



Volume II

Appendices A – J-b



SANTA ANA GENERAL PLAN UPDATE

golden city beyond
A SHARED VISION FOR SANTA ANA

Draft Program Environmental Impact Report

State Clearinghouse #2020029087

August 2020

Prepared for:

City of Santa Ana

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PLACEWORKS

Appendix A NOP, NOP Comment Letters, and Scoping Meeting Sign-In Sheet and Comments

Appendices

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California Environmental Quality Act

NOTICE OF PREPARATION AND SCOPING MEETING

Date: February 26, 2020
To: Responsible Agencies and Interested Parties
Subject: Notice of Preparation and Scoping Meeting for the Santa Ana General Plan Program Environmental Impact Report

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To: Reviewing Agencies and Other Interested Parties

Project Title: Santa Ana General Plan

Project Applicant: City of Santa Ana

Notice of Preparation Review Period: 2/26/20 through 3/27/2020 (30 days)

Scoping Meeting: Thursday, March 5, 2020, Santa Ana Police Community Room

NOTICE IS HEREBY GIVEN that the City of Santa Ana (City) will prepare a program environmental impact report (EIR) for the Santa Ana General Plan. The City is the lead agency for the project. The purpose of this notice is (1) to serve as a Notice of Preparation of an EIR pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15082, (2) to advise and solicit comments and suggestions regarding the scope and content of the EIR to be prepared for the proposed project, and (3) to notice the public scoping meeting.

The City determined that the proposed project would require preparation of a full-scope EIR; thus, an Initial Study was not prepared in conjunction with this Notice of Preparation.

1. Introduction

The City's General Plan was last comprehensively updated in 1982. Various updates to the City's Land Use Element, Circulation Element, Urban Design Element and Economic Development were completed in 1998. In March 2014 the City Council adopted the Santa Ana Strategic Plan. The Strategic Plan was the result of an extensive community outreach process and established specific goals, objectives and strategies to guide the City's major efforts. One of the key strategies identified is to complete a comprehensive update of the City's Existing General Plan. The updated General Plan will provide long-term policy direction to guide the physical development, quality of life, economic health, and sustainability of the Santa Ana community through 2045. The updated General Plan will address the eight topics required by state law as well as five optional topics. The topic of housing will also be addressed as a separate effort in late 2021 in accordance with state law.

2. Environmental Setting

Project Location

The City of Santa Ana encompasses roughly 27 square miles of land in central Orange County. The cities of Orange and Costa Mesa border Santa Ana to the north and south, respectively. Santa Ana's western border connects with the cities of Garden Grove, Westminster, and Fountain Valley, while Santa Ana's eastern border touches the cities of Irvine and Tustin. Regional connectivity to the City of Santa Ana is provided by interstates 15 and 405 and by State Routes 22 and 55. The City of Santa Ana is the second largest city in Orange County in terms of both population (approximately 340,000 residents as of 2019) and workers (approximately 160,000 jobs as of 2019).

3. Project Description

The City of Santa Ana is in the process of preparing a comprehensive update to its existing General Plan. Santa Ana's "Golden City Beyond: A Shared Vision" General Plan is expected to be completed in 2020 and will guide the City's development and conservation for the next 25 years through 2045. The update will provide long-term policy direction and communicate the vision, values, and goals for the City's physical development, fiscal and environmental sustainability, and overall quality of life. The new Santa Ana General Plan will serve to identify areas of opportunity and provide options to enhance development potential in key areas of the city while bringing the City into compliance with recent state laws and reflect updates to current conditions and input from the general public, city staff, and other stakeholders.

Santa Ana's General Plan is based on a vision statement and core values established as part of an extensive multi-year community outreach effort, a Technical Advisory Committee, and a General Plan Advisory Group.

Vision Statement

"Santa Ana is a city that promotes the physical, social, and economic health and wellness of our people and our community. We celebrate our past, embrace the power of diversity, and work together to create economic and educational opportunities for the next generation, leading to a more sustainable and prosperous future."

Core Values

- **Health.** The people of Santa Ana value a physical environment that encourages healthy lifestyles, a planning process that ensures that health impacts are considered, and a community that actively pursues policies and practices that improve the health of our residents.
- **Equity**. Our residents value taking all necessary steps to ensure equitable outcomes, expanding access to the tools and resources that residents need, and to balance competing interests in an open and democratic manner.
- **Sustainability.** Santa Ana values land use decisions that benefit future generations, plans for the impacts of climate change, and incorporates sustainable design practices at all level of the planning process.
- **Culture.** Our community values efforts that celebrate our differences as a source of strength, preserve and build upon existing cultural resources, and nurture a citywide culture of empowered residents.
- **Education.** We are a city that values the creation of lifelong learners, the importance of opening up educational opportunities to all residents and investing in educational programs that advance our residents' economic wellbeing.

General Plan Topics

State law requires that a general plan address eight specific topics, which each topic commonly presented as an element of the general plan. State law gives jurisdictions the discretion to incorporate optional topics and to address any of these topics in a single element or across multiple elements of the general plan. Santa Ana's General Plan will address the following eight mandatory and five optional topics:

Mandatory Topics

- Land Use
- Circulation
- Housing*
- Environmental Justice**
- Open Space
- Conservation
- Safety
- Noise

Optional Topics

- Health and Wellness
- Historic Preservation
- Urban Design
- Economic Prosperity
- Community Services

** The updated General Plan will incorporate the current 2014–2021 Housing Element and no substantive changes are anticipated as part of the comprehensive general plan update. The topic of housing will be addressed as a separate effort in late 2021 in accordance with state law.*

*** The topic of environmental justice will be incorporated throughout the General Plan, with goals and policies incorporated into multiple elements.*

Project Buildout

In coordination with the General Plan Advisory Group, the City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.

There are seven other planning areas that represent specific plans and other special zoning areas that were previously adopted: Adaptive Reuse Overlay (2014), Bristol Street Corridor Specific Plan (1991/2018), Harbor Mixed Use Corridor Specific Plan (2014), MainPlace Specific Plan (2019), Metro East Overlay Zone (2007/2018), Midtown Specific Plan (1996), and Transit Zoning Code Specific Development (2010). The potential for new development in these areas is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between their adoption date and 2019. The most recent adoption/amendment date for each zoning document is noted in parentheses.

Growth outside of the focus areas and special planning areas is expected to be incremental and limited. Some growth was projected for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan. Some growth was also projected for the commercial and retail area south of the West Santa Ana Boulevard focus area. Finally, some additional residential development is expected to occur on a small portion (five percent) of single-family and multi-family lots through the construction of second units.

Table 1 provides a statistical summary of the buildout potential associated with the General Plan compared to existing conditions. Figure 1 displays the draft General Plan Land Use Map while Figure 2 illustrates the boundaries of the five focus areas and special planning areas.

4. Probable Environmental Effects

The City has determined that a Program EIR will be prepared for the proposed General Plan. Section 15168 of the CEQA Guidelines states that a Program EIR may be prepared on a series of actions that can be characterized as one large project and are related either: 1) geographically; 2) as logical parts in the chain of contemplated actions; 3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or 4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

The Program EIR will be prepared in accordance with the requirements of CEQA Statute and Guidelines, as amended. Pursuant to Section 15146 of the CEQA Guidelines, the degree of specificity in the Program EIR will correspond to the degree of specificity involved in the proposed General Plan. The EIR will focus on the primary effects that can be expected to follow from adoption of the proposed project and will not be as detailed as an EIR on the specific development or construction projects that may follow. Based on the City's preliminary analysis of the project, the following environmental impact categories and their associated impact thresholds will be examined in the Program EIR:

Aesthetics
Agricultural/Forest Resources
Air Quality
Biological Resources
Cultural Resources
Energy
Geology and Soils
Greenhouse Gas Emissions
Hazards/Hazardous Materials
Hydrology/Water Quality
Land Use/Planning
Mineral Resources
Noise
Population/Housing
Public Services
Recreation
Transportation
Tribal Cultural Resources
Utilities/Service Systems
Wildfire

The Draft EIR will address the short- and long-term effects of the General Plan on the environment. Mitigation measures will be proposed for impacts that are determined to be significant. A mitigation monitoring program will also be developed as required by Section 15150 of the CEQA Guidelines.

5. Public Review Period

This NOP will be available for a 30-day public review period from **February 26, 2020,** to **March 27, 2020,** on the City's website at https://www.santa-ana.org/general-plan. Hard copies will also be available at:

City of Santa Ana, Planning Division
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

City of Santa Ana Public Library
26 Civic Center Plaza
Santa Ana, CA 92701

The City is seeking input from both agencies and members of the public on the scope and content of the environmental information and analysis in the EIR. Due to the time limits mandated by state law, written comments must be sent via mail, e-mail, or fax no later than 5:00 PM on **Thursday March 27, 2020**. Please send your comments at the earliest possible date to:

Verny Carvajal, Principal Planner
City of Santa Ana Planning and Building Agency
PO BOX 1988 (M-20)
Santa Ana, CA 92702
Email: VCarvajal@santa-ana.org

6. Public Scoping Meeting

Pursuant to the California Public Resources Code Section 21083.9, the City will conduct a public scoping meeting. This meeting will provide a public forum for information dissemination and dialogue regarding the components of the proposed project and the environmental review process. Please note the main purpose of the public scoping meeting is to provide a project description and solicit comments to refine and/or expand the scope of the EIR. **Although staff will summarize the issues raised at these meetings, anyone wishing to make formal comments on the scope of the EIR must do so in writing.** The public scoping meeting will be held on:

Date: Thursday, March 5, 2020
Time: from 6:00 to 7:30 PM
Location: Santa Ana Police Community Room, 60 Civic Center Plaza, Santa Ana, CA 92701

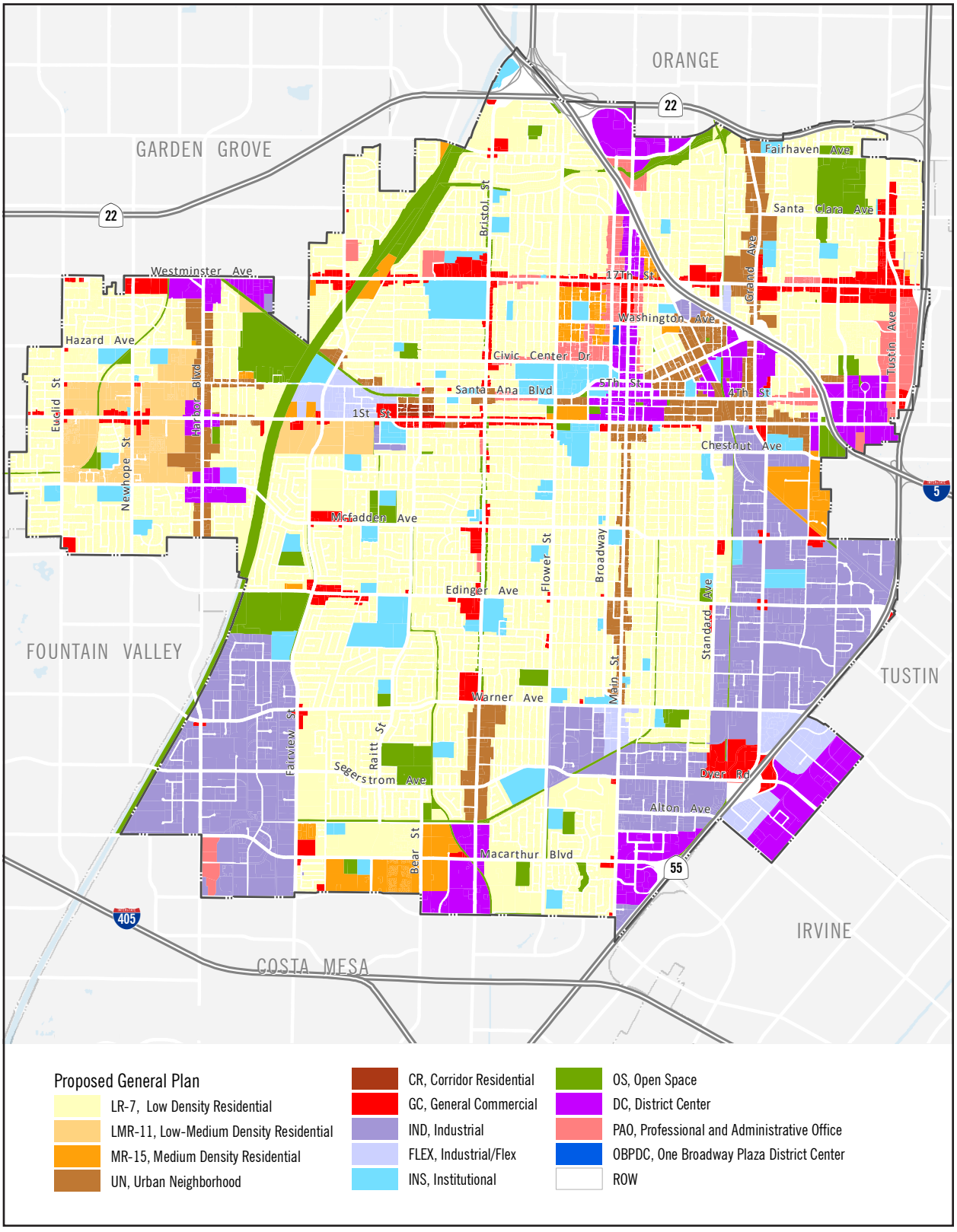
Table 1 Existing Conditions, Potential Growth, and Buildout Conditions in Santa Ana, 2020 to 2045

	EXISTING [1]			GROWTH [2]			BUILDOUT		
PLANNING AREA	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs
FOCUS AREAS	**6,380**	**12,849,259**	**29,931**	**17,481**	**3,233,332**	**9,542**	**23,861**	**16,082,591**	**39,473**
55 Freeway/Dyer Road	1,221	5,094,557	10,401	8,731	1,434,665	3,849	9,952	6,529,222	14,250
Grand Avenue/17th Street	561	1,400,741	3,568	1,667	-689,325	-1,929	2,228	711,416	1,639
South Bristol Street	220	1,577,511	3,337	5,233	3,508,975	11,319	5,453	5,086,486	14,656
South Main Street	1,720	1,685,978	3,455	588	-739,316	-1,304	2,308	946,662	2,151
West Santa Ana Boulevard	2,658	3,090,472	9,170	1,262	-281,667	-2,393	3,920	2,808,805	6,777
SPECIFIC PLAN / SPECIAL ZONING	**4,685**	**13,924,891**	**38,548**	**15,839**	**3,033,554**	**1,154**	**20,524**	**16,958,445**	**39,702**
Adaptive Reuse Overlay Zone [4]	260	976,935	3,043	1,000	0	-476	1,260	976,935	2,567
Bristol Street Corridor Specific Plan	136	140,348	294	-1	2,791	-12	135	143,139	282
Harbor Corridor Specific Plan	1,324	1,767,937	3,286	3,298	200,045	-1,708	4,622	1,967,982	1,578
Main Place Specific Plan	0	1,108,080	2,216	1,900	1,318,843	3,164	1,900	2,426,923	5,380
Metro East Overlay Zone	844	2,516,056	7,524	4,707	2,169,891	4,734	5,551	4,685,947	12,258
Midtown Specific Plan	607	1,885,065	4,824	0	-66,812	-209	607	1,818,253	4,615
Transit Zoning Code	1,514	5,530,470	17,361	4,935	-591,204	-4,339	6,449	4,939,266	13,022
ALL OTHER AREAS OF THE CITY [5]	**67,727**	**39,772,550**	**92,004**	**2,847**	**552,536**	**3,666**	**70,574**	**40,325,086**	**95,670**
CITYWIDE TOTAL	**78,792**	**66,546,700**	**160,483**	**36,167**	**6,819,422**	**14,362**	**114,959**	**73,366,122**	**174,845**

Source: City of Santa Ana, 2020.

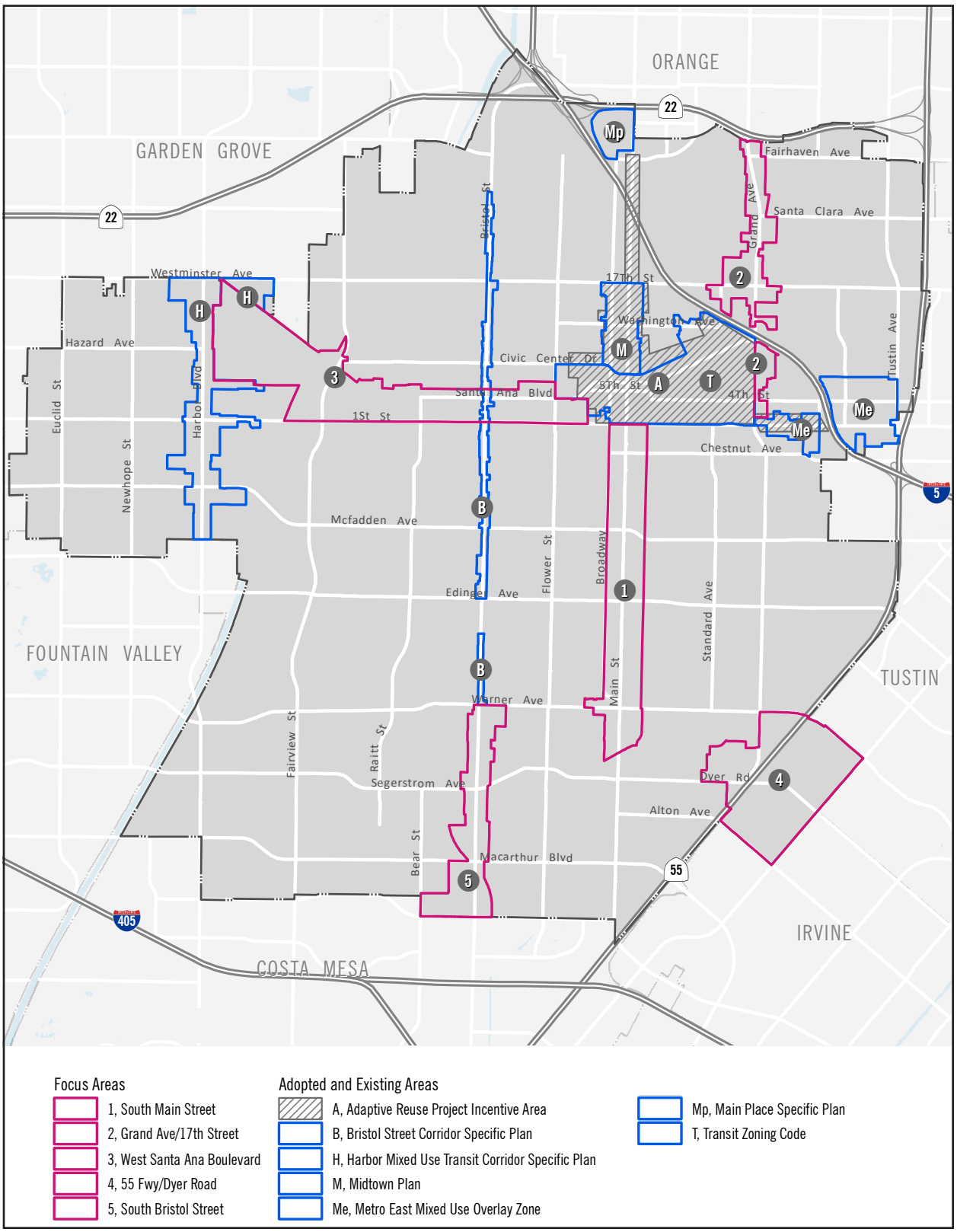
1. Existing represents conditions as of December 2019 as derived from the City of Santa Ana Planning Information Network and projects already under construction per the January 2020 monthly development project report.
2. The potential growth for new development in specific plan/special zoning area is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between its adoption date and 2019.
3. Only includes nonresidential building square footage.
4. The figures shown on the row for the Adaptive Reuse Overlay represents parcels that are exclusively in the Adaptive Reuse Overlay boundary. Figures for parcels that are within the boundaries of both the Adaptive Reuse Overlay Zone and a specific plan, other special zoning, or focus area boundary are accounted for in the respective specific plan, other special zoning, or focus area.
5. The City has included an assumption for growth on a small portion (five percent) of residential parcels through the construction of second units, which is distributed throughout the City and is not concentrated in a subset of neighborhoods. Additional growth includes known projects in the pipeline and an increase of 10 percent in building square footage and employment for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan, as well as the commercial and retail area south of the West Santa Ana Boulevard focus area.

Figure 1 - Proposed General Plan Land Use



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Figure 2 - Proposed General Plan Focus Areas and Other Special Planning Areas



PlaceWorks

THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

March 16, 2020

Verny Carvajal, Principal Planner
City of Santa Ana
Planning and Building Agency
PO BOX 1988 (M-20)
Santa Ana, CA 92702

Via E-mail

Dear Mr. Carvajal:

Notice of Preparation
for the City of Santa Ana General Plan Environmental Impact Report

The Metropolitan Water District of Southern California (Metropolitan) has reviewed the Notice of Preparation for the City of Santa Ana General Plan Environmental Impact Report (Plan). The proposed General Plan update will reflect goals set in the 2014 Santa Ana Strategic Plan, state law, and provide guidance on long-term policy regarding physical development, quality of life, economic health, and sustainability through 2045. The City of Santa Ana is the CEQA Lead Agency. This letter contains Metropolitan's comments as a potentially affected public agency.

