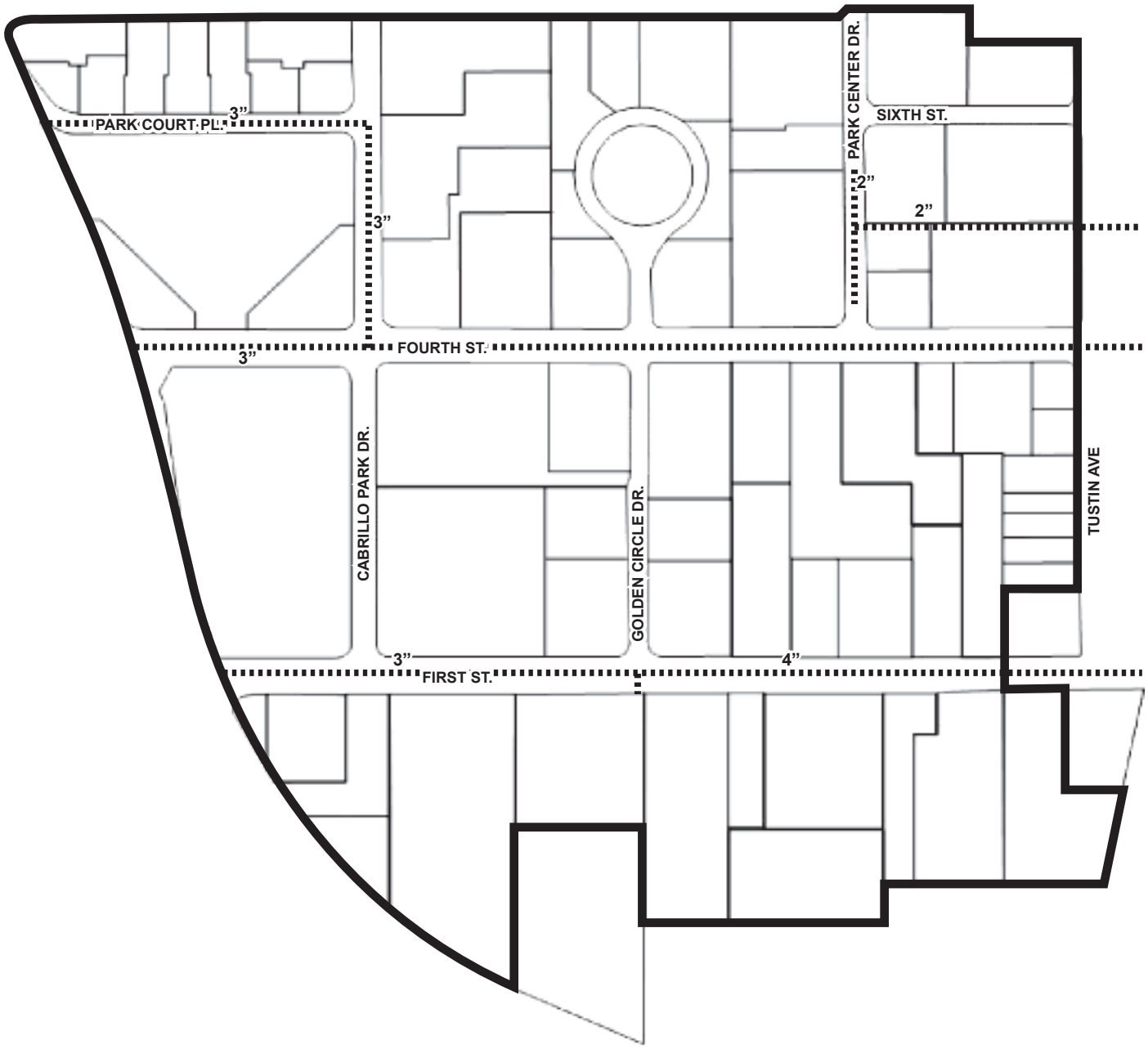
Thresholds of Significance

The following thresholds of significance are based on Appendix G of the CEQA Guidelines, which sets forth guidelines with regard to addressing impacts of a proposed project on energy resources. For purposes of this EIR, implementation of the Metro East Mixed Use Overlay Zone may have a significant adverse impact on energy if it would result in any of the following:

- Require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects
- Encourage the wasteful or inefficient use of energy

Effects Found to Have No Impact

There are no Effects Found to Have No Impact with respect to energy.