Metropolitan is a public agency and regional water wholesaler. It is comprised of 26 member public agencies, serving approximately 19 million people in portions of six counties in Southern California, including Riverside County. Metropolitan's mission is to provide its 5,200 square mile service area with adequate and reliable supplies of high-quality water to meet present and future needs in an environmentally and economically responsible way.

Metropolitan owns and operates the Orange County Feeder, East Orange County Feeder 2 and Santa Ana Cross Feeder pipelines in the plan area. The Orange County Feeder and East Orange County Feeder pipelines vary from 36-79 inches-inside-diameter and run north-south through the plan area. Santa Ana Cross Feeder is 18-20 inches-inside-diameter and runs east-west through the center of the plan area. The pipelines distribute treated water (drinking water) to Orange County member agencies. See attached map for locations of Metropolitan infrastructure, referenced above.

Metropolitan is concerned with indirect effects to Metropolitan's facilities that may result. Future development and land use conditions associated with the proposed plan must not restrict any of Metropolitan's day-to-day operations, access or repair to these facilities. Metropolitan must be allowed to maintain its rights-of-way and requires unobstructed access to its facilities in order to maintain and repair its system. In order to avoid potential conflicts with Metropolitan's facilities

and rights-of-way, we require that any design plans for any activity in the area of Metropolitan's pipelines or facilities be submitted for our review and written approval. Metropolitan will not permit procedures that could subject the pipeline to excessive vehicle, impact or vibratory loads.

Detailed prints of drawings of Metropolitan's pipelines and rights-of-way may be obtained by calling Metropolitan's Substructures Information Line at (213) 217-7663. To assist applicants in preparing plans that are compatible with Metropolitan's facilities and easements, we have attached the "Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Rights-of-Way." Please note that all submitted designs or plans must clearly identify Metropolitan's facilities and rights-of-way.

We appreciate the opportunity to provide input to your planning process and we look forward to receiving future documentation and plans for this project. Please contact Ms. Jolene Ditmar at (213) 217-6184 or jditmar@mwdh2o.com if you require further assistance.

Very truly yours,

Sean Carlson
Team Manager, Environmental Planning Section

JD:ds
SharePoint\City of Santa Ana_Santa Ana General Plan Comment Letter

Enclosures:

(1) Map
(2) Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Rights-of-Way

This exhibit is to be used for approximate positioning only. It is not to be used, nor is it intended to be used for engineering, recording or litigation purposes. No warranty of accuracy is implied or guaranteed.

Prepared by: Tom Bleicher(Geodetics & Mapping Team) Checked by: Jolene Dilmar Job#: GIS20-03-13 Photography Date: Bing [Printed 3/11/2020] Z:\Projects\Special_Requests\Jolene_Dilman\GIS\General_Plans\General_Plans.aprx

- Service Connections
- Pressure Control Structures
- Sectionalizing Valves
- MWD Mainlines
- Santa Ana City

Sources: Esri, Airbus DS, USGS, NGA, NASA, CGIAR, N Robinson, NCEAS, NLS, OS, NMA, Geodatastyrelsen, Rijkswaterstaat, GSA, Geoland, FEMA, Intermap and the GIS user community, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

The Metropolitan Water District of Southern California
Engineering Services Group

City of Santa Ana General Plan Update

MWD Distribution System

Miles: 0, 0.5, 1, 2

Guidelines for Improvements and Construction Projects Proposed in the Area of Metropolitan's Facilities and Rights-of-Way

July 2018

Prepared By:
The Metropolitan Water District of Southern California
Substructures Team, Engineering Services
700 North Alameda Street
Los Angeles, California 90012

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Additional Copies: To obtain a copy of this document, please contact the Engineering Services Group, Substructures Team.

Disclaimer

Metropolitan assumes no responsibility for the accuracy of the substructure information herein provided. The user assumes responsibility for verifying substructure locations before excavating and assumes all liability for damage to Metropolitan's facilities as a result of such excavation. Additionally, the user is cautioned to conduct surveys and other field investigations as deemed prudent, to assure that project plans are correct. The appropriate representative from Metropolitan must be contacted at least two working days, before any work activity in proximity to Metropolitan's facilities.

It generally takes 30 days to review project plans and provide written responses. Metropolitan reserves the right to modify requirements based on case-specific issues and regulatory developments.

PUBLICATION HISTORY:

Initial Release	*July 2018*

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1.0 GENERAL INFORMATION

Note: Underground Service Alert at 811 must be notified at least two working days before excavating in proximity to Metropolitan's facilities.

1.1 Introduction

These guidelines provide minimum design and construction requirements for any utilities, facilities, developments, and improvements, or any other projects or activities, proposed in or near Metropolitan Water District of Southern California (Metropolitan) facilities and rights-of-way. Additional conditions and stipulations may also be required depending on project and site specific conditions. Any adverse impacts to Metropolitan's conveyance system, as determined by Metropolitan, will need to be mitigated to its satisfaction.

All improvements and activities must be designed so as to allow for removal or relocation at builder or developer expense, as set forth in the paramount rights provisions of Section 20.0. Metropolitan shall not be responsible for repair or replacement of improvements, landscaping or vegetation in the event Metropolitan exercises its paramount rights powers.

1.2 Submittal and Review of Project Plans/Utilities and Maps

Metropolitan requires project plans/utilities be submitted for all proposed activities that may impact Metropolitan's facilities or rights-of-way. Project plans shall include copies of all pertinent utilities, sewer line, storm drain, street improvement, grading, site development, landscaping, irrigation and other plans, all tract and parcel maps, and all necessary state and federal environmental documentation. Metropolitan will review the project plans and provide written approval, as it pertains to Metropolitan's facilities and rights-of-way. Written approval from Metropolitan must be obtained, prior to the start of any activity or construction in the area of Metropolitan's facilities or rights-of-way. Once complete project plans and supporting documents are submitted to Metropolitan, it generally takes 30 days to review and to prepare a detailed written response. Complex engineering plans that have the potential for significant impacts on Metropolitan's facilities or rights-of-way may require a longer review time.

Project plans, maps, or any other information should be submitted to Metropolitan's Substructures Team at the following mailing address:

Attn: Substructures Team
The Metropolitan Water District of Southern California
700 North Alameda St.
Los Angeles, CA 90012

General Mailing Address: P.O. Box 54153
Los Angeles, CA 90054-0153

Email: EngineeringSubstructures@mwdh2o.com

For additional information, or to request prints of detailed drawings for Metropolitan's facilities and rights-of-way, please contact Metropolitan's Substructures Team at 213-217-7663 or EngineeringSubstructures@mwdh2o.com.

1.3 Identification of Metropolitan's Facilities and Rights-of-Way

Metropolitan's facilities and rights-of-way must be fully shown and identified as Metropolitan's, with official recording data, on the following:

A. All applicable plans

B. All applicable tract and parcel maps

Metropolitan's rights-of-ways and existing survey monuments must be tied dimensionally to the tract or parcel boundaries. Metropolitan's Records of Survey must be referenced on the tract and parcel maps with the appropriate Book and Page.

2.0 General Requirements

2.1 Vehicular Access

Metropolitan must have vehicular access along its rights-of-way at all times for routine inspection, patrolling, operations, and maintenance of its facilities and construction activities. All proposed improvements and activities must be designed so as to accommodate such vehicular access.

2.2 Fences

Fences installed across Metropolitan's rights-of-way must include a 16-foot-wide gate to accommodate vehicular access by Metropolitan. Additionally, gates may be required at other specified locations to prevent unauthorized entry into Metropolitan's rights-of-way.

All gates must accommodate a Metropolitan lock or Knox-Box with override switch to allow Metropolitan unrestricted access. There should be a minimum 20-foot setback for gates from the street at the driveway approach. The setback is necessary to allow Metropolitan vehicles to safely pull off the road prior to opening the gate.

2.3 Driveways and Ramps

Construction of 16-foot-wide commercial-type driveway approaches is required on both sides of all streets that cross Metropolitan's rights-of-way. Access ramps, if necessary, must be a minimum of 16 feet wide.

There should be a minimum 20-foot setback for gates from the street at the driveway approach. Grades of ramps and access roads must not exceed 10 percent; if the slope of an access ramp or road must exceed 10 percent due to topography, then the ramp or road must be paved.

2.4 Walks, Bike Paths, and Trails

All walkways, bike paths, and trails along Metropolitan's rights-of-way must be a minimum 12-foot wide and have a 50-foot or greater radius on all horizontal curves if also used as Metropolitan's access roads. Metropolitan's access routes, including all walks and drainage facilities crossing the access routes, must be constructed to American Association of State Highway and Transportation Officials (AASHTO) H-20 loading standards (see Figure 1). Additional requirements will be placed on equestrian trails to protect the water quality of Metropolitan's pipelines and facilities.

2.5 Clear Zones

A 20-foot-wide clear zone is required to be maintained around Metropolitan's manholes and other above-ground facilities to accommodate vehicular access and maintenance. The clear zone should slope away from Metropolitan's facilities on a grade not to exceed 2 percent.

2.6 Slopes

Cut or fill slopes proposed within Metropolitan's rights-of-way must not exceed 10 percent. The proposed grade must not worsen the existing condition. This restriction is required to facilitate Metropolitan use of construction and maintenance equipment and allow uninhibited access to above-ground and below-ground facilities.

2.7 Structures

Construction of structures of any type is not allowed within the limits of Metropolitan's rights-of-way to avoid interference with the operation and maintenance of Metropolitan's facilities and possible construction of future facilities.

Footings and roof eaves of any proposed buildings adjacent to Metropolitan's rights-of-way must meet the following criteria:

A. Footings and roof eaves must not encroach onto Metropolitan's rights-of-way.

B. Footings must not impose any additional loading on Metropolitan's facilities.

C. Roof eaves must not overhang onto Metropolitan's rights-of-way.

Detailed plans of footings and roof eaves adjacent to Metropolitan's rights-of-way must be submitted for Metropolitan's review and written approval, as pertains to Metropolitan's facilities.

2.8 Protection of Metropolitan Facilities

Metropolitan facilities within its rights-of-way, including pipelines, structures, manholes, survey monuments, etc., must be protected from damage by the project proponent or property owner, at no expense to Metropolitan. The exact location, description and method of protection must be shown on the project plans.

2.9 Potholing of Metropolitan Pipelines

Metropolitan's pipelines must be potholed in advance, if the vertical clearance between a proposed utility and Metropolitan's pipeline is indicated to be 4 feet or less. A Metropolitan representative must be present during the potholing operation and will assist in locating the pipeline. Notice is required, a minimum of three working days, prior to any potholing activity.

2.10 Jacked Casings or Tunnels

A. General Requirements

Utility crossings installed by jacking, or in a jacked casing or tunnel under/over a Metropolitan pipeline, must have at least 3 feet of vertical clearance between the outside diameter of the pipelines and the jacked pipe, casing, or tunnel. The actual

cover over Metropolitan's pipeline shall be determined by potholing, under Metropolitan's supervision.

Utilities installed in a jacked casing or tunnel must have the annular space between the utility and the jacked casing or tunnel filled with grout. Provisions must be made for grouting any voids around the exterior of the jacked pipe, casing, or tunnel.

B. Jacking or Tunneling Procedures

Detailed jacking, tunneling, or directional boring procedures must be submitted to Metropolitan for review and approval. The procedures must cover all aspects of operation, including, but not limited to, dewatering, ground control, alignment control, and grouting pressure. The submittal must also include procedures to be used to control sloughing, running, or wet ground, if encountered. A minimum 10-foot clearance must be maintained between the face of the tunneling or receiving pits and outside edges of Metropolitan's facility.

C. Shoring

Detailed drawings of shoring for jacking or receiving pits must be submitted to Metropolitan for review and written-approval. (See Section 10 for shoring requirements).

D. Temporary Support

Temporary support of Metropolitan's pipelines may be required when a utility crosses under a Metropolitan pipeline and is installed by means of an open trench. Plans for temporary support must be reviewed and approved in writing by Metropolitan. (See Section 11, Supports of Metropolitan Facilities).

3.0 Landscaping

3.1 Plans

All landscape plans must show the location and limits of Metropolitan's right-of-way and the location and size of Metropolitan's pipeline and related facilities therein. All landscaping and vegetation shall be subject to removal without notice, as may be required by Metropolitan for ongoing maintenance, access, repair, and construction activities. Metropolitan will not be financially responsible for the removal of any landscaping and vegetation.

3.2 Drought-Tolerant Native and California Friendly Plants

Metropolitan recommends use of drought-tolerant native and California Friendly® plants (excluding sensitive plants) on proposed projects. For more information regarding California Friendly® plants refer to www.bewaterwise.com.

3.3 Trees

Trees are generally prohibited within Metropolitan's rights-of-way as they restrict Metropolitan's ability to operate, maintain and/or install new pipeline(s) located within these rights-of-way. Metropolitan will not be financially responsible for the removal and replacement of any existing trees should they interfere with access and any current or future Metropolitan project located within the right-of-way.

3.4 Other Vegetation

Shrubs, bushes, vines, and groundcover are generally allowed within Metropolitan's rights-of-way. Larger shrubs are not allowed on Metropolitan fee properties; however, they may be allowed within its easements if planted no closer than 15 feet from the outside edges of existing or future Metropolitan facilities. Only groundcover is allowed to be planted directly over Metropolitan pipeline, turf blocks or similar is recommended to accommodate our utility vehicle access. Metropolitan will not be financially responsible for the removal and replacement of the vegetation should it interfere with access and any current or future Metropolitan project.

3.5 Irrigation

Irrigation systems are acceptable within Metropolitan's rights-of-way, provided valves and controllers are located near the edges of the right-of-way and do not interfere with Metropolitan vehicular access. A shutoff valve should also be located along the edge of the right-of-way that will allow the shutdown of the system within the right-of-way should Metropolitan need to do any excavation. No pooling or saturation of water above Metropolitan's pipeline and right-of-way is allowed. Additional restrictions apply to non-potable water such as Recycled Water and are covered on Table 3 of Page 20.

3.6 Metropolitan Vehicular Access

Landscape plans must show Metropolitan vehicular access to Metropolitan's facilities and rights-of-way and must be maintained by the property owner or manager or homeowners association at all times. Walkways, bike paths, and trails within Metropolitan's rights-of-way may be used as Metropolitan access routes. (See Section 2.4, Walks, Bike Paths, and Trails).

4.0 General Utilities

Note: For non-potable piping like sewer, hazardous fluid, storm drain, disinfected tertiary recycled water and recycled water irrigation see Table 1 through Table 3.

4.1 Utility Structures

Permanent utility structures (e.g., manholes, power poles, pull boxes, electrical vaults, etc.) are not allowed within Metropolitan's rights-of-way. Metropolitan requests that all permanent utility structures within public streets be placed as far from its pipelines and facilities as practical, but not closer than 5 feet from the outside edges of Metropolitan facilities.

Note: Non-potable utility pipelines are an exception to the 5-foot minimum clearance. Non-potable utility pipelines should have 10 feet of separation.

4.2 Utility Crossings

Metropolitan requests a minimum of 1 foot of vertical clearance between Metropolitan's pipeline and any utility crossing the pipeline. Utility lines crossing Metropolitan's pipelines must be as perpendicular to the pipeline as possible. Cross-section drawings, showing proposed locations and elevations of utility lines and locations of Metropolitan's pipelines and limits of rights-of-way, must be submitted with utility plans, for all

crossings. Metropolitan's pipeline must be potholed under Metropolitan's supervision at the crossings (See Section 2.9).

4.3 Longitudinal Utilities

Installation of longitudinal utilities is generally not allowed along Metropolitan's rights-of-way. Within public streets, Metropolitan requests that all utilities parallel to Metropolitan's pipelines and appurtenant structures (facilities) be located as far from the facilities as possible, with a minimum clearance of 5 feet from the outside edges of the pipeline.

Note: Non-potable utility pipelines are an exception to the 5-foot minimum clearance. Non-potable utility pipelines should have 10 feet of separation (for more information See Table 1 on Page 18).

4.4 Underground Electrical Lines

Underground electrical conduits (110 volts or greater) which cross a Metropolitan's pipeline must have a minimum of 1 foot of vertical clearance between Metropolitan's pipeline and the electrical lines. Longitudinal electrical lines, including pull boxes and vaults, in public streets should have a minimum separation of 5 feet from the edge of a Metropolitan pipeline or structures.

4.5 Fiber Optic Lines

Fiber optic lines installed by directional boring require a minimum of 3 feet of vertical clearance when boring is over Metropolitan's pipelines and a minimum of 5 feet of vertical clearance when boring is under Metropolitan's pipelines. Longitudinal fiber optic lines, including pull boxes, in public streets should have a minimum separation of 5 feet from the edge of a Metropolitan pipelines or structures. Potholing must be performed, under Metropolitan's supervision, to verify the vertical clearances are maintained.

4.6 Overhead Electrical and Telephone Lines

Overhead electrical and telephone lines, where they cross Metropolitan's rights-of-way, must have a minimum 35 feet of clearance, as measured from the ground to the lowest point of the overhead line. Overhead electrical lines poles must be located at least 30 feet laterally from the edges of Metropolitan's facilities or outside Metropolitan's right-of-way, whichever is greater.

Longitudinal overhead electrical and or telephone lines in public streets should have a minimum separation of 10 feet from the edge of a Metropolitan pipelines or structures where possible.

4.7 Sewage Disposal Systems

Sewage disposal systems, including leach lines and septic tanks, must be a minimum of 100 feet from the outside limits of Metropolitan's rights-of-way or the edge of its facilities, whichever is greater. If soil conditions are poor, or other adverse site-specific conditions exist, a minimum distance of 150 feet is required. They must also comply with local and state health code requirements as they relate to sewage disposal systems in proximity to major drinking water supply pipelines.

4.8 Underground Tanks

Underground tanks containing hazardous materials must be a minimum of 100 feet from the outside limits of Metropolitan's rights-of-way or edge of its facilities, whichever is greater. In addition, groundwater flow should be considered with the placement of underground tanks down-gradient of Metropolitan's facilities.

5.0 Specific Utilities: Non-Potable Utility Pipelines

In addition to Metropolitan's general requirements, installation of non-potable utility pipelines (e.g., storm drains, sewers, and hazardous fluids pipelines) in Metropolitan's rights-of-way and public street rights-of-way must also conform to the State Water Resources Control Board's Division of Drinking Water (DDW) regulation (Waterworks Standards) and guidance for separation of water mains and non-potable pipelines and to applicable local county health code requirements. Written approval is required from DDW for the implementation of alternatives to the Waterworks Standards and, effective December 14, 2017, requests for alternatives to the Waterworks Standards must include information consistent with: DDW's Waterworks Standards Main Separation Alternative Request Checklist.

In addition to the following general guidelines, further review of the proposed project must be evaluated by Metropolitan and requirements may vary based on site specific conditions.

A. Sanitary Sewer and Hazardous Fluids (General Guideline See Table 1 on Page 18)

B. Storm Drain and Recycled Water (General Guideline See Table 2 on Page 19)

C. Irrigation with Recycled Water (General Guideline See Table 3 on Page 20)

D. Metropolitan generally does not allow Irrigation with recycled water to be applied directly above its treated water pipelines

E. Metropolitan requests copies of project correspondence with regulating agencies (e.g., Regional Water Quality Control Board, DDW); regarding the application of recycled water for all projects located on Metropolitan's rights-of-way

6.0 Cathodic Protection/Electrolysis Test Stations

6.1 Metropolitan Cathodic Protection

Metropolitan's existing cathodic protection facilities in the vicinity of any proposed work must be identified prior to any grading or excavation. The exact location, description, and type of protection must be shown on all project plans. Please contact Metropolitan for the location of its cathodic protection stations.

6.2 Review of Cathodic Protection Systems

Metropolitan must review any proposed installation of impressed-current cathodic protection systems on pipelines crossing or paralleling Metropolitan's pipelines to determine any potential conflicts with Metropolitan's existing cathodic protection system.

7.0 Drainage

7.1 Drainage Changes Affecting Metropolitan Rights-of-Way

Changes to existing drainage that could affect Metropolitan's rights-of-way require Metropolitan's approval. The project proponent must provide acceptable solutions to ensure Metropolitan's rights-of-way are not negatively affected by changes in the drainage conditions. Plans showing the changes, with a copy of a supporting hydrology report and hydraulic calculations, must be submitted to Metropolitan for review and approval. Long term maintenance of any proposed drainage facilities must be the responsibility of the project proponent, City, County, homeowner's association, etc., with a clear understanding of where this responsibility lies. If drainage must be discharged across Metropolitan's rights-of-way, it must be carried across by closed conduit or lined open channel and must be shown on the plans.

7.2 Metropolitan's Blowoff and Pumpwell Structures

Any changes to the existing local watercourse systems will need to be designed to accommodate Metropolitan's blowoff and pumpwell structures, which periodically convey discharged water from Metropolitan's blowoff and pumping well structures during pipeline dewatering. The project proponents' plans should include details of how these discharges are accommodated within the proposed development and must be submitted to Metropolitan for review and approval. Any blowoff discharge lines impacted must be modified accordingly at the expense of the project proponent.

8.0 Grading and Settlement

8.1 Changes in Cover over Metropolitan Pipelines

The existing cover over Metropolitan's pipelines must be maintained unless Metropolitan determines that proposed changes in grade and cover do not pose a hazard to the integrity of the pipeline or an impediment to its maintenance capability. Load and settlement or rebound due to change in cover over a Metropolitan pipeline or ground in the area of Metropolitan's rights-of-way will be factors considered by Metropolitan during project review.

In general, the minimum cover over a Metropolitan pipeline is 4 feet and the maximum cover varies per different pipeline. Any changes to the existing grade may require that Metropolitan's pipeline be potholed under Metropolitan's supervision to verify the existing cover.

8.2 Settlement

Any changes to the existing topography in the area of Metropolitan's pipeline or right-of-way that result in significant settlement or lateral displacement of Metropolitan's pipelines are not acceptable. Metropolitan may require submittal of a soils report showing the predicted settlement of the pipeline at 10-foot intervals for review. The data must be carried past the point of zero change in each direction and the actual size and varying depth of the fill must be considered when determining the settlement. Possible settlement due to soil collapse, rebound and lateral displacement must also be included.

In general, the typical maximum allowed deflection for Metropolitan's pipelines must not exceed a deflection of 1/4-inch for every 100 feet of pipe length. Metropolitan may require additional information per its Geotechnical Guidelines. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

9.0 Construction Equipment

9.1 Review of Proposed Equipment

Use of equipment across or adjacent to Metropolitan's facilities is subject to prior review and written approval by Metropolitan. Excavation, backfill, and other work in the vicinity of Metropolitan's facilities must be performed only by methods and with equipment approved by Metropolitan. A list of all equipment to be used must be submitted to Metropolitan a minimum of 30 days before the start of work.

A. For equipment operating within paved public roadways, equipment that imposes loads not greater than that of an AASHTO H-20 vehicle (see Figure 1 on Page 21) may operate across or adjacent to Metropolitan's pipelines provided the equipment operates in non-vibratory mode and the road remains continuously paved.

B. For equipment operating within unpaved public roadways, when the total cover over Metropolitan's pipeline is 10 feet or greater, equipment imposing loads no greater than those imposed by an AASHTO H-20 vehicle may operate over or adjacent to the pipeline provided the equipment is operated in non-vibratory mode. For crossings, vehicle path shall be maintained in a smooth condition, with no breaks in grade for 3 vehicle lengths on each side of the pipeline.

9.2 Equipment Restrictions

In general, no equipment may be used closer than 20 feet from all Metropolitan above-ground structures. The area around the structures should be flagged to prevent equipment encroaching into this zone.

9.3 Vibratory Compaction Equipment

Vibratory compaction equipment may not be used in vibratory mode within 20 feet of the edge of Metropolitan's pipelines.

9.4 Equipment Descriptions

The following information/specifications for each piece of equipment should be included on the list:

A. A description of the equipment, including the type, manufacturer, model year, and model number. For example, wheel tractor-scraper, 1990 Caterpillar 627E.

B. The empty and loaded total weight and the corresponding weight distribution. If equipment will be used empty only, it should be clearly stated.

C. The wheel base (for each axle), tread width (for each axle), and tire footprint (width and length) or the track ground contact (width and length), and track gauge (center to center of track).

10.0 Excavations Close to Metropolitan Facilities

10.1 Shoring Design Submittal

Excavation that impacts Metropolitan's facilities requires that the contractor submit an engineered shoring design to Metropolitan for review and acceptance a minimum of 30 days before the scheduled start of excavation. Excavation may not begin until the shoring design is accepted in writing by Metropolitan.

Shoring design submittals must include all required trenches, pits, and tunnel or jacking operations and related calculations. Before starting the shoring design, the design engineer should consult with Metropolitan regarding Metropolitan's requirements, particularly as to any special procedures that may be required.

10.2 Shoring Design Requirements

Shoring design submittals must be stamped and signed by a California registered civil or structural engineer. The following requirements apply:

A. The submitted shoring must provide appropriate support for soil adjacent to and under Metropolitan's facilities.

B. Shoring submittals must include detailed procedures for the installation and removal of the shoring.

C. Design calculations must follow the Title 8, Chapter 4, Article 6 of the California Code of Regulations (CCR) guidelines. Accepted methods of analysis must be used.

D. Loads must be in accordance with the CCR guidelines or a soils report by a geotechnical consultant.

E. All members must be secured to prevent sliding, falling, or kickouts.

Metropolitan's pipelines must be located by potholing under Metropolitan's supervision before the beginning construction. Use of driven piles within 20 feet of the centerline of Metropolitan's pipeline is not allowed. Piles installed in drilled holes must have a minimum 2-foot clearance between Metropolitan's pipeline and the edge of the drilled hole, and a minimum of 1-foot clearance between any part of the shoring and Metropolitan's pipeline.

11.0 Support of Metropolitan Facilities

11.1 Support Design Submittal

If temporary support of a Metropolitan facility is required, the contractor shall submit a support design plan to Metropolitan for review and approval a minimum of 30 days before the scheduled start of work. Work may not begin until the support design is approved in writing by Metropolitan. Before starting design, the design engineer should consult with Metropolitan regarding Metropolitan's requirements.

11.2 Support Design Requirements

Support design submittals must be prepared, stamped, and signed by a California registered civil or structural engineer. The following requirements apply:

A. Support drawings must include detailed procedures for the installation and removal of the support system.

B. Design calculations must follow accepted practices, and accepted methods of analysis must be used.

C. Support designs must show uniform support of Metropolitan's facilities with minimal deflection.

D. The total weight of the facility must be transferred to the support system before supporting soil is fully excavated.

E. All members must be secured to prevent sliding, falling, or kickouts.

12.0 Backfill

12.1 Metropolitan Pipeline Not Supported

In areas where a portion of Metropolitan pipeline is not supported during construction, the backfill under and to an elevation of 6 inches above the top of the pipeline must be one-sack minimum cement sand slurry. To prevent adhesion of the slurry to Metropolitan's pipeline, a minimum 6-mil-thick layer of polyethylene sheeting or similar approved sheeting must be placed between the concrete support and the pipeline.

12.2 Metropolitan Pipeline Partially Exposed

In areas where a Metropolitan pipeline is partially exposed during construction, the backfill must be a minimum of 6 inches above the top of the pipeline with sand compacted to minimum 90 percent compaction.

12.3 Metropolitan Cut and Cover Conduit on Colorado River Aqueduct (CRA)

In areas where a Metropolitan cut and cover conduit is exposed, the following guidelines apply:

A. No vehicle or equipment shall operate over or cross the conduit when the cover is less than 3 feet.

B. Track-type dozer with a gross vehicle weight of 12,000 lbs or less may be used over the conduit when the cover is a minimum of 3 feet.

C. Wheeled vehicles with a gross vehicle weight of 8,000 lbs or less may operate over the conduit when the cover is a minimum of 4 feet.

D. Tracked dozer or wheeled vehicle should be used to push material over the conduit from the side.

E. Tracked dozer or wheeled vehicle should gradually increase cover on one side of the conduit and then cross the conduit and increase cover on the other side of the conduit. The cover should be increased on one side of the conduit until a maximum of 2 feet of fill has been placed. The cover over the conduit is not allowed to be more than 2 feet higher on one side of the conduit than on the other side.

F. The cover should be gradually increased over the conduit until the grade elevations have been restored.

13.0 Piles

13.1 Impacts on Metropolitan Pipelines

Pile support for structures could impose lateral, vertical and seismic loads on Metropolitan's pipelines. Since the installation of piles could also cause settlement of Metropolitan pipelines, a settlement and/or lateral deformation study may be required for pile installations within 50 feet of Metropolitan's pipelines. Metropolitan may require additional information per its Geo-technical Guidelines for pile installation. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

13.2 Permanent Cast-in-place Piles

Permanent cast-in-place piles must be constructed so that down drag forces of the pile do not act on Metropolitan's pipeline. The pile must be designed so that down drag forces are not developed from the ground surface to springline of Metropolitan's pipeline.

Permanent cast-in-place piles shall not be placed closer than 5 feet from the edge of Metropolitan's pipeline. Metropolitan may require additional information per its Geo-technical Guidelines for pile installation. Please contact Metropolitan's Substructures Team for a copy of the Geotechnical Guidelines.

14.0 Protective Slabs for Road Crossings Over Metropolitan Pipelines

Protective slabs must be permanent cast-in-place concrete protective slabs configured in accordance with Drawing SK-1 (See Figure 2 on Page 22).

The moments and shear for the protective slab may be derived from the American Association of State Highway and Transportation Officials (AASHTO). The following requirements apply:

A. The concrete must be designed to meet the requirements of AASHTO

B. Load and impact factors must be in accordance with AASHTO. Accepted methods of analysis must be used.

C. The protective slab design must be stamped and signed by a California registered civil or structural engineer and submitted to Metropolitan with supporting calculations for review and approval.

Existing protective slabs that need to be lengthened can be lengthened without modification, provided the cover and other loading have not been increased.

15.0 Blasting

At least 90 days prior to the start of any drilling for rock excavation blasting, or any blasting in the vicinity of Metropolitan's facilities, a site-specific blasting plan must be submitted to Metropolitan for review and approval. The plan must consist of, but not be limited to, hole diameters, timing sequences, explosive weights, peak particle velocities (PPV) at Metropolitan pipelines/structures, and their distances to blast locations. The PPV must be estimated based on a site-specific power law equation. The power law equation provides the peak particle velocity versus the scaled distance and must be calibrated based on measured values at the site.

16.0 Metropolitan Plan Review Costs, Construction Costs and Billing

16.1 Plan Review Costs

Metropolitan plan reviews requiring 8 labor hours or less are generally performed at no cost to the project proponent. Metropolitan plan reviews requiring more than 8 labor hours must be paid by the project proponent, unless the project proponent has superior rights at the project area. The plan review will include a written response detailing Metropolitan's comments, requirements, and/or approval.

A deposit of funds in the amount of the estimated cost and a signed letter agreement will be required from the project proponent before Metropolitan begins or continues a detailed engineering plan review that exceeds 8 labor hours.

16.2 Cost of Modification of Facilities Performed by Metropolitan

Cost of modification work conducted by Metropolitan will be borne by the project proponent, when Metropolitan has paramount/prior rights at the subject location.

Metropolitan will transmit a cost estimate for the modification work to be performed (when it has paramount/prior rights) and will require that a deposit, in the amount of the estimate, be received before the work will be performed.

16.3 Final Billing

Final billing will be based on the actual costs incurred, including engineering plan review, inspection, materials, construction, and administrative overhead charges calculated in accordance with Metropolitan's standard accounting practices. If the total cost is less than the deposit, a refund will be made; however, if the cost exceeds the deposit, an invoice for the additional amount will be forwarded for payment.

17.0 Street Vacations and Reservation of Easements for Metropolitan

A reservation of an easement is required when all or a portion of a public street where Metropolitan facilities are located is to be vacated. The easement must be equal to the street width being vacated or a minimum 40 feet. The reservation must identify Metropolitan as a "public entity" and not a "public utility," prior to recordation of the vacation or tract map. The reservation of an easement must be submitted to Metropolitan for review prior to final approval.

18.0 Metropolitan Land Use Guidelines

If you are interested in obtaining permission to use Metropolitan land (temporary or long term), a Land Use Form must be completed and submitted to Metropolitan for review and consideration. A nonrefundable processing fee is required to cover Metropolitan's costs for reviewing your request. Land Use Request Forms can be found at:

http://mwdh2o.com/PDF_Doing_Your_Business/4.7.1_Land_Use_Request_form_revised.pdf

The request should be emailed to RealEstateServices@mwdh2o.com,or contact the Real Property Development and Management (RPDM) Group at (213) 217-7750.

After the initial application form has been submitted, Metropolitan may require the following in order to process your request:

A. A map indicating the location(s) where access is needed, and the location & size (height, width and depth) of any invasive subsurface activity (boreholes, trenches, etc.).

B. The California Environmental Quality Act (CEQA) document(s) or studies that have been prepared for the project (e.g., initial study, notice of exemption, Environmental Impact Report (EIR), Mitigated Negative Declaration (MND), etc.).

C. A copy of an ACORD insurance certification naming Metropolitan as an additional insured, or a current copy of a statement of self-insurance.

D. Confirmation of the legal name of the person(s) or entity(ies) that are to be named as the permittee(s) in the entry permit.

E. Confirmation of the purpose of the land use.

F. The name of the person(s) with the authority to sign the documents and any specific signature title block requirements for that person or any other persons required to sign the document (i.e., legal counsel, Board Secretary/Clerk, etc.).

G. A description of any vehicles that will have access to the property. The exact make or model information is not necessary; however, the general vehicle type, expected maximum dimensions (height, length, width), and a specific maximum weight must be provided.

Land use applications and proposed use of the property must be compatible with Metropolitan's present and/or future use of the property. Any preliminary review of your request by Metropolitan shall not be construed as a promise to grant any property rights for the use of Metropolitan's property.

19.0 Compliance with Environmental Laws and Regulations

As a public agency, Metropolitan is required to comply with all applicable environmental laws and regulations related to the activities it carries out or approves. Consequently, project plans, maps, and other information must be reviewed to determine Metropolitan's obligations pursuant to state and federal environmental laws and regulations, including, but not limited to:

A. California Environmental Quality Act (CEQA) (Public Resources Code 21000-21177) and the State CEQA Guidelines (California Code of Regulations, Title 14, Division 6, Chapter 3, Sections 1500-15387)

B. Federal Endangered Species Act (ESA) of 1973, 16 U.S.C. §§ 1531, et seq.

C. California Fish and Game Code Sections 2050-2069 (California ESA)

D. California Fish and Game Code Section 1602

E. California Fish and Game Code Sections 3511, 4700, 5050 and 5515 (California fully protected species)

F. Federal Migratory Bird Treaty Act (MBTA), 16 U.S.C. §§ 703-712

G. Federal Clean Water Act (including but not limited to Sections 404 and 401) 33 U.S.C. §§ 1342, 1344)

H. Porter Cologne Water Quality Control Act of 1969, California Water Code §§ 13000-14076.

I. Title 22, California Code of Regulations, Chapter 16 (California Waterworks Standards), Section 64572 (Water Main Separation)

Metropolitan may require the project applicant to pay for any environmental review, compliance and/or mitigation costs incurred to satisfy such legal obligations.

20.0 Paramount Rights / Metropolitan's Rights within Existing Rights-of-Way

Facilities constructed within Metropolitan's rights-of-way shall be subject to the paramount right of Metropolitan to use its rights-of-way for the purpose for which they were acquired. If at any time Metropolitan or its assigns should, in the exercise of their rights, find it necessary to remove or relocate any facilities from its rights-of-way, such removal and replacement or relocation shall be at the expense of the owner of the facility.

21.0 Disclaimer and Information Accuracy

Metropolitan assumes no responsibility for the accuracy of the substructure information herein provided. The user assumes responsibility for verifying substructure locations before excavating and assumes all liability for damage to Metropolitan's facilities as a result of such excavation. Additionally, the user is cautioned to conduct surveys and other field investigations as you may deem prudent, to assure that your project plans are correct. The relevant representative from Metropolitan must be called at least two working days, before any work activity in proximity to Metropolitan's facilities.

It generally takes 30 days to review project plans and provide written responses. Metropolitan reserves the right to modify requirements based on case-specific issues and regulatory developments.

Table 1: General Guidelines for Pipeline Separation between Metropolitan's Pipeline[1] and Sanitary Sewer[2] or Hazardous Fluid Pipeline[3]

Pipeline Crossings	Metropolitan requires that sanitary sewer and hazardous fluid pipelines that cross Metropolitan's pipelines have special pipe construction (no joints) **and** secondary containment[4]. This is required for the full width of Metropolitan's rights-of-way or within 10 feet tangent to the outer edges of Metropolitan's pipeline within public streets. Additionally, sanitary sewer and hazardous fluid pipelines crossing Metropolitan's pipelines must be perpendicular and maintain a minimum 1-foot vertical clearance between the top and the bottom of Metropolitan's pipeline and the pipe casing. These requirements apply to all sanitary sewer crossings regardless if the sanitary sewer main is located below or above Metropolitan's pipeline.
Parallel Pipeline	Metropolitan generally does not permit the installation of longitudinal pipelines along its rights-of-way. Within public streets, Metropolitan requires that all parallel sanitary sewer, hazardous fluid pipelines and/or non-potable utilities be located a minimum of 10 feet from the outside edges of Metropolitan's pipelines. When 10-foot horizontal separation criteria cannot be met, longitudinal pipelines require special pipe construction (no joints) **and** secondary containment[4].
Sewer Manhole	Sanitary sewer manholes are not allowed within Metropolitan's rights-of-way. Within public streets, Metropolitan requests manholes parallel to its pipeline be located a minimum of 10 feet from the outside edges of its pipelines. When 10 foot horizontal separation criteria cannot be met, the structure must have secondary containment[5].

Notes:

[1] Separation distances are measured from the outer edges of each pipe.

[2] Sanitary sewer requirements apply to all recycled water treated to less than disinfected tertiary recycled water (disinfected secondary recycled water or less). Recycled water definitions are included in Title 22, California Code of Regulations, Chapter 3 (Water Recycling Criteria), Section 60301.

[3] Hazardous fluids include e.g., oil, fuels, chemicals, industrial wastes, wastewater sludge, etc.

[4] Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.

[5] Secondary Containment for Structures – Secondary containment consists of external HDPE liner or other approved method.

Table 2: General Guidelines for Pipeline Separation between Metropolitan's Pipeline[1] and Storm Drain and/or Disinfected Tertiary Recycled Water[2]

Pipeline Crossings	Metropolitan requires crossing pipelines to be special pipe construction (no joints) or have secondary containment[3] within 10-feet tangent to the outer edges of Metropolitan's pipeline. Additionally, pipelines crossing Metropolitan's pipelines must be perpendicular and maintain a minimum 1-foot vertical clearance.
Parallel Pipeline	Metropolitan generally does not permit the installation of longitudinal pipelines along its rights-of-way. Within public streets, Metropolitan requests that all parallel pipelines be located a minimum of 10 feet from the outside edges of Metropolitan's pipelines. When 10-foot horizontal separation criteria cannot be met, special pipe construction (no joints) or secondary containment[3] are required.
Storm Drain Manhole	Permanent utility structures (e.g., manhole. catch basin, inlets) are not allowed within Metropolitan's rights-of-way. Within public streets, Metropolitan requests all structures parallel to its pipeline be located a minimum of 10 feet from the outside edges of its pipelines. When 10 foot horizontal separation criteria cannot be met, the structure must have secondary containment[4].

Notes:

[1] *Separation distances are measured from the outer edges of each pipe.*

[2] *Disinfected tertiary recycled water as defined* in Title 22, California Code of Regulations, Chapter 3 (*Water Recycling Criteria*), Section 60301.

[3] *Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.*

[4] *Secondary Containment for Structures – Secondary containment consists of external HDPE liner or other approved method.*

Table 3: General Guidelines for Pipeline Separation[1] between Metropolitan's Pipeline and Recycled Water[2,4] Irrigations

Pressurized recycled irrigation mainlines	• Crossings - must be perpendicular and maintain a minimum 1-foot vertical clearance. Crossing pressurized recycled irrigation mainlines must be special pipe construction (no joints) or have secondary containment[3] within 10-feet tangent to the outer edges of Metropolitan's pipeline. • Longitudinal - must maintain a minimum 10-foot horizontal separation and route along the perimeter of Metropolitan's rights-of-way where possible.
Intermittently Energized Recycled Water Irrigation System Components	• Crossings - must be perpendicular and maintain a minimum 1-foot vertical clearance. Crossing irrigation laterals within 5-feet tangent to the outer edges of Metropolitan's pipeline must be special pipe construction (no joints) or have secondary containment[3]. • Longitudinal – must maintain a minimum 5-foot horizontal separation between all intermittently energized recycled water irrigation system components (e.g. irrigation lateral lines, control valves, rotors) and the outer edges of Metropolitan's pipeline. Longitudinal irrigation laterals within 5-feet tangent to the outer edges of Metropolitan's pipeline must be special pipe construction (no joints) or have secondary containment[3].
Irrigation Structures	Irrigation structures such as meters, pumps, control valves, etc. must be located outside of Metropolitan's rights-of-way.
Irrigation spray rotors near Metropolitan's aboveground facilities	Irrigation spray rotors must be located a minimum of 20-foot from any Metropolitan above ground structures with the spray direction away from these structures. These rotors should be routinely maintained and adjusted as necessary to ensure no over-spray into 20-foot clear zones.
Irrigations near open canals and aqueducts	Irrigation with recycled water near open canals and aqueducts will require a setback distance to be determined based on site-specific conditions. Runoff of recycled water must be contained within an approved use area and not impact Metropolitan facilities. Appropriate setbacks must also be in place to prevent overspray of recycled water impacting Metropolitan's facilities.