Legend

- Overlay Zone Boundary
- Gas Line

NORTH
NOT TO SCALE

***Source*:** City of Santa Ana.

EIP ASSOCIATES
A Division of PBS&J

FIGURE **4.13-4**
Natural Gas Lines in Overlay Zone

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City of Santa Ana

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Effects Found to Be Less Than Significant

Threshold	Threshold Would the project require or result in the construction of new energy production and/or transmission facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Impact 4.13-8 **Implementation of the Overlay Zone could increase the demand for electricity and gas, but would not require or result in the construction of new energy production or transmission facilities, the construction of which could cause a significant environmental impact. This is considered a *less-than-significant* impact.**

The state is currently experiencing constraints related to energy supply and delivery. These constraints are generally limited to peak demand days during the summer months, such that for the majority of the days during the year adequate energy supplies are reliably provided to consumers. Implementation of the proposed Overlay Zone would increase use of electricity in the project area, in particular, the demand for electricity to light, heat, and air condition the residential, commercial, and business development.

On peak days, the increase in demand from implementation of future development under the proposed Overlay Zone would contribute to electricity supply and delivery constraints. However, all future development would be constructed in compliance with Title 24 energy efficiency standards. The estimated demand for electricity for the proposed project is calculated in the Tables 4.13-8 (Electricity Demands from Proposed Development).

Table 4.13-8 Electricity Demands from Proposed Development

Land Use	*Electricity Demand Rates*	*Development at Build Out*	*Yearly Electricity Demand at Build Out*
Residential	5,626.50 kwh/unit/Year	5,551 units	31,232,702kwh
Commercial/ Retail	13.55kwh//sf/Year	65961sf	893,772kwh
Office	12.95kwh/sf/Year	2720168 sf	35,226,176kwh
Total			*67,352,650kwh*

SOURCE: SCAQMD CEQA Air Quality Handbook, 1993

KWh = kilowatt-hour; sf = square feet

By the time future development would be constructed under the proposed the proposed project, it is expected that some steps outlined in the CEC action plan will have been implemented to alleviate energy constraints. If these constraints do remain, they could be addressed through "rolling blackouts," which are limited to specific geographic areas for a period of hours. Further, if energy constraints remain, they are a reflection of the broad energy supply issues experienced by California as a whole, and not unique to the demands of the development in the City.

Further, the California Energy Commission licensed two additional power plants in 2001 that were anticipated to provide California with electrical energy supply capacity and the ability to meet peak load demand in excess of forecasts of regional energy supplies. Consequently, although the proposed project

would result in an increased electricity demand in the City, additional energy demands resulting from the proposed project would be adequately met by current and planned infrastructure during most of the year. Further, development under the proposed Overlay Zone would be required to comply with the energy conservation measures contained in Title 24, which would reduce the amount of energy needed for the operation of any buildings constructed as a part of the proposed project.

Additionally, the current electrical demand of Overlay Zone is within the capacity limitations of the electrical facilities serving the City. Excluding any unforeseen problems, existing distribution resources have the ability to serve all existing customer loads in accordance with its rules and tariffs. The projected electrical demand of the project area and for build out under the proposed Overlay Zone is expected to be within SCE's current 10-year load forecasts. Though SCE's total system demand is expected to continue to increase annually, excluding any unforeseen problems, SCE's plans for new distribution resources would be adequate to serve all existing and new customer loads throughout the next decade. SCE does not expect that utilities deregulation will affect service to the project area. However, to reduce any potential impacts associated with build out of the proposed project, SCE recommends the use of energy efficient and high-performance design for nonresidential and residential building design and construction.

Natural Gas

SCGC declares itself a "reactive" utility and will provide natural gas as customers request its services. SCGC has also indicated that an adequate supply of natural gas is currently available to serve additional development, and that the natural gas level of service provided to the City would not be impaired by buildout under the proposed Overlay Zone. Any expansion of service necessitated by implementation of the proposed project would be in accordance with SCGC's policies and extension rules on file with the California Public Utilities Commission at the time contractual agreements are made. The natural gas demand projected for the proposed project is given in Table 4.13-9 (Natural Gas Demands from Proposed Development).