Notes:

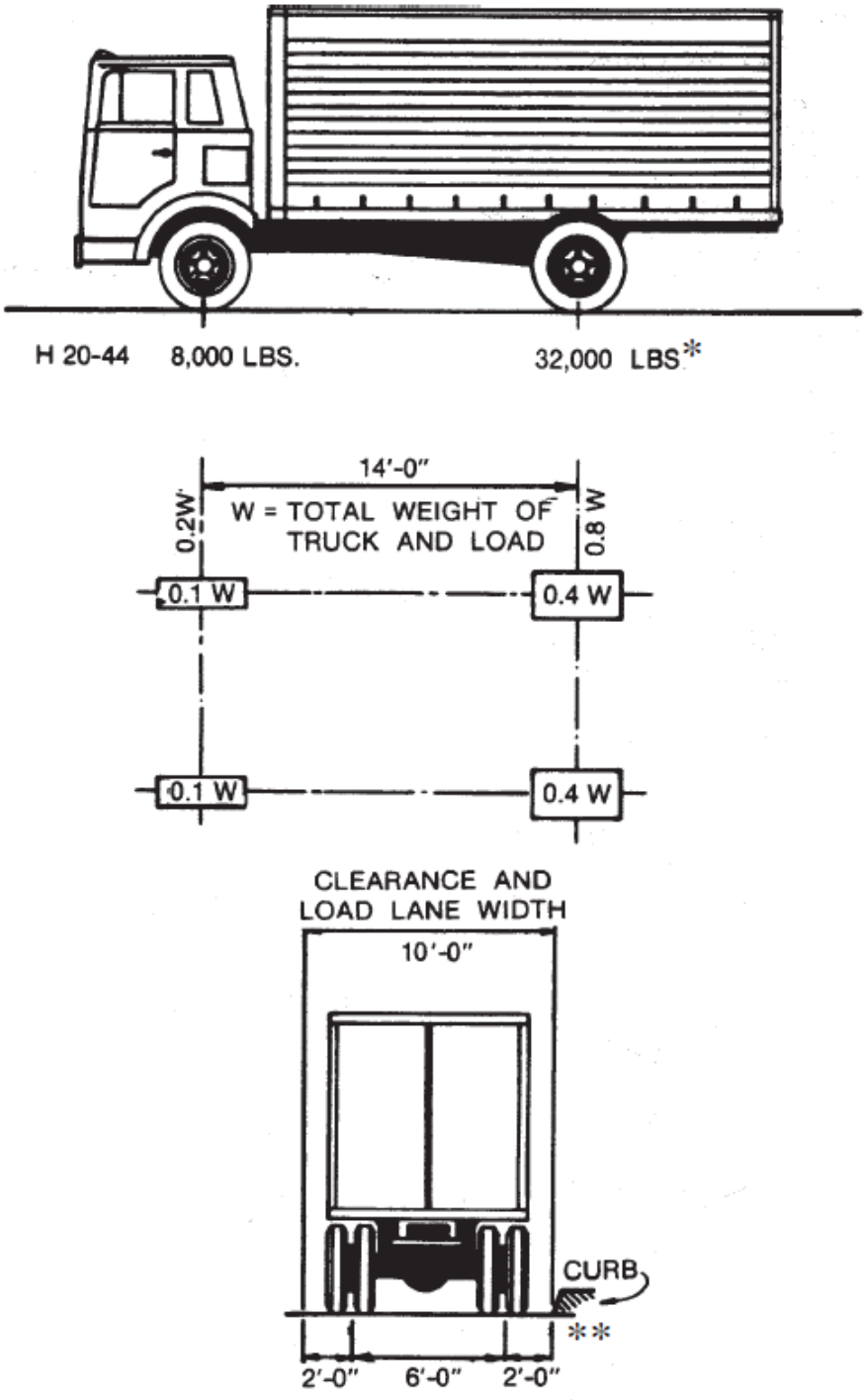
[1] *Separation distances are measured from the outer edges of each pipe.*

[2] *Requirements for recycled water irrigation apply to all levels of treatment of recycled water for non-potable uses.* Recycled water definitions are included in Title 22, California Code of Regulations, Chapter 3 (*Water Recycling Criteria*), Section 60301.

[3] *Secondary Containment for Pipeline - Secondary containment consists of a continuous pipeline sleeve (no joints). Examples acceptable to Metropolitan include welded steel pipe with grout in annular space and cathodic protection (unless coated with non-conductive material) and High Density Polyethylene (HDPE) pipe with fusion-welded joints.*

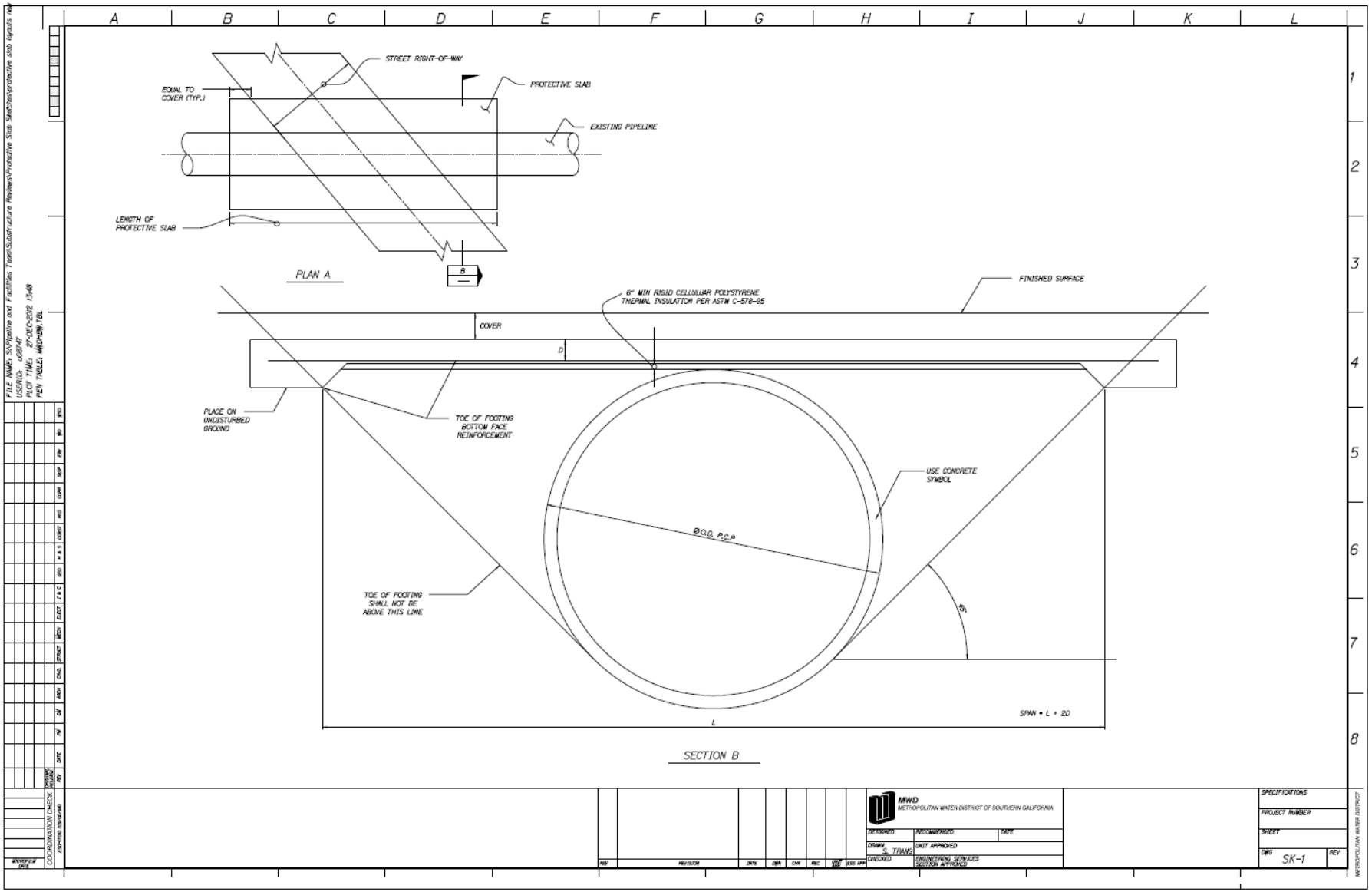
[4] *Irrigation with recycled water shall not be applied directly above Metropolitan's treated water pipelines.*

Figure 1: AASHTO H-20 Loading



Note: The H loadings consist of a two-axle truck or the corresponding lane loadings as illustrated above. The H loadings are designated "H" followed by a number indicating the gross weight in tons of the standard truck.

Figure 2: Drawing SK-1



South Coast
Air Quality Management District
21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

SENT VIA E-MAIL: March 17, 2020

VCarvajal@santa-ana.org
Verny Carvajal, Principal Planner
City of Santa Ana, Planning and Building Agency
P.O. Box 1988 (M-20)
Santa Ana, CA 92702

Notice of Preparation of a Program Environmental Impact Report for the Proposed Santa Ana General Plan

South Coast Air Quality Management District (South Coast AQMD) staff appreciates the opportunity to comment on the above-mentioned document. South Coast AQMD staff's comments are recommendations regarding the analysis of potential air quality impacts from the Proposed Project that should be included in the Program Environmental Impact Report (EIR). Please send South Coast AQMD a copy of the Program EIR upon its completion and public release. Note that copies of the Program EIR that are submitted to the State Clearinghouse are not forwarded to South Coast AQMD. Please forward a copy of the Program EIR directly to South Coast AQMD at the address shown in the letterhead. **In addition, please send with the Program EIR all appendices or technical documents related to the air quality, health risk, and greenhouse gas analyses and electronic versions of all air quality modeling and health risk assessment files[1]. These include emission calculation spreadsheets and modeling input and output files (not PDF files). Without all files and supporting documentation, South Coast AQMD staff will be unable to complete our review of the air quality analyses in a timely manner. Any delays in providing all supporting documentation will require additional time for review beyond the end of the comment period.**

Air Quality Analysis

South Coast AQMD adopted its California Environmental Quality Act (CEQA) Air Quality Handbook in 1993 to assist other public agencies with the preparation of air quality analyses. South Coast AQMD staff recommends that the Lead Agency use this Handbook as guidance when preparing its air quality analyses. Copies of the Handbook are available from the South Coast AQMD's Subscription Services Department by calling (909) 396-3720. More recent guidance developed since this Handbook was published is also available on South Coast AQMD's website at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/ceqa-air-quality-handbook-(1993). South Coast AQMD staff also recommends that the Lead Agency use the CalEEMod land use emissions software. This software has recently been updated to incorporate up-to-date state and locally approved emission factors and methodologies for estimating pollutant emissions from typical land use development. CalEEMod is the only software model maintained by the California Air Pollution Control Officers Association (CAPCOA) and replaces the now outdated URBEMIS. This model is available free of charge at: www.caleemod.com.

On March 3, 2017, the South Coast AQMD's Governing Board adopted the 2016 Air Quality Management Plan (2016 AQMP), which was later approved by the California Air Resources Board on March 23, 2017.

[1] Pursuant to the CEQA Guidelines Section 15174, the information contained in an EIR shall include summarized technical data, maps, plot plans, diagrams, and similar relevant information sufficient to permit full assessment of significant environmental impacts by reviewing agencies and members of the public. Placement of highly technical and specialized analysis and data in the body of an EIR should be avoided through inclusion of supporting information and analyses as appendices to the main body of the EIR. Appendices to the EIR may be prepared in volumes separate from the basic EIR document, but shall be readily available for public examination and shall be submitted to all clearinghouses which assist in public review.

Built upon the progress in implementing the 2007 and 2012 AQMPs, the 2016 AQMP provides a regional perspective on air quality and the challenges facing the South Coast Air Basin. The most significant air quality challenge in the Basin is to achieve an additional 45 percent reduction in nitrogen oxide (NOx) emissions in 2023 and an additional 55 percent NOx reduction beyond 2031 levels for ozone attainment. The 2016 AQMP is available on South Coast AQMD's website at: http://www.aqmd.gov/home/library/clean-air-plans/air-quality-mgt-plan.

South Coast AQMD staff recognizes that there are many factors Lead Agencies must consider when making local planning and land use decisions. To facilitate stronger collaboration between Lead Agencies and South Coast AQMD to reduce community exposure to source-specific and cumulative air pollution impacts, South Coast AQMD adopted the Guidance Document for Addressing Air Quality Issues in General Plans and Local Planning in 2005[2]. This Guidance Document provides suggested policies that local governments can use in their General Plans or through local planning to prevent or reduce potential air pollution impacts and protect public health. South Coast AQMD staff recommends that the Lead Agency review this Guidance Document as a tool when making local planning and land use decisions. Additional guidance on siting incompatible land uses (such as placing homes near freeways or other polluting sources) can be found in the California Air Resources Board's *Air Quality and Land Use Handbook: A Community Health Perspective*, which can be found at: http://www.arb.ca.gov/ch/handbook.pdf. Guidance[3] on strategies to reduce air pollution exposure near high-volume roadways can be found at: https://www.arb.ca.gov/ch/rd_technical_advisory_final.PDF.

South Coast AQMD has also developed both regional and localized air quality significance thresholds. South Coast AQMD staff requests that the Lead Agency compare the emissions to the recommended regional significance thresholds found here: http://www.aqmd.gov/docs/default-source/ceqa/handbook/scaqmd-air-quality-significance-thresholds.pdf. In addition to analyzing regional air quality impacts, South Coast AQMD staff recommends calculating localized air quality impacts and comparing the results to localized significance thresholds (LSTs). LSTs can be used in addition to the recommended regional significance thresholds as a second indication of air quality impacts when preparing a CEQA document. Therefore, when preparing the air quality analysis for the Proposed Project, it is recommended that the Lead Agency perform a localized analysis by either using the LSTs developed by South Coast AQMD or performing dispersion modeling as necessary. Guidance for performing a localized air quality analysis can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/localized-significance-thresholds.

When specific development is reasonably foreseeable as result of the goals, policies, and guidelines in the Proposed Project, the Lead Agency should identify any potential adverse air quality impacts and sources of air pollution that could occur using its best efforts to find out and a good-faith effort at full disclosure in the EIR. The degree of specificity will correspond to the degree of specificity involved in the underlying activity which is described in the EIR (CEQA Guidelines Section 15146). When quantifying air quality emissions, emissions from both construction (including demolition, if any) and operations should be calculated. Construction-related air quality impacts typically include, but are not limited to, emissions from the use of heavy-duty equipment from grading, earth-loading/unloading, paving, architectural coatings, off-road mobile sources (e.g., heavy-duty construction equipment) and on-road mobile sources (e.g., construction worker vehicle trips, material transport trips). Operation-related air quality impacts may include, but are not limited to, emissions from stationary sources (e.g., boilers), area sources (e.g., solvents and coatings), and vehicular trips (e.g., on- and off-road tailpipe emissions and entrained dust). Air quality impacts from indirect sources,

[2] South Coast AQMD. 2005. Accessed at: http://www.aqmd.gov/docs/default-source/planning/air-quality-guidance/complete-guidance-document.pdf.

[3] In April 2017, CARB published a technical advisory, *Strategies to Reduce Air Pollution Exposure Near High-Volume Roadways: Technical Advisory*, to supplement CARB's Air Quality and Land Use Handbook: A Community Health Perspective. This technical advisory is intended to provide information on strategies to reduce exposures to traffic emissions near high-volume roadways to assist land use planning and decision-making in order to protect public health and promote equity and environmental justice. The technical advisory is available at: https://www.arb.ca.gov/ch/landuse.htm.

such as sources that generate or attract vehicular trips, should be included in the analysis. Furthermore, for phased projects where there will be an overlap between construction and operational activities, emissions from the overlapping construction and operational activities should be combined and compared to South Coast AQMD's regional air quality CEQA *operational* thresholds to determine the level of significance.

If the Proposed Project generates or attracts vehicular trips, especially heavy-duty diesel-fueled vehicles, it is recommended that the Lead Agency perform a mobile source health risk assessment. Guidance for performing a mobile source health risk assessment ("*Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*") can be found at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis. An analysis of all toxic air contaminant impacts due to the use of equipment potentially generating such air pollutants should also be included.

Mobile Source Health Risk Assessment

Notwithstanding the court rulings, South Coast AQMD staff recognizes that the Lead Agencies that approve CEQA documents retain the authority to include any additional information they deem relevant to assessing and mitigating the environmental impacts of a project. Because of South Coast AQMD staff's concern about the potential public health impacts of siting sensitive populations within close proximity of freeways and other sources of air pollution, South Coast AQMD staff recommends that, prior to approving the project, Lead Agencies consider the impacts of air pollutants on people who will live in a new project and provide mitigation where necessary.

Based on review of Figure 1 enclosed in the Notice of Preparation, South Coast AQMD staff found that sensitive land uses (e.g., residential uses) may be located within close proximity to Interstate 5 and State Route 22. Sensitive receptors would be exposed to diesel particulate matter (DPM) emitted from heavy-duty, diesel-fueled on-road vehicles. DMP is a toxic air contaminant and a carcinogen. Since sensitive receptors would be exposed to toxic emissions, South Coast AQMD staff recommends that the Lead Agency conduct a mobile source health risk assessment (HRA)[4] in the Program EIR to disclose the potential health risks[5]. The HRA will facilitate the purpose and goal of CEQA on public disclosure and enable decision-makers with meaningful information to make an informed decision on project approval. This will also foster informed public participation by providing the public with useful information that is needed to understand the potential health risks from living and working within close proximity to freeways.

Mitigation Measures

If the Proposed Project generates significant adverse air quality impacts, CEQA requires that all feasible mitigation measures that go beyond what is required by law be utilized during project construction and operation to minimize or eliminate these impacts. Pursuant to CEQA Guidelines Section 15126.4 (a)(1)(D), any impacts resulting from mitigation measures must also be discussed. Several resources are available to assist the Lead Agency with identifying possible mitigation measures for the Proposed Project, including:

- Chapter 11 "Mitigating the Impact of a Project" of South Coast AQMD's *CEQA Air Quality Handbook*
- South Coast AQMD's CEQA web pages available here: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mitigation-measures-and-control-efficiencies

[4] South Coast AQMD. *Health Risk Assessment Guidance for Analyzing Cancer Risk from Mobile Source Diesel Idling Emissions for CEQA Air Quality Analysis*. Accessed at: http://www.aqmd.gov/home/regulations/ceqa/air-quality-analysis-handbook/mobile-source-toxics-analysis.

[5] South Coast AQMD has developed the CEQA significance threshold of 10 in one million for cancer risk. When South Coast AQMD acts as the Lead Agency, South Coast AQMD staff conducts a HRA, compares the maximum cancer risk to the threshold of 10 in one million to determine the level of significance for health risk impacts, and identifies mitigation measures if the risk is found to be significant.

- South Coast AQMD's Rule 403 – Fugitive Dust, and the Implementation Handbook for controlling construction-related emissions and Rule 1403 – Asbestos Emissions from Demolition/Renovation Activities
- California Air Pollution Control Officers Association's (CAPCOA) *Quantifying Greenhouse Gas Mitigation Measures* available here: http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

Health Risks Reduction Strategies

As stated above, the Proposed Project is located within close proximity to freeways. Many strategies are available to reduce exposures, including, but are not limited to, building filtration systems with MERV 13 or better, or in some cases, MERV 15 or better is recommended; building design, orientation, location; vegetation barriers or landscaping screening, etc. Enhanced filtration units are capable of reducing exposures. Installation of enhanced filtration units can be verified during occupancy inspection prior to the issuance of an occupancy permit.

Enhanced filtration systems have limitations. South Coast AQMD staff recommends that the Lead Agency consider the limitations of the enhanced filtration. For example, in a study that South Coast AQMD conducted to investigate filters[6], a cost burden is expected to be within the range of $120 to $240 per year to replace each filter. The initial start-up cost could substantially increase if an HVAC system needs to be installed. In addition, because the filters would not have any effectiveness unless the HVAC system is running, there may be increased energy costs to the sensitive receptors (e.g., residents). It is typically assumed that the filters operate 100 percent of the time while sensitive receptors at the Proposed Project are indoors, and the environmental analysis does not generally account for the times when sensitive receptors have their windows or doors open or are in common space areas of the project. In addition, these filters have no ability to filter out any toxic gases from vehicle exhaust. Therefore, the presumed effectiveness and feasibility of any filtration units should be carefully evaluated in more detail prior to assuming that they will sufficiently alleviate exposures to DPM emissions.

Because of the limitations, to ensure that enhanced filters are enforceable throughout the lifetime of the Proposed Project as well as effective in reducing exposures to DPM emissions, South Coast AQMD staff recommends that the Lead Agency provide additional details regarding the ongoing, regular maintenance and monitoring of filters in the environmental analysis. To facilitate a good faith effort at full disclosure and provide useful information to people who will live at the Proposed Project, the environmental analysis should include the following information, at a minimum:

- Disclose the potential health impacts to sensitive receptors from living in close proximity of sources of air pollution and the reduced effectiveness of air filtration system when windows are open and/or when receptors are outdoor (e.g., in the common and open space areas);
- Identify the responsible implementing and enforcement agency such as the Lead Agency to ensure that enhanced filtration units are installed on-site at the Proposed Project before a permit of occupancy is issued;
- Identify the responsible implementing and enforcement agency such as the Lead Agency to ensure that enhanced filtration units are inspected regularly;
- Provide information to sensitive receptors on where the MERV filers can be purchased;
- Disclose the potential increase in energy costs for running the HVAC system to sensitive receptors;
- Provide recommended schedules (e.g., once a year or every six months) for replacing the enhanced filtration units to sensitive receptors;

[6] This study evaluated filters rated MERV 13 or better. Accessed at: http://www.aqmd.gov/docs/default-source/ceqa/handbook/aqmdpilotstudyfinalreport.pdf. Also see 2012 Peer Review Journal article by South Coast AQMD: https://onlinelibrary.wiley.com/doi/10.1111/ina.12013.

- Identify the responsible entity such as sensitive receptors themselves (e.g., residents), Homeowner's Association, or property management for ensuring enhanced filtration units are replaced on time, if appropriate and feasible (if sensitive receptors should be responsible for the periodic and regular purchase and replacement of the enhanced filtration units, the Lead Agency should include this information in the disclosure form);
- Identify, provide, and disclose any ongoing cost sharing strategies, if any, for the purchase and replacement of the enhanced filtration units;
- Set City-wide or Project-specific criteria for assessing progress in installing and replacing the enhanced filtration units; and
- Develop a City-wide or Project-specific process for evaluating the effectiveness of the enhanced filtration units at the Proposed Project.

Alternatives

If the Proposed Project generates significant adverse air quality impacts, CEQA requires the consideration and discussion of alternatives to the project or its location which are capable of avoiding or substantially lessening any of the significant effects of the project. The discussion of a reasonable range of potentially feasible alternatives, including a "no project" alternative, is intended to foster informed decision-making and public participation. Pursuant to CEQA Guidelines Section 15126.6(d), the Program EIR shall include sufficient information about each alternative to allow meaningful evaluation, analysis, and comparison with the Proposed Project.

Permits

If implementation of the Proposed Project requires a permit from South Coast AQMD, South Coast AQMD should be identified as a Responsible Agency for the Proposed Project in the Program EIR. For more information on permits, please visit South Coast AQMD's webpage at: http://www.aqmd.gov/home/permits. Questions on permits can be directed to South Coast AQMD's Engineering and Permitting staff at (909) 396-3385.

Data Sources

South Coast AQMD rules and relevant air quality reports and data are available by calling the South Coast AQMD's Public Information Center at (909) 396-2001. Much of the information available through the Public Information Center is also available via the South Coast AQMD's webpage (http://www.aqmd.gov).

South Coast AQMD staff is available to work with the Lead Agency to ensure that project's air quality impacts are accurately evaluated and mitigated where feasible. Please contact me at lsun@aqmd.gov, should you have any questions.

Sincerely,

Lijin Sun

Lijin Sun, J.D.
Program Supervisor, CEQA IGR
Planning, Rule Development & Area Sources

LS
ORC200303-03
Control Number

GABRIELENO BAND OF MISSION INDIANS - KIZH NATION
Historically known as The San Gabriel Band of Mission Indians
recognized by the State of California as the aboriginal tribe of the Los Angeles basin

March 20, 2020

Project Name: Santa Ana General Plan

Dear Verny Carvajal,

Thank you for your letter dated February 26, 2020 regarding AB52 consultation. The above proposed project location is within our Ancestral Tribal Territory; therefore, our Tribal Government requests to schedule a consultation with you as the lead agency, to discuss the project and the surrounding location in further detail.

Please contact us at your earliest convenience. ***Please Note:AB 52, "consultation" shall have the same meaning as provided in SB 18 (Govt. Code Section 65352.4).***

Thank you for your time,

Andrew Salas, Chairman
Gabrieleno Band of Mission Indians – Kizh Nation
1(844)390-0787

Andrew Salas, Chairman | Nadine Salas, Vice-Chairman | Dr. Christina Swindall Martinez, secretary
Albert Perez, treasurer I | Martha Gonzalez Lemos, treasurer II | Richard Gradias, Chairman of the council of Elders

PO Box 393 Covina, CA 91723 admin@gabrielenoindians.org

AIRPORT LAND USE COMMISSION
FOR ORANGE COUNTY
3160 Airway Avenue • Costa Mesa, California 92626 • 949.252.5170 fax: 949.252.6012

March 26, 2020

Verny Carvajal, Principal Planner
City of Santa Ana Planning and Building Agency
P.O. Box 1988, M-20
Santa Ana, CA 92702

Subject: Comments on the Notice of Preparation of Program Environmental Impact Report (EIR) for Santa Ana General Plan

Dear Mr. Carvajal:

Thank you for the opportunity to review the Notice of Preparation (NOP) for the City of Santa Ana General Plan in the context of the *Airport Environs Land Use Plan (AELUP) for John Wayne Airport (JWA)*. We wish to offer the following comments and respectfully request consideration of these comments as you proceed with your DEIR and General Plan Update.

The City of Santa Ana is located within the AELUP Notification Area for JWA. The DEIR and General Plan should address height restrictions and imaginary surfaces by discussing Federal Aviation Administration (FAA) Federal Aviation Regulation (FAR) Part 77 as the criteria for determining height restrictions for projects located within the airport planning area. To ensure the safe operation of aircraft activity at JWA, structures anywhere in the JWA airport planning area should not exceed the applicable elevations defined in FAR Part 77 (Objects Affecting Navigable Air Space). The General Plan should include height policy language and a mitigation measure in the EIR that states that no buildings will be allowed to penetrate the FAR Part 77 imaginary surfaces for JWA to ensure the protection of its airspace.

Development proposals within the City, which include the construction or alteration of structures more than 200 feet above ground level, require filing with the FAA and Airport Land Use Commission (ALUC) notification. Projects meeting this threshold must comply with procedures provided by Federal and State law, and with all conditions of approval imposed or recommended by FAA and ALUC including filing a Notice of Proposed Construction or Alteration (FAA Form 7460-1). Depending on the maximum building heights that will be allowed within the General Plan, the City may wish to consider a mitigation and condition of approval specifying this 200 feet above ground level height

threshold. In addition, any project that penetrates the Notification Surface for JWA is required to file FAA Form 7460-1.

Portions of the City of Santa Ana fall within the 60 and 65 dB CNEL noise contours for JWA including a portion of the 55 Freeway/Dyer Road planning area. The DEIR and General Plan Update should include policies and mitigations for development within these contours, especially if mixed-use/residential development would be permitted. Per the *AELUP for JWA*, all residential units within the 65 dB CNEL contour are typically inconsistent in this area unless it can be shown conclusively that such units are sufficiently sound attenuated for present and projected noise exposure so as not to exceed an interior standard of 45 dB CNEL. However, the ALUC recommends that residential uses not be permitted within the 65 dB CNEL contour. As for residential development within the 60 dB CNEL contour, the ALUC may not find residential units incompatible in this area, but would strongly recommend that residential units be limited or excluded from this area unless sufficiently sound attenuated not to exceed an interior level of 45 dB.

We also recommend that the DEIR and the General Plan Update identify if the development of heliports will be allowed within your jurisdiction. Should the development of heliports occur within your jurisdiction, proposals to develop new heliports may be submitted through the City to the ALUC for review and action pursuant to Public Utilities Code Section 21661.5. Proposed heliport projects must comply fully with the state permit procedure provided by law and with all conditions of approval imposed or recommended by FAA, by the ALUC for Orange County and by Caltrans/Division of Aeronautics.

To address consistency with the *AELUP for Heliports* we suggest adding the following language to your General Plan Update and inclusion as a mitigation measure in the EIR:

> "The City will ensure that development proposals including the construction or operation of a heliport or helistop comply fully with permit procedures under State law, including referral of the project to the ALUC by the applicant, and with all conditions of approval imposed or recommended by the Federal Aviation Administration (FAA), ALUC, and Caltrans, including the filing of a Form 7480-1 (Notice of Landing Area Proposal) with the FAA. This requirement shall be in addition to all other City development requirements."

Section 21676 of the PUC requires that prior to the adoption or amendment of a general plan or specific plan, or the adoption or approval of a zoning ordinance or building regulation within the planning boundary established by the Airport Land Use Commission pursuant to Section 21675, the local agency shall first refer the proposed action to the ALUC. We recommend that the City include policy in its General Plan and a mitigation measure in the EIR that states that the City shall refer projects to the Airport Land Use Commission (ALUC) for Orange County as required by Section 21676 of the California Public Utilities Code to determine consistency of projects with the *AELUP for JWA.*

The Commission requests that referrals for determinations be submitted to the ALUC after the city's Planning Commission hearing and before the City Council action. Since the ALUC meets on the third Thursday afternoon of each month, submittals must be received in the ALUC office by the first of the month to ensure sufficient time for review, analysis, and agendizing. For additional information, please contact Julie Fitch at (949) 252-2584 or at jfitch@ocair.com.

Sincerely,

Lea U. Choum
Executive Officer

cc: Airport Land Use Commissioners

State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
www.wildlife.ca.gov

GAVIN NEWSOM, Governor
CHARLTON H. BONHAM, Director

March 26, 2020

Mr. Verny Carvajal
City of Santa Ana
PO Box 1988 (M-20)
Santa Ana, CA 92702

Dear Mr. Carvajal:

Subject: Santa Ana General Plan Program Environmental Impact Report (PROJECT) NOTICE OF PREPARATION (NOP) OF A PROGRAM ENVIRONMENTAL IMPACT REPORT (PEIR) SCH# 2020029087

The California Department of Fish and Wildlife (CDFW) received a Notice of Preparation (NOP) of a Program Environmental Impact Report (PEIR) from the City of Santa Ana (City) for the Project pursuant the California Environmental Quality Act (CEQA) and CEQA Guidelines.[1]

Thank you for the opportunity to provide comments and recommendations regarding those activities involved in the Project that may affect California fish and wildlife. Likewise, we appreciate the opportunity to provide comments regarding those aspects of the Project that CDFW, by law, may be required to carry out or approve through the exercise of its own regulatory authority under the Fish and Game Code.

CDFW ROLE

CDFW is California's **Trustee Agency** for fish and wildlife resources, and holds those resources in trust by statute for all the people of the state. (Fish & G. Code, §§ 711.7, subd. (a) & 1802; Pub. Resources Code, § 21070; CEQA Guidelines § 15386, subd. (a).) CDFW, in its trustee capacity, has jurisdiction over the conservation, protection, and management of fish, wildlife, native plants, and habitat necessary for biologically sustainable populations of those species. (*Id.*, § 1802.) Similarly for purposes of CEQA, CDFW is charged by law to provide, as available, biological expertise during public agency environmental review efforts, focusing specifically on projects and related activities that have the potential to adversely affect fish and wildlife resources.

PROJECT DESCRIPTION SUMMARY

Proponent: City of Santa Ana (City)
Objective: The objective of the Project is to update the City's existing General Plan to guide development and conservation for the next 25 years through 2045. Five regions are identified as focus areas to be enhanced through development.

1 CEQA is codified in the California Public Resources Code in section 21000 et seq. The "CEQA Guidelines" are found in Title 14 of the California Code of Regulations, commencing with section 15000.

Location: The City of Santa Ana encompasses roughly 27 square miles of land in central Orange County. The City is bordered to the north by Orange, to the south by Costa Mesa, to the west by Garden Grove, Westminster, and Fountain Valley, and to the east by Tustin and Irvine. The Santa Ana River traverses through the northwestern quadrant of the City. Special status species with the potential to occur in the region include: Steelhead - southern California Distinct Population Segment (DPS) (*Oncorhynchus mykiss irideus*; Endangered Species Act (ESA) listed endangered), coast horned lizard (*Phrynosoma blainvillii*; California Species of Special Concern (SSC)), Crotch bumble bee (*Bombus crotchii*; Candidate for CESA-listed endangered), Mexican long-tongued bat (*Choeronycteris mexicana*; SSC), and American peregrine falcon (*Falco peregrinus anatum*; FPS).

Timeframe: The comprehensive update to the exiting General Plan is anticipated to be completed in 2020 and will guide development and conservation through 2045.

COMMENTS AND RECOMMENDATIONS

CDFW offers the comments and recommendations below to assist the City in adequately identifying and/or mitigating the Project's significant, or potentially significant, direct and indirect impacts on fish and wildlife (biological) resources. Based on the potential for the Project to have a significant impact on biological resources, CDFW agrees that a Program Environmental Impact Report is appropriate for the Project.

I. Potential Impacts to Santa Ana River

Would the Project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by CDFW or USFWS?

COMMENT #1:

Issue: The Proposed General Plan focus area along West Santa Ana Boulevard intersects the Santa Ana River corridor as well as adjacent open space areas. Development within that focus area may potentially affect biological resources associated with riparian habitat or neighboring open space.

CDFW Recommendations To Minimize Significant Impacts:

1. The Proposed General Plan focus area along West Santa Ana Boulevard intersects the Santa Ana River corridor. Historically, the Santa Ana River and tributaries supported federally endangered southern California steelhead (https://wildlife.ca.gov/Conservation/Fishes/Coastal-Rainbow-Trout-Steelhead). California Fish and Game Code § 5901 states that it is unlawful to construct or maintain any device or contrivance that prevents, impedes, or tends to prevent or impede the passing of fish up and down stream.

In accordance with California Fish and Game Code, we recommend that the PEIR include an analysis of any proposed major stream crossings in the context of fish passage. The analysis should include, but not be limited to, steelhead presence or historic presence, existing conditions including habitat and barrier assessments, any known projects to remove barriers or

restore habitat that would affect or be affected by this project, and cumulative impacts to steelhead populations and/or habitat resulting from this project.

2. CDFW has responsibility for wetland and riparian habitats. It is the policy of CDFW to strongly discourage development in wetlands or conversion of wetlands to uplands. We oppose any development or conversion that would result in a reduction of wetland acreage or wetland habitat values, unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. Development and conversion include but are not limited to conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether ephemeral, intermittent, or perennial, should be retained and provided with substantial setbacks that preserve the riparian and aquatic values and maintain their value to on-site and off-site wildlife populations. Mitigation measures to compensate for impacts to mature riparian corridors must be included in the PEIR and must compensate for the loss of function and value of a wildlife corridor.

3. CDFW considers adverse impacts to a species protected by the California Endangered Species Act (CESA), for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any endangered, threatened, or candidate species that results from the project is prohibited, except as authorized by state law (Fish & G. Code, §§ 2080, 2085). Consequently, if any associated Project, Project construction, or any Project-related activity during the life of the Project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, CDFW recommends that the project proponent seek appropriate take authorization under CESA prior to implementing the project. Appropriate authorization from CDFW may include an incidental take permit (ITP) or a consistency determination in certain circumstances, among other options (Fish and G. Code §§ 2080.1, 2081, subds. (b),(c)). Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that CDFW issue a separate CEQA document for the issuance of an ITP unless the project CEQA document addresses all project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

Mitigation for the Project-related Biological Impacts

4. The PEIR should include measures to fully avoid and otherwise protect Rare Natural Communities from project-related impacts. CDFW considers these communities as threatened habitats having both regional and local significance.

5. For proposed preservation and/or restoration, the PEIR should include measures to perpetually protect the targeted habitat values from direct and indirect negative impacts. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, increased human intrusion, etc.

ENVIRONMENTAL DATA

CEQA requires that information developed in environmental impact reports and negative declarations be incorporated into a data base which may be used to make subsequent or supplemental environmental determinations. (Pub. Resources Code, § 21003, subd. (e).) Accordingly, please report any special status species and natural communities detected during Project surveys to the California Natural Diversity Database (CNDDB). The CNNDB field survey form can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/CNDDB_FieldSurveyForm.pdf. The completed form can be mailed electronically to CNDDB at the following email address: CNDDB@wildlife.ca.gov. The types of information reported to CNDDB can be found at the following link: http://www.dfg.ca.gov/biogeodata/cnddb/plants_and_animals.asp.

FILING FEES

The Project, as proposed, would have an impact on fish and/or wildlife, and assessment of filing fees is necessary. Fees are payable upon filing of the Notice of Determination by the Lead Agency and serve to help defray the cost of environmental review by CDFW. Payment of the fee is required in order for the underlying project approval to be operative, vested, and final. (Cal. Code Regs, tit. 14, § 753.5; Fish & G. Code, § 711.4; Pub. Resources Code, § 21089.)

CONCLUSION

CDFW appreciates the opportunity to comment on the NOP of a PEIR to assist the City in identifying and mitigating Project impacts on biological resources.

Questions regarding this letter or further coordination should be directed to Jessie Lane, environmental scientist at (858) 636-3159 or Jessie.Lane@wildlife.ca.gov.

Sincerely,

David A. Mayer
Acting Environmental Program Manager
South Coast Region

ec: Office of Planning and Research, State Clearinghouse, Sacramento

REFERENCES

Cowardin, Lewis M., et al. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

Sawyer, J. O., T. Keeler-Wolf and J.M. Evens. 2009. A Manual of California Vegetation, Second Edition. California Native Plant Society Press, Sacramento.

Community Development Department

TUSTIN

BUILDING OUR FUTURE
HONORING OUR PAST

March 26, 2020

Mr. Verny Carvajal
Principal Planner
City of Santa Ana
Planning and Building Agency
PO BOX 1988 (M-20)
Santa Ana, CA 92702

SUBJECT: REVIEW OF NOTICE OF PREPARATION OF A DRAFT PROGRAM ENVIRONMENTAL IMPACT REPORT FOR THE CITY OF SANTA ANA GENERAL PLAN

Dear Mr. Carvajal:

Thank you for the opportunity to provide comments on the Notice of Preparation (NOP) of a Program Environmental Impact Report (PEIR) for the City of Santa Ana General Plan. According to the NOP, the proposed General Plan will guide the City of Santa Ana's development for the next 25 years and will provide options to increase development potential in several areas of the City while bringing the City into compliance with recent state laws and reflecting community input and updates to current conditions

The proposed General Plan envisions up to 36,167 additional housing units, 6,819,422 square feet of additional nonresidential space, and 14,362 new jobs between 2020 and 2045. As proposed, 13,438 of these housing units and 3,604,556 square feet of the commercial space could be built in close proximity to Tustin within the Metro East Overlay Zone and the 55 Freeway/Dyer Road Focus Area.

The City of Tustin offers the following comments at this time:

1. **Land Use Intensification** - The City of Tustin is concerned with the significant changes in land uses (i.e., from commercial and industrial buildings to residential mixed use) along Red Hill Avenue and Dyer Road that are proposed by the Santa Ana General Plan, the Bowery project, or that have occurred recently with the approval and construction of The Heritage project at 2001 East Dyer Road. These land use changes could result in significant traffic and park impacts and affect planned mitigations. The cumulative impacts to traffic and parks are likely to be substantial. Therefore, there should be detailed overall projections of the anticipated changes in land uses in the PEIR, so the cumulative impacts related to traffic and parks and the associated mitigation can be documented.

2. **Technical Analyses** – It is unclear how the development potential identified in Table 1 of the NOP was calculated. No technical analyses or supporting documentation was provided with the NOP. Undoubtably there will be capacity issues that need to be addressed in accommodating the proposed development. No project alternative was identified in the NOP, yet there have been project alternatives identified for the Focus Areas. How was the development potential identified in Table 1 of the NOP concluded to be the preferred option? There does not appear to be any conclusive analysis provided within public documents available on the City of Santa Ana website.

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Therefore, the Draft PEIR should identify project alternatives and provide the technical analyses which identify that the proposed development can be accommodated with the appropriate facilities and levels of service. Apart from community outreach efforts, there appears to have been no technical evaluation of the proposed General Plan Update provided to the public.

3. **Parks and Open Space** – Resident feedback within the Community Outreach – The First Conversation Executive Summary noted the lack of open space, need for better park maintenance, lack of community centers, and unsafe parks within Santa Ana. However, neither of the project alternatives presented through community outreach identified any open space proposed within the 55 Freeway/Dyer Road Focus Area. The City of Santa Ana Municipal Code requires residential projects to pay park acquisition and development fees or dedicate land for park and recreational purposes. It is unclear from the NOP whether any additional park land or open space is proposed as part of the Santa Ana General Plan Update. According to Figure 1 of the NOP, no additional open space is proposed in the 55 Freeway/Dyer Road Focus Area. Open space within future residential projects that may include private open space and perimeter open space is not equivalent to park land provided. In any event, the Santa Ana General Plan should require land for park and recreational purposes to meet the City of Santa Ana's minimum standard of "two (2) acres of property devoted to parks and recreational purposes for each thousand (1,000) persons residing within the City of Santa Ana." There is an average 2018 household size of 4.5 persons in the City of Santa Ana per the Southern California Association of Government's 2019 Profile of the City of Santa Ana. This equates to a minimum of approximately 89.6 acres of new parkland needed to serve the 9,952 housing units projected at build-out for the Focus Area, as there are no park facilities currently existing in the Focus Area.

It is also notable that the Santa Ana goal of two (2) acres per 1,000 residents falls short of the widely held minimum standard of three (3) acres per 1,000 residents as established under the Quimby Act (CA Government Code Section 66477). As shown in the table below, the minimum General Plan park acreage goals of many surrounding jurisdictions are higher than that of Santa Ana.