Table 4.13-9 Natural Gas Demands from Proposed Development

Land Use	*Natural Gas Demand Rates*	*Development at Build Out*	*Yearly Gas Demand at Build Out*
Residential	79,980cf/unit/Year	5,551 units	443,968,980cf
Commercial/ Retail	34.8cf//sf/Year	65961sf	2,295,443cf
Office	34.8cf/sf/Year	2720168 sf	94,661,846cf
Total			*540,926,269cf*

SOURCE: SCAQMD CEQA Air Quality Handbook, 1993

cf = cubic feet; sf = square feet

Although the proposed project would result in the energy demand increases in demand noted above, an adequate energy supply is anticipated to be available, as the electrical and gas supplies and infrastructure to support demand are provided as needed by SCE and SCGC. Therefore the proposed project would not substantially increase demands beyond the available supply. In case of electricity, the cost associated

with relocating the facilities, if required shall be borne by the developer. The developer will also be required to make contractual arrangements with SCGC prior to initiation of construction for the gas. Prior to the issuance of grading permits, the project developer shall coordinate with SCE/SCGC to determine exact location of all underground and overhead electrical/gas facilities. All electrical/gas facilities and associated structures left on the site shall be protected from damage. Grading plans should reflect the under grounding of utility lines serving the project

The project generated demand for electricity and natural gas would be negligible in the context of overall demand within the City of Santa Ana and the state, and thus is not anticipated to require substantial upgrades or expansion of existing energy systems. Though, the project would not increase the energy demand significantly, mitigation measures are suggested to promote conservation of energy to further reduce the impact.

MM-OZ 4.13-2 *The project shall implement energy conservation measures (such as energy-efficient lighting and micro processor controlled HVAC equipment) to reduce the demand for electricity and natural gas. The energy conservation measures shall be subject to modification as new technologies are developed or if current technology becomes obsolete through replacement.*

Following the mitigation measure MM-OZ 4.13-2 would foster efficient energy use and ensure that a ***less than significant*** impact remains with respect to energy.

4.13.15 Cumulative Impacts

Development under the proposed Overlay Zone, in combination with all other development within the SCE and SCGC service areas, would result in the permanent and continued use of electricity and natural gas resources. However, as both SCE and SCGC are reactive providers, which supply electricity and natural gas services to customers at their request, it is assumed that they would be able to service future developments under the proposed Overlay Zone build out in combination with all projected future developments within their service boundaries. Therefore, the project's contribution to these impacts would not be cumulatively considerable and cumulative impacts to energy demand within SCE and SCGC service boundaries would be ***less than significant***.

4.13.16 References

Arnau, John. 2006. Telephone Communication with County of Orange, Integrated Waste Management Department. 25 September 2006.

Burk, Ray.2006. Telephone Communication with City of Santa Ana Public Works Agency, Water Department. 25 September 2006

California. 2006. Integrated Waste Management Board (CIWMB). http://www.ciwmb.ca.gov/wastechar/wastegenrates/ . Accessed September 2006

Dudek. 2006. *Technical Memorandum: Metro East Mixed-Use Overlay Zone Demand Projections.* October 2006

———. 2006. *Water Supply Assessment for the City of Santa Ana, Metro East Mixed-Use Overlay Zone.* October 2006

Gonzales, Mary. 2006. E-mail Correspondence with City of Santa Ana Public Works Agency. 2 October 2006.

Harriel, Mike. Correspondence with Southern California Gas Company. 21 September 2006.

PBS&J. 2006.*First and Chrillo Towers Sewer Study,* October 2006

RBF Consulting. 2006. *Draft hydraulic Report for the West Trunk Improvements (West Trunk Study),* August 2006

Santa Ana, City of. 1997. *Draft Land Use Element EIR*

———. 2005. *Urban Water Management Plan.* November 2005

Southern California Air Quality Management District. 1993. *CEQA Air Quality Handbook*.