City	General Plan Minimum Parkland Acreage Goal
Costa Mesa	4.26 acres per 1,000 residents
Fountain Valley	13.2 acres per 1,000 residents (existing); 3-5 acre goal
Garden Grove	2.0 acres per 1,000 residents for parkland; 5.0 acres per 1,000 residents for open space
Irvine	5.0 acres per 1,000 residents
Orange	3.0 acres per 1,000 residents
Santa Ana	2.0 acres per 1,000 residents
Tustin	3.0 acres per 1,000 residents
Westminster	3.0 acres per 1,000 residents

Policy 1.4 – Park Connectivity of the Open Space Element from the Santa Ana General Plan Policy Framework (GPPF) proposes to establish and enhance options for residents to access existing and new park facilities through safe walking, bicycling, and transit routes. There is a

fragmented and absent sidewalk network and there are no parkland facilities existing within the 55 Freeway/Dyer Road Focus Area. Further, the 55 Freeway creates a barrier to those properties currently proposed for residential uses. The closest park facilities are across Red Hill Avenue within Tustin Legacy and are within both biking and walking distance of the Focus Area.

The proposed Veterans Sports Park at Tustin Legacy, for example, will be three times larger and about half the distance from the Project site than the closest park in Santa Ana and will offer new, state of art facilities that will be attractive to park users. The analysis in the PEIR should consider the quality, amenities, and attractiveness of nearby parks when estimating park usage.

If additional sufficient parkland is not identified in the Santa Ana General Plan, residents of future projects may be unable to find adequate parks in Santa Ana and may negatively impact parks and overburden parkland facilities in adjacent jurisdictions, including Tustin. These impacts must be mitigated. An analysis in the PEIR of the proposed compliance with the City of Santa Ana's park standards should focus on the potential to physically deteriorate existing and future recreational facilities in the City of Tustin, as the nearest existing and planned large scale recreational facilities to the 55 Freeway/Dyer Road Focus Area are located in the City of Tustin.

The apparent lack of commitment to open space and parkland by the City of Santa Ana is troubling given the Focus Area's adjacency to the City of Tustin and Tustin Legacy. Community outreach identified Santa Ana residents' need for additional and better park facilities. It is highly likely that residents within the Focus Area will use Tustin Legacy park facilities due to their close proximity, convenience, safety, and likely enhanced level of maintenance compared to Santa Ana park facilities based on resident feedback obtained from Santa Ana's community outreach. This will place an unplanned and undue burden on Tustin Legacy facilities.

4. **Parks and Open Space Studies** - A comprehensive study of parkland demand should be conducted to evaluate the impacts of the General Plan buildout on Tustin facilities. It is recommended that the minimum park facilities as required by the General Plan be accommodated within the Focus Area. Thresholds tied to the development and upzoning of any properties should be required to ensure the development of the minimum parkland facilities within the Focus Area. The PEIR should also include a study that analyzes how far residents in a suburban community are willing to travel to reach a community park. As a comparison, the study should also analyze the distances from other similar existing City of Santa Ana residential neighborhoods to their nearest community parks.

5. **District Center Land Use - 55 Freeway/Dyer Road Focus Area** – The PowerPoint presentation for the General Plan Land Use Community Workshop for the 55 Freeway/Dyer Road Focus Area held on April 29, 2019, identified two (2) project alternatives which offer varying levels of increased commercial and residential intensities. Stated goals for the Focus Area include, but are not limited to the following: 1. Protect industrial and office

employment base, 2. Provide complementary housing at the City's edge, and 3. Maintain hotel and commercial uses.

According to Table 1 of the NOP, the development of an additional 8,731 housing units is proposed within the Focus Area. Currently the District Center Land Use Designation allows for up to 90 dwelling units per acre as a maximum residential density. Alternative 1 considers only the addition of the Bowery project located at 2300 Red Hill Avenue which proposes 1,150 dwelling units. Alternative 2 proposes an increased area for residential mixed-use development of what appears to be approximately 53 acres overall. If developed at the maximum residential density allowed (90 du/ac.) this area would yield approximately 4,770 dwelling units.

It is unclear where the additional housing units noted within Table 1 would be located. The level of development noted in Table 1 does not appear to align with the vision represented to the public in the two (2) development alternatives. This appears to run contrary to the Focus Area goal of protecting the industrial and office employment base by eroding commercially used properties.

An accurate representation of the vision for the area should be provided to the public along with the technical analysis to justify that the development potential can be accommodated. A residential unit cap may be needed similar to that of the Irvine Business Complex in the City of Irvine to ensure adherence with the General Plan vision and goals.

6. **Affordable Housing** – There is no mention in the NOP of affordable housing to be provided in conjunction with the proposed upzoning of properties. The lack of affordable housing within Santa Ana was noted as a concern to residents in the Community Outreach – The First Conversation Executive Summary. Potential density bonus units should be identified and evaluated for their impacts when evaluating buildout capacity.

7. **Land Use Compatibility** – The General Plan proposes to introduce residential uses into what is predominately an office and industrial business park area. This has already occurred in a piecemeal approach with the Heritage Project located at 2001 E. Dyer Road. The GPPF from December 2018 identifies Land Use Policy 1.1 Compatible Uses. The General Plan Update should identify how these land uses such as industrial and residential will co-exist directly adjacent to one another. Facility improvements required to "enhance livability and promote healthy lifestyles" should be identified and a course of action for implementation provided. As an example, a significant portion of the area does not have sidewalks which presents a mobility issue for future residents.

8. **Noise** - The 55 Freeway/Dyer Road Focus Area lies within the John Wayne Airport (JWA) flightpath, with a substantial portion of the area included within the 65 dB(A) and 60 dB(A) CNEL contours (2016 Baseline). Policy 3.1 of the Noise Element from the GPPF does not support residential development within the 65 dB(A) CNEL noise contour. Areas falling within the 65 dB(A) CNEL noise contour should be clearly identified in the PEIR and restricted so as not to allow residential development.

Policy 2.2 – Stationary Related Noise of the Noise Element from the GPPF seeks to minimize noise impacts from commercial and industrial facilities adjacent to residential uses. Mitigation measures will need to be identified as to how this goal will be achieved with the introduction of residential uses in the Focus Area which currently consists of predominately office and industrial uses.

9. **Traffic/Circulation** - Due to land use changes contemplated in Santa Ana's proposed General Plan, a Traffic Impact Analysis (TIA) is required. The Study Area should include Tustin arterial roadways within the area between Barranca Parkway/Dyer Road and the I-5 Freeway and between the SR-55 Freeway and Jamboree Road. The greatest potential impacts are anticipated to occur along Red Hill Avenue, Warner Avenue, and Barranca Parkway. The intersections of Tustin Ranch Road-Von Karman Avenue/Barranca Parkway and Red Hill Avenue/Warner Avenue are especially sensitive to additional impacts, as they are already expected to operate at capacity at Long-Term Buildout. The Red Hill Avenue /I-5 Ramp intersections along with the adjacent intersections at Nisson Road and El Camino Real should also be included.

10. **Traffic/Circulation** - The newly installed landscaped median on Red Hill Avenue between Warner Avenue and Carnegie Avenue currently prevents left turn ingress and egress at driveways along the westerly side of Red Hill Avenue along the frontage of contemplated development. Due to the high speeds and traffic volume on Red Hill Avenue, the City is not supportive of an additional traffic signal to serve proposed development, nor the installation of median breaks to provide turning movements across the median. Any driveways on Red Hill Avenue to serve proposed development will need to only allow right-turn in and right-turn out movements.

11. **Traffic/Circulation** - Any significant development or land use intensification in the 55 Freeway/Dyer Road Focus Area would likely require improvements along southbound Red Hill Avenue i.e., dedicated right-turn lanes on eastbound Warner Avenue and Carnegie Avenue at Red Hill Avenue or right-turn lanes on southbound Red Hill Avenue at Warner Avenue and Carnegie Avenue.

12. **Traffic/Circulation** - Any analysis of Tustin roadways and intersections would need to comply with the most current City of Tustin methodology for such analyses. The traffic analysis should consider cumulative traffic impacts, and all traffic impacts should be mitigated to the greatest extent feasible through the imposition of effective mitigation measures on the project.

13. **Traffic/Circulation** - Due to this project's proximity with the City of Tustin and its potential to significantly impact Tustin roadways, it is requested that an opportunity be extended to Tustin staff to participate in the development of the TIA for the project, and to review the TIA before public release.

Thank you again for the opportunity to provide comments on the proposed City of Santa Ana General Plan project. The City of Tustin would appreciate receiving early responses to our comments as well as a copy of the Draft EIR when it becomes available and all future public hearing notices with respect to this project.

Please provide all future CEQA notices regarding this project to the undersigned pursuant to Public Resources Code Section 21092.2.

If you have any questions regarding the City's comments, please call Scott Reekstin, Principal Planner, at (714) 573-3016 or Krys Saldivar, Public Works Manager, at (714) 573-3172.

Sincerely,

Elizabeth A. Binsack
Community Development Director

cc: Minh Thai, Executive Director, Santa Ana Planning and Building Agency
Phil Johnson, Fire Chief, Orange County Fire Authority
Matthew S. West, City Manager
Nicole Bernard, Assistant City Manager
David Kendig, City Attorney
Stu Greenberg, Police Chief
Jason Al-Imam, Director of Finance
Chris Koster, Director of Economic Development
Douglas S. Stack, Public Works Director
Chad Clanton, Parks and Recreation Director
Ken Nishikawa, Deputy Director of Public Works/Engineering
Justina Willkom, Assistant Director – Planning
Kris Saldivar, Public Works Manager
Scott Reekstin, Principal Planner
Ryan Swiontek, Senior Management Analyst

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CITY OF ORANGE

DEPARTMENT OF COMMUNITY DEVELOPMENT www.cityoforange.org

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ADMINISTRATION	PLANNING DIVISION	BUILDING DIVISION	CODE ENFORCEMENT DIVISION
(714) 744-7240	(714) 744-7220	(714) 744-7200	(714) 744-7244
fax: (714) 744-7222	fax: (714) 744-7222	fax: (714) 744-7245	fax: (714) 744-7245

March 26, 2020 #01-20

Verny Carvajal, Principal Planner via email: VCarvajal@santa-ana.org
City of Santa Ana Planning and Building Agency
PO BOX 1988 (M-20)
Santa Ana, CA 92702

Subject: Notice of Preparation (NOP) for Santa Ana General Plan Program Environmental Impact Report

Dear Mr. Carvajal:

Thank you for the opportunity to review and comment on the NOP of a Program Environmental Impact Report (PEIR) for the City of Santa Ana General Plan. The project is a comprehensive update to the City of Santa Ana General Plan. It is our understanding that much of the update will focus on incorporating focused growth areas into the City of Santa Ana General Plan update. For the NOP, details other than proposed General Plan Land Use designations and projected buildout numbers do not appear to be available for review and comment.

Due to the growth areas' proximity to the City of Orange, the City has an interest in ensuring that the Draft PEIR addresses potential adverse impacts to Orange residents and infrastructure. We would appreciate the opportunity to consult on the technical studies, particularly for potential noise and transportation impacts.

We appreciate the opportunity to comment and we look forward to reviewing the Draft PEIR upon completion. If you have any questions, please feel free to contact me, at (714) 744-7237 or at cortlieb@cityoforange.org.

Sincerely,



Chad Ortlieb
Senior Planner
City of Orange

cc: Rick Otto, City Manager
William Crouch, Community Development Director
Chris Cash, Public Works Director
Larry Tay, City Traffic Engineer

OCTA

AFFILIATED AGENCIES

Orange County Transit District

Local Transportation Authority

Service Authority for Freeway Emergencies

Consolidated Transportation Service Agency

Congestion Management Agency

March 26, 2020

Mr. Verny Carvajal
Principal Planner
City of Santa Ana Planning and Building Agency
PO BOX 1988 (M-20)
Santa Ana, CA 92702

Subject: **Notice of Preparation and Scoping Meeting for the Santa Ana General Plan Program Environmental Impact Report**

Dear Mr. Carvajal:

Thank you for providing the Orange County Transportation Authority (OCTA) with a copy of the Notice of Preparation and Scoping Meeting for the Santa Ana General Plan Program Environmental Impact Report. The following comments are provided for your consideration:

- Thank you for keeping OCTA apprised of the Santa Ana's "Golden City Beyond: A Shared Vision" General Plan. Please continue to coordinate with OCTA to maintain consistency between the Circulation Element and the Orange County Master Plan of Arterial Highways.

- Please note that First Street, Irvine Boulevard, Harbor Boulevard, Edinger Avenue, and Warner Avenue are part of the Congestion Management Program Highway System and should be analyzed as such for any potential traffic impacts.

Throughout the development of this project, we encourage communication with OCTA on any matters discussed herein. If you have any questions or comments, please contact me at (714) 560-5907 or at dphu@octa.net.

Sincerely,

Dan Phu
Manager, Environmental Programs

Orange County Transportation Authority
550 South Main Street / P.O. Box 14184 / Orange / California 92863-1584 / (714) 560-OCTA (6282)

SCAG
INNOVATING FOR A BETTER TOMORROW

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March 27, 2020

Mr. Verny Carvajal, Principal Planner
City of Santa Ana Planning and Building Agency
P.O. Box 1988 (M-20)
Santa Ana, California 92701
E-mail: VCarvajal@santa-ana.org

RE: SCAG Comments on the Notice of Preparation of a Draft Environmental Impact Report for the Santa Ana General Plan [SCAG NO. IGR10139]

Dear Mr. Carvajal,

Thank you for submitting the Notice of Preparation of a Draft Environmental Impact Report for the Santa Ana General Plan ("proposed project") to the Southern California Association of Governments (SCAG) for review and comment. SCAG is the authorized regional agency for Inter-Governmental Review (IGR) of programs proposed for Federal financial assistance and direct Federal development activities, pursuant to Presidential Executive Order 12372. Additionally, SCAG reviews the Environmental Impact Reports of projects of regional significance for consistency with regional plans pursuant to the California Environmental Quality Act (CEQA) and CEQA Guidelines.

SCAG is also the designated Regional Transportation Planning Agency under state law, and is responsible for preparation of the Regional Transportation Plan (RTP) including the Sustainable Communities Strategy (SCS) pursuant to Senate Bill (SB) 375. As the clearinghouse for regionally significant projects per Executive Order 12372, SCAG reviews the consistency of local plans, projects, and programs with regional plans.[1] SCAG's feedback is intended to assist local jurisdictions and project proponents to implement projects that have the potential to contribute to attainment of Regional Transportation Plan/Sustainable Community Strategies (RTP/SCS) goals and align with RTP/SCS policies.

SCAG staff has reviewed the Notice of Preparation of a Draft Environmental Impact Report for the Santa Ana General Plan in Orange County. The proposed project includes a General Plan update to identify areas of opportunity, provide options to enhance development potential, and bring the City into compliance with recent state laws, totaling roughly 17,280 acres.

When available, please send environmental documentation to *SCAG's Los Angeles office in Los Angeles (900 Wilshire Boulevard, Ste. 1700, Los Angeles, California 90017) or by email to au@scag.ca.gov* providing, at a minimum, the full public comment period for review.

If you have any questions regarding the attached comments, please contact the Inter-Governmental Review (IGR) Program, attn.: Anita Au, Associate Regional Planner, at (213) 236-1874 or au@scag.ca.gov. Thank you.

Sincerely,

Ping Chang

Ping Chang
Manager, Compliance and Performance Monitoring

[1] Lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the 2016 RTP/SCS for the purpose of determining consistency for CEQA. Any "consistency" finding by SCAG pursuant to the IGR process should not be construed as a determination of consistency with the 2016 RTP/SCS for CEQA.

COMMENTS ON THE NOTICE OF PREPARATION OF A DRAFT ENVIRONMENTAL IMPACT REPORT FOR THE SANTA ANA GENERAL PLAN [SCAG NO. IGR10139]

CONSISTENCY WITH RTP/SCS

SCAG reviews environmental documents for regionally significant projects for their consistency with the adopted RTP/SCS. For the purpose of determining consistency with CEQA, lead agencies such as local jurisdictions have the sole discretion in determining a local project's consistency with the RTP/SCS.

Please note the Draft 2020 RTP/SCS (Connect SoCal) was released for public review on November 14, 2019 until January 24, 2019. The Final Connect SoCal is anticipated to be adopted in April 2020. Please refer to Connect SoCal goals and growth forecast for RTP/SCS consistency for future projects. The Draft Connect SoCal can be reviewed here: https://www.connectsocal.org/Pages/Connect-SoCal-Draft-Plan.aspx.

2016 RTP/SCS GOALS

The SCAG Regional Council adopted the 2016 RTP/SCS in April 2016. The 2016 RTP/SCS seeks to improve mobility, promote sustainability, facilitate economic development and preserve the quality of life for the residents in the region. The long-range visioning plan balances future mobility and housing needs with goals for the environment, the regional economy, social equity and environmental justice, and public health (see http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx). The goals included in the 2016 RTP/SCS may be pertinent to the proposed project. These goals are meant to provide guidance for considering the proposed project within the context of regional goals and policies. Among the relevant goals of the 2016 RTP/SCS are the following:

SCAG 2016 RTP/SCS GOALS	
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*
RTP/SCS G3:	*Ensure travel safety and reliability for all people and goods in the region*
RTP/SCS G4:	*Preserve and ensure a sustainable regional transportation system*
RTP/SCS G5:	*Maximize the productivity of our transportation system*
RTP/SCS G6:	*Protect the environment and health for our residents by improving air quality and encouraging active transportation (e.g., bicycling and walking)*
RTP/SCS G7:	*Actively encourage and create incentives for energy efficiency, where possible*
RTP/SCS G8:	*Encourage land use and growth patterns that facilitate transit and active transportation*
RTP/SCS G9:	*Maximize the security of the regional transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies**
	**SCAG does not yet have an agreed-upon security performance measure.*

For ease of review, we encourage the use of a side-by-side comparison of SCAG goals with discussions of the consistency, non-consistency or non-applicability of the goals and supportive analysis in a table format. Suggested format is as follows:

SCAG 2016 RTP/SCS GOALS		
	Goal	Analysis
RTP/SCS G1:	*Align the plan investments and policies with improving regional economic development and competitiveness*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
RTP/SCS G2:	*Maximize mobility and accessibility for all people and goods in the region*	*Consistent: Statement as to why;* *Not-Consistent: Statement as to why;* *Or* *Not Applicable: Statement as to why;* *DEIR page number reference*
etc.		etc.

2016 RTP/SCS STRATEGIES

To achieve the goals of the 2016 RTP/SCS, a wide range of land use and transportation strategies are included in the 2016 RTP/SCS. Technical appendances of the 2016 RTP/SCS provide additional supporting information in detail. To view the 2016 RTP/SCS, please visit: http://scagrtpscs.net/Pages/FINAL2016RTPSCS.aspx. The 2016 RTP/SCS builds upon the progress from the 2012 RTP/SCS and continues to focus on integrated, coordinated, and balanced planning for land use and transportation that the SCAG region strives toward a more sustainable region, while the region meets and exceeds in meeting all of applicable statutory requirements pertinent to the 2016 RTP/SCS. These strategies within the regional context are provided as guidance for lead agencies such as local jurisdictions when the proposed project is under consideration.

DEMOGRAPHICS AND GROWTH FORECASTS

Local input plays an important role in developing a reasonable growth forecast for the 2016 RTP/SCS. SCAG used a bottom-up local review and input process and engaged local jurisdictions in establishing the base geographic and socioeconomic projections including population, household and employment. At the time of this letter, the most recently adopted SCAG jurisdictional-level growth forecasts that were developed in accordance with the bottom-up local review and input process consist of the 2020, 2035, and 2040 population, households and employment forecasts. To view them, please visit http://www.scag.ca.gov/Documents/2016GrowthForecastByJurisdiction.pdf. The growth forecasts for the region and applicable jurisdictions are below.

	Adopted SCAG Region Wide Forecasts			Adopted City of Santa Ana Forecasts		
	Year 2020	Year 2035	Year 2040	Year 2020	Year 2035	Year 2040
Population	19,663,000	22,091,000	22,138,800	340,600	343,400	343,100
Households	6,458,000	7,325,000	7,412,300	76,600	77,700	78,000
Employment	8,414,000	9,441,000	9,871,500	160,600	165,200	166,000

MITIGATION MEASURES

SCAG staff recommends that you review the Final Program Environmental Impact Report (Final PEIR) for the 2016 RTP/SCS for guidance, as appropriate. SCAG's Regional Council certified the Final PEIR and adopted the associated Findings of Fact and a Statement of Overriding Considerations (FOF/SOC) and Mitigation Monitoring and Reporting Program (MMRP) on April 7, 2016 (please see: http://scagrtpscs.net/Pages/FINAL2016PEIR.aspx). The Final PEIR includes a list of project-level performance standards-based mitigation measures that may be considered for adoption and implementation by lead, responsible, or trustee agencies in the region, as applicable and feasible. Project-level mitigation measures are within responsibility, authority, and/or jurisdiction of project-implementing agency or other public agency serving as lead agency under CEQA in subsequent project- and site- specific design, CEQA review, and decision-making processes, to meet the performance standards for each of the CEQA resource categories.

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March 31, 2020

Verny Carvajal, Principal Planner
City of Santa Ana Planning and Building Agency
PO Box 1988 (M-20)
Santa Ana, CA 92701

SUBJECT: Santa Ana NOP General Plan PEIR

Thank you for the opportunity to review and comment on the subject matter. I would recommend that a sewer study be performed in the future to assure there is adequate sewer capacity.

I would like to bring to your attention that any new or modified connection to Orange County Sanitation District (OCSD) sewer lines will require your agency to coordinate with us and may require a permit. Your contact at OCSD will be Daniel Lee, Engineer, at (714)593-7176 or dlee@ocsd.com.

Thank you for the opportunity to provide input on the City's proposed NOP General Plan PEIR. If you have any questions, please contact Kevin Hadden at (714)593-7462 or khadden@ocsd.com.

Adam Nazaroff
Engineering Supervisor



Our Mission: *To protect public health and the environment by providing effective wastewater collection, treatment, and recycling.*


ORANGE COUNTY SANITATION DISTRICT
PROTECTING THE ENVIRONMENT

From:	Ginelle Hardy
To:	Macedonio, Margarita
Cc:	Carvajal, Verny
Subject:	General Plan EIR
Date:	Friday, March 06, 2020 11:48:20 AM

Hello Margarita,
Public review is closing March 27, 2020 for public comments pertaining to the General Plan's EIR. South Main Street is Focus Area #1 potentially affecting Heninger Park properties and residential homes on S. Sycamore (that back up to S. Main St.). It looks like the focus area includes S. Broadway in Heninger Park also!
The March 18th Heninger Park neighborhood meeting would be a timely opportunity to present the General Plan and EIR - as it relates to South Main from 1st Street to W. McFadden, S Sycamore & S. Broadway. Principal Planner, Verny Carvajal may have ideas about how to disperse this information @ our March meeting. Also he may be able to provide printed "Notice of Preparation Review Period" informative flyer, condition growth buildout table 1 and land use & focus area maps.
I will copy Verny this email so he will know my interest in a General Plan & related EIR presentation @ Heninger Park's March 18th neighborhood meeting.
Thank you,
Ginelle Hardy
Heninger Park, President
ginelleann@gmail.com

From: mjohnston@recupero.net
To: New General Plan
Subject: New General Plan Approval
Date: Tuesday, March 17, 2020 11:12:26 AM

Hello,

I am reaching out to find out if you can share a rough estimate for when the General Plan may be reviewed and potentially approved by the City Council. I saw from the scoping meeting presentation on 3/5 that the draft EIR is expected to be circulated this summer. I am wondering if that means that the General plan will be adopted after the EIR is finalized, so sometime late Fall 2020? I'm just trying to gain a better understanding of timing and know that these things are dynamic. Any light you could shed on the timeline for the update would be greatly appreciated.

Thank you in advance,

Mike Johnston
RECUPERO AND ASSOCIATES, INC.
31877 Del Obispo St., Suite 204
San Juan Capistrano, CA 92675
(949) 429-6300

From:	Justin Esayian
To:	New General Plan
Cc:	Norm Scheel
Subject:	General Plan Update Status
Date:	Wednesday, March 25, 2020 10:26:34 AM

Hello,

I have a few questions/requests regarding the General Plan Update.

1) I wish to receive updates to the progress of the general plan update. Can you please add me to your communication group on emails that will be sent to the public regarding the progress of the GP update?

2) Also, can you please let me know when you expect to have the GP update finalized, given the current environment?

3) Did the public EIR scoping meeting occur on March 5th? If not, are there plans to reschedule this and if so, when would you expect this to occur?

Thank you!

Sincerely,

Justin A. Esayian
Senior Vice President
The Hoffman Company
18881 Von Karman Avenue
Suite 150
Irvine, CA 92612
(949) 705-0921 Direct
(949) 553-8449 Fax

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March 27, 2020

RE: Public Comment on the Scope of the Environmental Impact Report for the Proposed General Plan

The Rise Up Willowick Coalition ("the Coalition") is comprised of residents from the City of Santa Ana, the City of Garden Grove, and neighboring Orange County Cities as well as local organizations whose goal is to ensure that the Willowick Golf Course property ("Willowick") is developed in a way that reflects the local residents needs and vision -- especially the most vulnerable such as, but not limited to, working class individuals, youth, and immigrant residents -- which includes deep affordable housing and open-space use for parkland.

In the process of updating its General Plan, the City of Santa Ana ("the City") proposes new growth and development for five focus areas, including the West Santa Ana Boulevard, which encompasses the Willowick Golf Course, a critical area of advocacy for the Coalition. **With any consideration for land development, it is imperative for the City of Santa Ana to understand and meet the needs of its current residents.**

As a coalition, we surveyed 324 residents of which 95% of respondents lived within a 1 mile-radius of the Willowick property, we hosted monthly community meetings, and we continue to engage our neighbors and fellow residents to shape our community vision for Willowick. Based on this engagement[1], our vision for the future of Willowick includes:

- Parks and open space that are safe, well resourced, and well maintained
- Deeply affordable housing that is accessible to very low-income families
- Well resourced community spaces

The community's vision aligns with residents' needs in the Santa Anita neighborhood. The median family income in the Santa Anita area is approximately $46,000 a year, much lower than Orange County's median income of $92,700[2]. According to the HUD, the residents around the Willowick area are at an extremely to very low-income level. Furthermore, open space is scarce as it only constitutes 4% of the total land in Santa Ana and the investment on parks/open space the city makes is only $47 per resident, while other cities in Orange County enjoy the vast amount of open space available to them[3]. For example, the City of Irvine dedicates approx 30% of land to parks and open space while investing approximately $250 per resident[4].

Given the urgent need for open space in the Santa Anita neighborhood and more broadly in the City of Santa Ana, the Coalition is concerned over the environmental impact of the proposed

[1] Willowick: The Opportunity to Use Public Land for Public Good. 2019. http://riseupwillowick.org/wp-content/uploads/2019/10/riseupwillowickreport.pdf
[2] Ibid.
[3] Trust for Public Land Park Score. 2019. https://www.tpl.org/city/santa-ana-california
[4] Trust for Public Land Park Score. 2019. https://www.tpl.org/city/irvine-california

General Plan updates, especially in regards to open space. As we reviewed the notice provided by the City on the scope of the Environmental Impact Report (the "EIR") for the proposed updated General Plan, we were troubled by the following: 1) the lack of assessment the City is proposing to do in its EIR on the impact of limited open space in the City and 2) the impact of incentivizing development in the five focus areas at the expense of what is already a limited supply of open space in the City as is the case with the inclusion of the entire Willowick site within the West Santa Ana Boulevard focus area. As stated on page 3 of the Notice[5], the focus areas are seen by the City as "suited for new growth and development." **Given that Willowick is the last remaining large-scale, open space site in the City of Santa Ana, it is one of the few viable opportunities to increase urgently needed parkland for residents, and thus, the impacts of depleting this resource need to be thoroughly analyzed by the EIR.**

RECOMMENDATIONS

As the City works to complete the EIR for the proposed General Plan, the Coalition strongly urges it considers the following:

1. The City needs to ensure it is actively working to accomplish the Core Values proposed in the General Plan.
    a. By supporting RUW's vision, the City ensures it is implementing the General Plan's values of health, equity, sustainability, culture, and education given that improving park accessibility improves the overall health of residents by promoting a healthy lifestyle, increases access to a critically needed resource, improves students' academic performance, and invests land use decisions that will benefit many future generations.
    b. The City must intentionally include residents in development processes and must work with the City of Garden Grove to ensure it negotiates in good faith with nonprofit affordable housing and open space developers in order to achieve the community's vision of open space and affordable housing on the Willowick site.

2. The City needs to go above and beyond what the state law requires under CEQA and include an additional the environmental impact category of Open-Space and Parkland as one of its impacted areas of study that the EIR needs to thoroughly assess.
    a. Since this would be a new category, in its EIR, the City must define in detail how it is conducting this analysis.
    b. Any future EIR prepared for development projects in the City, especially a project within the West Santa Ana Boulevard, should include the environmental impact category of Open-Space and Parkland as one of its impacted areas of study.

[5] City of Santa Ana Notice of Preparation and Scoping Meeting. 2020. https://www.santa-ana.org/sites/default/files/pb/general-plan/documents/Final%20NOP_Final.pdf

c. The City should work with residents to ensure this impact category is properly analyzed.

We are available to further discuss our recommendations and are available to meet with City representatives to ensure that the current residents' needs and visions are met and reflected in the EIR for the General Plan and the General Plan. Please contact us at cguerra@riseupwillowick.org with comments or questions.

PUBLIC LAW CENTER

PROVIDING ACCESS TO JUSTICE
FOR ORANGE COUNTY'S LOW INCOME RESIDENTS

March 27, 2020

Verny Carvajal, Principal Planner
City of Santa Ana Planning and Building Agency
PO BOX 1988 (M-20) Santa Ana, CA 92702
Email: VCarvajal@santa-ana.org

RE: Environmental Impact Report

Dear Mr. Carvajal:

We submit these comments regarding the City's work on an EIR for the City of Santa Ana's General Plan, and we write to ask that the City ensure that the projects that the City has approved and will seek to approve, not detrimentally affect the environment. We also request that the City ensure that the projects that it approves will affirmatively further fair housing and land use opportunities, as required by state law[1], for its most vulnerable residents.

The need to protect low-income residents in Santa Ana comes at a critical time. As the nation heals from one of the worst public health crises in human memory, the need to provide healthy spaces for Santa Ana residents and their families to thrive is critical. As attorneys and advocates who have helped low-income Santa Ana residents obtain access to the courts, we at the Public Law Center, collaborate with other organizations for sensible strategies to end poverty in Orange County. We also collaborate with stakeholders to create and maintain effective housing policies for lower-income working families. Because we practice in a jurisdiction that lacks local rent control laws, we implore cities, such as the City of Santa Ana, to develop environmental plans that will consider the needs of the City's most vulnerable residents.

In this regard, given the City's large size of 330,000 persons, of about which 60% are renters, we ask of the City to ensure that the environmental projects that it puts forward meet its core values and contribute to the need for cultural pride, good health, and equity and sustainability in land use development. It is our experience that there exists a great need for the City to continue to produce housing for those who have very-low and extremely-low incomes. According to the U.S. Census Bureau's 2013-2017 American Community Survey 5-Year Estimates, residents in the City of Santa Ana have a median household income of just over $57,151, compared to a median income of more than $81,151 for Orange County. According to the May 2017 report by the California Housing Partnership Corporation, median rent in Orange County, which includes the City of Santa Ana, has increased 24% since 2000, while median renter household income has declined by 10%, when adjusted for inflation. Additionally, renters need to earn approximately 3.7 times the state minimum wage to afford base median rent of $2,261 for a two-bedroom

[1] Gov. Code section 8899.50; Gov. Code section 65583, *et seq*.

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apartment in Santa Ana. Moreover, according to a recent California Housing Partnership Study, Orange County's lowest-income renters spend 84% of their income on rent, leaving very little to meet other basic human needs such as food and health. Furthermore, in the academic year of 2019, there were approximately 51,482 students in the Santa Ana Unified School District. Of this number, the Santa Ana Unified School District reported enrollment numbers of approximately 46,597 students. Of this number, 40,925 students—87.8%, are economically disadvantaged. Additionally, 5,995 students, or 12.9%, identified as homeless. Moreover, in 2019, 41,115 of the Santa Ana Unified School District's 51,482 students, or 80% were eligible for a free or reduced-cost lunch. Evictions and displacement impose an especially high burden on school-aged children and their families, including increased absences from school and other educational disruption that can have long-lasting effects, such as impacts on mental and physical health, as well as school and social hardships for the affected children and their families. Because of the devastating impacts brought upon by lack of affordable housing opportunities, we ask that the City act in the best interests of its residents to provide clear guidance and direction for its EIR and ensure that it will protect its most vulnerable residents.

Sincerely,

/s/ Ugochi Anaebere-Nicholson
Directing Attorney, Housing and Homelessness Prevention Unit

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Dina El Chammas

Subject: FW: Santa Ana General Plan Update - NOP Question

From: Oscar Uranga [mailto:oscar@img-cm.com]
Sent: Tuesday, April 07, 2020 7:20 AM
To: Carvajal, Verny <VCarvajal@santa-ana.org>
Cc: ejzuziak@jzmkpartners.com
Subject: Santa Ana General Plan Update - NOP Question

Hey Verny,

What are the proposed changes to the Urban Neighborhood land use designation (highlighted below)?

GP Update NOP - Project Buildout
In coordination with the General Plan Advisory Group, the City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.
Thanks,

Oscar Uranga, PMP
Principal
IMG Construction Management
19782 Macarthur Blvd, Suite 300 | Irvine, CA 92612
C: 949.933.4103 | Oscar@img-cm.com

From: Pat Coleman
To: New General Plan
Subject: General Plan Scoping
Date: Friday, March 27, 2020 5:00:38 PM

Regarding the Scope of the EIR for the City of Santa Ana General Plan Update:

Please include some of the older City parks when assessing for Historical Significance.

For example, Santiago Park (Santa Ana's fourth park) was built in 1936 as a WPA project. Florence Yoch, daughter of Joseph Yoch of Santa Ana, designed the original layout for Santiago Park. She was a well-known Pasadena landscape architect, having designed movie sets for the 1930's *Gone With the Wind* and *Romeo and Juliet* as well as many estates in Carmel and Pasadena for Hollywood figures such as Jack Warner and David Selznik. The original design and hardscape of these early parks are worth preserving whenever possible.

Please add Access Management to Level of Service evaluations for Road Design and Modifications

Currently, the City is using Level of Service (LOS) to evaluate road modifications, but when used by itself, this parameter does not adequately cover safety, especially pedestrian safety. The inclusion of an Access Management evaluation considers pedestrian traffic as well as efficiency of flow and would bring Santa Ana in line with recommendations from the NTSB.

Please consider including recommendations and requirements of the Seismic Hazard Mapping Act of 1990 (Public Resources Code, Chapter 7.8, Section 2690-2699.6) and the Special Publication 117A into the Safety Element

Currently, the City of Santa Ana's approach to evaluating seismic safety for new developments is uneven, at best, even though much of Santa Ana is within a Seismic Hazard Liquefaction Zone. For some projects, seismic safety is addressed in the EIR, for others, it is not addressed until the permitting process. The Seismic Hazard Mapping Act (SHMA) does not require that the investigation occur during the CEQA process, but its guiding Special Publication (SP 117A) notes that:

> "Some of the potential mitigation measures described herein (e.g., strengthening of foundations) will have little or no adverse impact on the environment. However, other mitigation measures (e.g., draining of subsurface water, driving of piles, densification, extensive grading, or removal of liquefiable material) may have significant impacts. If the CEQA process is completed prior to the site-specific investigation, it may be desirable to discuss a broad range of potential mitigation measures (any that might be proposed as part of the project) and related impacts. If, however, part or all of the site-specific investigation is conducted prior to completion of the CEQA process, it may be possible to narrow the discussion of mitigation alternatives to only those that would provide reasonable protection of the public safety given site-specific conditions." (SP 117A, pg. 6)

Please consider including a Geology section in all CEQA studies for projects within the liquefaction zone. Saving the study for the permitting process keeps mitigation measures of significant impact out of public view. This goes against the City's guiding principle of transparency and may lead to significant impacts unaccounted for when weighing a project. For example, in a current project, no Geology section was included, however the Geological Report's recommendations for dealing with unstable topsoil was to remove 5 feet out and 5 feet down from the foundation and recompact the unstable fill (requiring the removal and recompacting of a calculated 33,476 cubic yards of soil – no small environmental impact).

The SHMA also requires that the certified geological study and its professional certified review (usually done by the City) be submitted to the appropriate state agency. This again creates a

reviewable public record and allows all the professional involved to own their professional recommendations.

We have good science and guidelines for minimizing seismic hazards, let's use and comply with all of them.

From:	Lisa Ganz
To:	Carvajal, Verny
Subject:	Public Comments: Santa Ana General Plan
Date:	Monday, March 16, 2020 12:45:36 PM

Please include the following comment/questions in the public record on the NOP for the Santa Ana General Plan Program.

Santa Ana is the most dense city in OC and the second dense in the state. Santa Ana City Planning documents consistently make the statement the "the city is nearly built out." SCAG reports that So Cal has the worst congestion in the country for the last 2 decades.

Adding more high density housing projects to the General Plan is just plain irresponsible. The NOP document seems to primarily focus on Land Use, while the "Shared Vision" Plan should instead focus on quality of life initiatives that will improve the city through 2045: More open/park space, less congestion, quality services. The 2014-21 Housing Element should absolutely be a part of this analysis and the Mandatory Topics should be looked at in its entirety, not piece-mealed. A THOROUGH EIR should be conducted - and not be determined on the "degree of specificity involved." The Main Place Mall Renovation is a perfect example of when things go wrong. That project should have had an updated EIR and should not have been approved based on a 20 year old EIR document.

I strongly oppose the plan to turn Grand and 17th into an Urban Neighborhood. This area is congested already. Keep the zoning and incentivize new retail. The 55/Dyer development will add more congestion to the already crowded 55 FWY.

Santa Ana needs a better vision for the city. Better streets/timed lights. More open space. Good retail that makes people want to visit. Reasonable housing in the right space - single family that fit the uniqueness of our historic neighborhoods.

Please consider this.

Thank you,
Lisa Ganz resident of Santa Ana

General Plan Update - EIR Scoping Meeting - March 5, 2020

golden city beyond
A SHARED VISION FOR SANTA ANA

First Name	Last Name	E-Mail Address	Street Address	Zip Code	Primary Telephone #	Neighborhood Association or Organization	Contact with Project Updates?
FRANK	LOPEZ					PARK SANTIAGO	
PETER	KATZ					MAR LES	
JOE	ANDRADE					Logan	
SAM	ROMERO					LOGAN	
GINELLE	HARDY					HENNINGER PARK	✓
DALE	HELVIG					PSNA	X
Irma	Sauregui					SSAMA/Wilshire Square	
Nylda	Anaya					Monte Carlo	
Patricia	Coleman					Park Santiago	✓
BRIAN	DIAZ					N/A	✓
Tay	Aston					Mayberry	—
Athena	Christy					Athey Acres	
Soledad	Valentin						
Diane	Fradkin					Park Santiago	✓
Corey	Hayes					memorial pk	
CHAD	ORTLIEB						✓
CHRIS	SCHMIDT					WINDSOR VILLAGE	
TOM	MORRISSEY						
JEFF	KATZ					PLURAL PARK	✓
Glen	Kolany						✓
TRESA	OLIVERI						
Gaby	Hernandez						✓
Roy	Russell						
Barbara	Russell					Washington Square	
Pedro	ARANDA					Aiken Park	✓
Catalina	Lopez						
Maura	Lopez						
Obdulia	Flores						

General Plan Update - EIR Scoping Meeting - March 5, 2020

golden city beyond
A SHARED VISION FOR SANTA ANA

First Name	Last Name	E-Mail Address	Street Address	Zip Code	Primary Telephone #	Neighborhood Association or Organization	Contact with Project Updates?
ERIC	HIGUCHI					N/A	Yes
Cecilia	Iglesias						
STEVEN	OH					N/A	Yes
Franco	Ortega						
Drew	Emmel					N/A	YES
Thai	Phan					NA	Yes
Manny	Escamilla					Central/City	yes
Peter	Yam						
Cynthia	Guerrero						
ELENA	MOYA						
Albert	Castillo					N/A	Yes

COMMENT CARD
Santa Ana General Plan Update EIR
Public Scoping Meeting

March 5, 2020, 6:00 PM

+ green house gases

Please let us know your comments/concerns regarding the Santa Ana General Plan Update EIR (please print):

UN designation for the Medical Arts property is a very constricted parcel w/ the Western boundary being RR tracks.

Also, there is a proposal to do a grade separation for the RR crossing @ 17th & Lincoln — this will greatly restrict access from the Medical Arts property into 17th St.

The proposed UN designation will add way too much traffic, NOISE, Air Quality issues to an already very congested 17th St & Grand

You need to include a major park/openspace component for THIS UN designation

Last Summer we attended a Gen Plan Update mtg & took a survey for the Medical Arts property & the majority didn't want to see MORE High Density at this location — apparently it doesn't matter what the neighbors want because you chose UN as the designation anyway. This will definitely impact the quality of the existing residents in a very negative way — Way too dense for an already dense area — there is not any additional infrastructure which exists today — Very unsustainable & irresponsible!

It's all about a BALANCE

Name: Diane Frankel

Address: 2402 N. Oakmont 92706

1) Please return this card to Verny Carvajal, Principal Planner for the City of Santa Ana, at the end of the Scoping Meeting, 2) Email your comments to newgeneralplan@santa-ana.org or 3) Mail this comment card by folding it in half, sealing with scotch tape, and adding a postal stamp.

* The concern is that our existing infrastructure (streets, sewer, water, storm drain) can't handle the proposed density in many of these areas - unless these projects are going to add New Roadways (+ water/sewer/ stormdrain) its NOT sustainable as it exists today

Circulation Plan - how do the classifications work & are they changed based on the new designations? Are there physical changes to the roads based on the new designations & if so are they prepared/constructed prior to any commencement of construction for the new designated areas?

Fold here

Thank you!

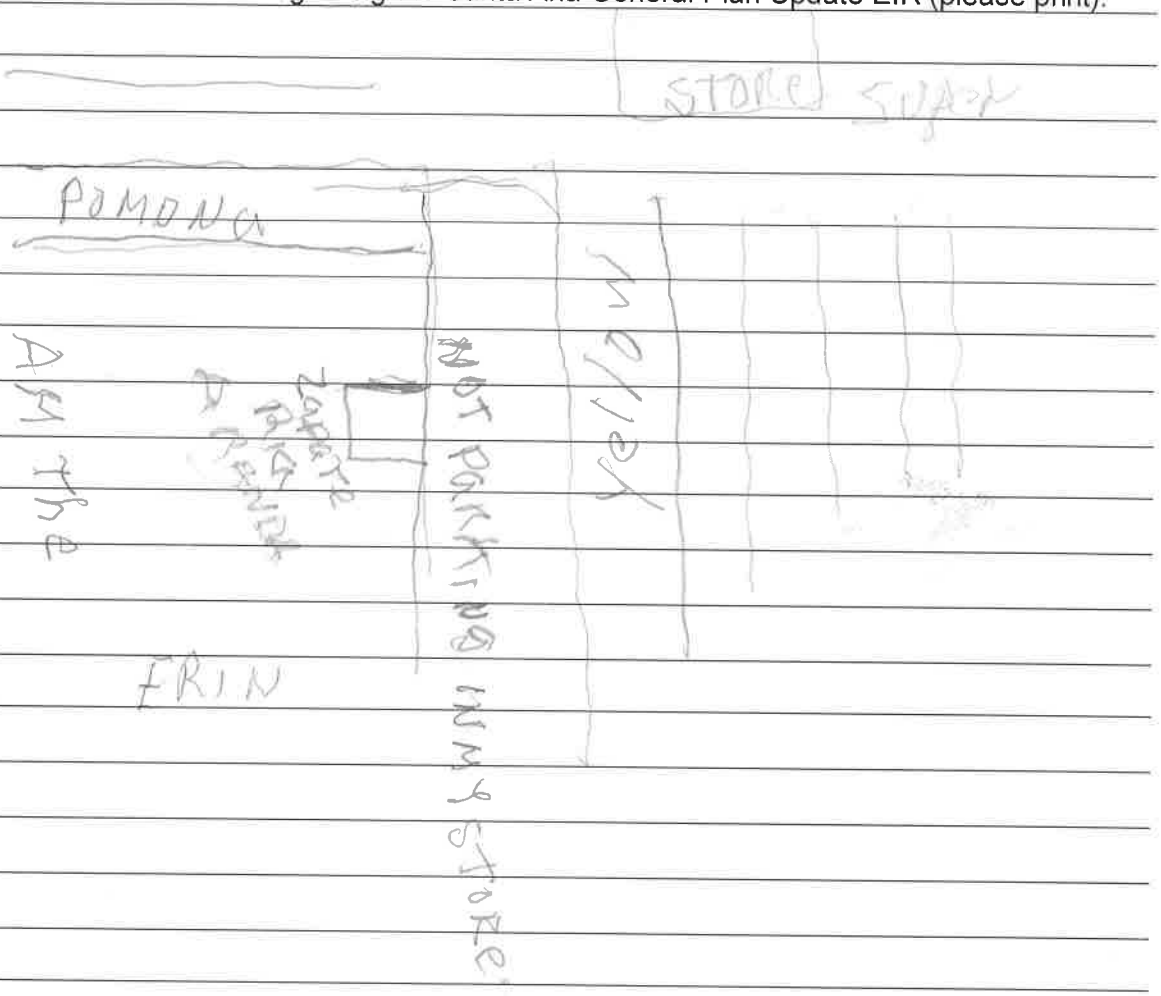
Place Stamp Here

City of Santa Ana Planning and Building Agency
Attn. Verny Carvajal, Principal Planner
PO Box 1988, M-20
Santa Ana, CA 92702

COMMENT CARD
Santa Ana General Plan Update EIR
Public Scoping Meeting

March 5, 2020, 6:00 PM

Please let us know your comments/concerns regarding the Santa Ana General Plan Update EIR (please print):



Name: Pedro ARANDA Zapateria ARANDA

Address: 1611 S MAIN ST Santa Ana Ca. 92707

My Phone 714 973 1537 - Cell 714 856 0004

1) Please return this card to Verny Carvajal, Principal Planner for the City of Santa Ana, at the end of the Scoping Meeting, 2) Email your comments to newgeneralplan@santa-ana.org or 3) Mail this comment card by folding it in half, sealing with scotch tape, and adding a postal stamp.

GRACIAS PORSU ATT.

COMMENT CARD
Santa Ana General Plan Update EIR
Public Scoping Meeting

March 5, 2020, 6:00 PM

Please let us know your comments/concerns regarding the Santa Ana General Plan Update EIR (please print):

Increasing housing by 59% should also entail on site parking for each unit and keeping in mind that multiple drivers will be living in these spaces due to actual cost of these units. The current (2.4 ?) ~~req~~ requirement is extremely insufficient and will have a negative effect on the use and safety of surrounding neighborhoods.

Environmentally - it is inherent in planning that open space is increased. Adding all these multi-unit residences without providing the additional and necessary, open space is a concrete jungle in the making.

Define terms - i.e. District Center
Low - Med - etc residential
? Environmental Justice

Name: Jay Aston taybird54@gmail.com
Address: 1605 N. Linwood Ave. 92701

1) Please return this card to Verny Carvajal, Principal Planner for the City of Santa Ana, at the end of the Scoping Meeting, 2) Email your comments to newgeneralplan@santa-ana.org or 3) Mail this comment card by folding it in half, sealing with scotch tape, and adding a postal stamp.

TARJETA DE COMENTARIOS
Reunión Informativa para Santa Ana General Plan Update EIR

5 de marzo de 2020, 6:00 PM

Por favor háganos saber sus comentarios/inquietudes con respecto al Santa Ana General Plan Update EIR (favor de escriba en letra de molde):

Me gustaría que en la calle 1ª y Standard es en la esquina, un lugar de carros que ya no están trabajando los movieran para otro lugar adecuado para ellos o los dueños y que las calles principales estén siempre limpias.
Que los negocios limpien afuera que mantengan limpio.
Y que cuando hagan construcción de edificios que se enfoquen en las tuberías de agua luz y gaz que todo sea nuevo.

Nombre: Soledad Valentín
Dirección: 1030 S Minnie Apt. 3 Santa Ana Ca, 9270

1) Por favor devuelva esta tarjeta a Verny Carvajal, Planificador Principal de la ciudad de Santa Ana, al final de la reunión informativa, 2) Envíe sus comentarios por correo electrónico a newgeneralplan@santa-ana.org o 3) Envíe esta tarjeta de comentario al doblar por la mitad, sellar con cinta adhesiva, y añadir con sello postal.

From:	Diane Fradkin
To:	Carvajal, Verny
Cc:	Ridge, Kristine; Thai, Minh
Subject:	Santa Ana General Plan Update - NOP mtg on March 5th
Date:	Friday, March 06, 2020 8:21:04 PM

Hi Verny:

Nice meeting you on Thursday evening as well as your EIR consultant Joanne.

I wanted to discuss the proposed use for the Grand and 17th Street area. When we attended the focus study last year (spring/summer 2019), there was a survey which was performed with real time results. The proposed use of Urban Neighborhood was met by the audience as too much for the area. The survey results were that the general public (neighbors of the area) at that meeting overwhelmingly rejected this use for the Grand and 17th Street location. Again, this survey had real time results.

I understand that you did other surveys and had an advisory committee, but given my recent experience of door knocking over the entire City of Santa Ana to gather signatures for the 2525 N. Main St. Referendum, the feedback from a majority of Santa Ana residents is that they DO NOT want more high density residential. They believe that the overcrowding will cause more stress to an already over stressed and older infrastructure of our City. **The message is that the residents of Santa Ana want "responsible development".**

The City Planning Department continues to want to increase density throughout our already dense City. The City is right in wanting to improve areas which need revitalization, but the focus needs to be more on businesses and jobs.....we are already overcrowded with density!

I would encourage you to provide several alternatives to study in the EIR for the Grand and 17th Street section.....there needs to be alternatives with more SFR and town homes and low rise garden style apartments with a well thought out park component including a dog park and appropriate retail and office. Another alternative could secure a Costco with gas sales for a portion of the property, office and appropriate residential.....again SFR, townhomes and low rise garden style multi-family along with a "Grand City" park component.

Because the Medical Arts property currently houses many medical offices, it would be best to include this use in your General Plan Update for the Grand & 17th section so that these medical services can stay at this location to service this portion of the City.

Another item to consider in the incorporation of the land use and design for the area is the proposed grade separation at 17th and Lincoln for the RR tracks. This will likely inhibit access along 17th Street focusing more access along Grand Ave. This needs to be incorporated in the EIR.

I provide these comments to hopefully make our City and its future a better place.

Respectfully Submitted,

Diane Fradkin
Park Santiago
714-914-8047

From:	John Fradkin
To:	New General Plan
Cc:	Thai, Minh; Ridge, Kristine; Diane Fradkin
Subject:	Comments on New General Plan
Date:	Friday, March 06, 2020 10:32:24 AM

I attended the Public Scoping Meeting last night and have these comments:

1. The City of Santa Ana is still placing too much emphasis on adding to the city's housing stock. The state of California needs more housing but perhaps Santa Ana does not. Our city is already almost completely built out and we are already one of the densest cities in the nation. If we continue to build high density housing we will decrease the quality of life for existing residents. Nice neighborhoods will become less nice as wealthier residents leave. Do we really want that ? This is the cornerstone underlying clash between the viewpoint of current residents and the City of Santa Ana Planning Department's view and vision for the future of Santa Ana. Current residents want more businesses, more local jobs, and more parks and open space. They don't want more housing and more people living in Santa Ana.

2. There is a huge seismic shift going on in the automotive industry and the majority of cars in the future are going to be powered by electricity. Electric vehicles do not produce greenhouse gasses. The EIR for the general plan, which is supposed to cover a 25 year period, should take this into account because so much of the past thinking has been aimed at reducing greenhouse gasses by building high density housing next to transportation nodes in order to reduce greenhouse gasses by getting people to use public transportation and reducing automotive trips. This Transit Oriented Development is perhaps an older way of thinking that is less relevant going forward in a world of electric vehicles that do not produce greenhouse gasses.

3. Definitions of relevant zoning terms like Urban Neighborhood and MR-15 need to be decided upon early in the process in order for comments and studies to be accurate and useful.

4. In the "Urban Neighborhood" mixed use zoned areas the mixed use should be done on a horizontal basis and not on a vertical basis. Vertical mixed use buildings, where you have commercial on the bottom and residential on the top, have proven to be relatively unsuccessful as they are both hard to finance and hard to find tenants for the commercial spaces. Large companies as a rule will not lease those spaces as they do not like residents living above their businesses for insurance reasons as there is too much potential liability. This limits potential tenants to mom and pop small businesses and my sources have told me that many newly constructed buildings of this type are having trouble.

Regards,

John Fradkin
Santa Ana resident
714-915-8047

From: Lisa Ganz
To: Carvajal, Verny
Subject: Santa Ana General Plan update
Date: Friday, March 06, 2020 3:32:31 PM

Good afternoon- I was unable to attend the meeting last night. I have visited the website but dont see the report on what the City in considering to update. Can you please send me the link?
Thank you.
Lisa

From: jessie Lopez
To: Carvajal, Verny
Subject: General Plan Update
Date: Friday, March 06, 2020 11:42:20 AM

Hello,

Will the City host another meeting so that residents who couldn't make the last one can also attend?

Thanks,
Jessie

Appendix B-a Proposed General Plan Update Policies

Appendices

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Draft Policy Framework

Santa Ana General Plan

July 2020

The following represents the draft goals and policies as of July 2020. Prefixes have been added to each goal and policies to communicate the corresponding element. No changes are being proposed to the Housing Element, which is adopted under a seperate process regulated by State housing law.

CM = Community Element

CE = Circulation Element

EP = Economic Prosperity Element

PS = Public Services Element

CN = Conservation Element

OS = Open Space Element

N = Noise Element

S = Safety Element

LU = Land Use Element

HP = Historic Preservation Element

UD = Urban Design Element

The Core Values associated with each policy are also shown using the following symbology.

CORE VALUES

H HEALTH Eq EQUITY S SUSTAINABILITY C CULTURE Ed EDUCATION

GOAL CM-1: Recreation and Culture

Provide opportunities for public and private recreation and cultural programs that meet the needs of Santa Ana's diverse population.

POLICY CM-1.1
ACCESS TO PROGRAMS

Provide and maintain access to recreational and cultural programs within walking distance of residential areas. Among areas that are underserved or suffer from a lack of access, prioritize the improvement of access for residents living within environmental justice area boundaries.

Eq

POLICY CM-1.2
COMMUNITY INPUT

Engage residents and community facility users to provide input for facility improvements and programming.

Ed

POLICY CM-1.3
EQUITABLE PROGRAMS

Encourage cultural programs and activities of local interest that are inclusive and affordable to all.

Eq

POLICY CM-1.4
SHARED USE

Expand community activities and programs at City facilities and throughout the community through shared use or cooperative agreements.

Eq

POLICY CM-1.5
EQUITABLE RECREATIONAL SPACES

Promote the development and use of municipal buildings, indoor facilities, sports fields, and outdoor spaces for recreation that serve residents throughout the City, with priority given to areas that are underserved and/or within environmental justice area boundaries.

Eq

POLICY CM-1.6
RECREATION ON PRIVATE PROPERTY

Promote the development and use of privately-owned recreation and entertainment facilities that are affordable and meet the needs of Santa Ana residents.

Eq

POLICY CM-1.7
CONNECTIONS TO FACILITIES

Support efforts to connect residents and visitors to local and regional cultural, educational, and natural environments.

C

POLICY CM-1.8
DEVELOPER INVOLVEMENT

Promote developer participation in the provision of community facilities to meet the recreational needs of residents.

Eq

POLICY CM-1.9
ART AND CULTURAL PROGRAMMING

Promote art and cultural programs of local interest to provide educational and cultural awareness opportunities.

C

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POLICY CM-1.10
COMMUNITY ATTRACTIONS

Incorporate placemaking elements and technology into existing and new parks and facilities to encourage use of public spaces, access to educational resources, and community led activities.

S

POLICY CM-1.11
PROGRAM INCENTIVES

Incentivize use of privately owned property to promote recreation, health, wellness, and culture programs.

C H Ed

GOAL CM-2: Education

Provide exceptional, accessible, and diverse educational programs and facilities to meet community needs.

POLICY CM-2.1
SUPPORTING ORGANIZATIONS

Collaborate with both private and public organizations that support early childhood education programs to optimize and expand service capacity.

Ed

POLICY CM-2.2
EDUCATIONAL FACILITIES CAPACITY

Partner with local school districts, non-profit organizations, and other educational providers regarding land use and policy changes to ensure available educational facilities.

Ed

POLICY CM-2.3
PARTNERSHIPS WITH SCHOOLS

Strengthen partnerships with local schools to promote safe, supportive, and effective learning environments that foster school and community pride.

Ed

POLICY CM-2.4
PARENT PARTICIPATION

Support education, recreation programs, and after school activities that involve parent participation to increase high school graduation and college attendance rates.

Ed

POLICY CM-2.5
TRAINING OPPORTUNITIES

Promote and partner with local businesses, schools, and non-profits offering education, job training, internship, and apprenticeship opportunities for Santa Ana youth and residents.

Ed

POLICY CM-2.6
EDUCATIONAL FUNDING

Enhance educational opportunities in the community by expanding and maintaining access to libraries, learning centers, and technology through innovative funding sources.

Ed

POLICY CM-2.7
LIFELONG LEARNING

Encourage lifelong learning beyond the traditional classroom environment by promoting lectures, learning circles, self-directed discussion groups, and other educational opportunities at local libraries, historical societies, cultural centers, and public spaces.

Ed

GOAL CM-3: Active Living and Well-Being

Promote the health and wellness of all Santa Ana residents.

POLICY CM-3.1
SUPPORTING HEALTH SERVICES

Collaborate with and provide support to organizations engaged in improving public health and wellness, expanding access to affordable quality health care, and providing medical services for all segments of the community. Encourage greater emphasis on expanding or improving health services to underserved areas and populations.

H Eq

POLICY CM-3.2
HEALTHY NEIGHBORHOODS

Continue to support the creation of healthy neighborhoods by addressing public safety, improving the built environment, and maintaining building code standards.

H

POLICY CM-3.3
HEALTHY RESIDENTIAL PROGRAMS

Invest in programs and public improvements that educate residents about opportunities to increase their physical activity and improve their health.

H Ed

POLICY CM-3.4
SAFE MOBILITY

Promote the overall safety of multi-modal streets by developing local and regional programs that educate and inform motorists of non-motorized roadway users.

Ed

POLICY CM-3.5
COMMUNITY SPACES

Encourage positive community interactions and neighborhood pride to create secure communities and promote safe public spaces.

C

POLICY CM-3.6
HEALTHY OPTIONS

Promote access to affordable, fresh, and healthy food options citywide through efforts such as community gardens, culinary classes, and neighborhood farmers markets.

H Eq

POLICY CM-3.7
ACTIVE LIFESTYLES

Support programs that create safe routes to schools and other destinations to promote walking, biking and active lifestyles.

H

POLICY CM-3.8
UNDERUTILIZED SPACES

Promote access to affordable, fresh, and healthy food Repurpose underutilized spaces and City-owned vacant land as a strategy to improve community health and increase the number and accessibility of opportunities for health and recreation activities. Prioritize the redevelopment of such sites within environmental justice area boundaries that are also underserved by parks and recreation opportunities.

H Eq

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POLICY CM-3.9
PREVENTION

Coordinate with the County Health Care Agency to promote healthier communities through education, prevention, and intervention programs, and other activities that address the root causes of health disparities and inequities in Santa Ana.

H

GOAL CE-1: Comprehensive Circulation

A comprehensive and multimodal circulation system that facilitates the safe and efficient movement of people, enhances commerce, and promotes a sustainable community.

POLICY CE-1.1
SAFETY

Achieve zero fatalities from traffic collisions through education, enforcement, and infrastructure design.

H Eq Ed

POLICY CE-1.2
BALANCED MULTIMODAL NETWORK

Provide a balanced and equitable multimodal circulation network that reflects current and changing needs.

H Eq S

POLICY CE-1.3
TRAFFIC MANAGEMENT SYSTEMS

Utilize technology to efficiently move people and vehicles and manage motor vehicle speeds.

S

POLICY CE-1.4
MOTOR VEHICLE LEVEL OF SERVICE

Maintain at least a vehicle level of service "D" for intersections of arterial streets, except in areas planned for high intensity development or traffic safety projects.

H S

POLICY CE-1.5
MULTIMODAL LEVEL OF SERVICE

Ensure that new development and City projects maintain or improve the current level of service for all modes of transportation.

H Eq S

POLICY CE-1.6
COMPLETE STREETS

Transform travelways to accommodate all users through street design and amenities, such as sidewalks, trees, landscaping, street furniture, and bus shelters.

H Eq S

POLICY CE-1.7
PROACTIVE MITIGATION

Proactively mitigate potential air quality, noise, congestion, safety, and other impacts from the transportation network on residents and business.

H Eq S

POLICY CE-1.8
ENVIRONMENTAL SUSTAINABILITY

Consider air and water quality, noise reduction, neighborhood character, and street-level aesthetics when making improvements to travelways.

H Eq S

POLICY CE-1.9
REGIONAL CONSISTENCY

Ensure the street network is consistent with standards set in the OCTA Master Plan of Arterial Highways and the Congestion Management Program.

S

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POLICY CE-1.10
INTERGOVERNMENTAL COORDINATION

Collaborate with federal, state, SCAG, OCTA, rail authorities, and other agencies to fund and improve the regional transportation system.

S

POLICY CE-1.11
EMERGING SERVICES

Promote the development of innovative and safe travel and delivery services through partnerships with business and industry leaders.

H Eq S

GOAL CE-2: Regional Mobility

An integrated system of travelways that connects the City to the region, employment centers, and key destinations, making Santa Ana the leader in regional transportation.

POLICY CE-2.1
INTERSTATE FREEWAYS

Support Caltrans and OCTA efforts to modernize and improve freeways by improving safety, capacity, convenience of access, and operational efficiencies, while addressing impacts to neighborhoods.

H Eq S

POLICY CE-2.2
TRANSIT SERVICES

Work with regional and local entities to provide residents, workers and visitors with safe, affordable, accessible, convenient, and attractive transit services.

H Eq S

POLICY CE-2.3
REGIONAL TRANSPORTATION CENTER

Continue to promote and develop the Santa Ana Regional Transportation Center (SARTC) as a major transportation hub linking Amtrak, Metrolink, the OC Streetcar, other regional systems, and first and last mile connections.

H S

POLICY CE-2.4
COMMUTER RAIL

Support the expansion of commuter rail services and Santa Ana's role as a destination along the Los Angeles–San Diego–San Luis Obispo (LOSSAN) rail corridor.

H S

POLICY CE-2.5
OC STREETCAR

Support development and expansion of the OC Streetcar project, connecting neighborhoods, employment centers, and Downtown Santa Ana to activity centers in Orange County.

H S

POLICY CE-2.6
HIGH FREQUENCY TRANSIT CORRIDORS

Work with OCTA to support the improvement of transit opportunity corridors to facilitate high frequency transit (e.g., bus rapid transit and other modes) along designated corridors in Santa Ana.

H S

POLICY CE-2.7
REGIONAL MOBILITY ACCESS

Enhance access to regional transit, including first and last mile connections, to encourage the use of public transit.

H Eq S

POLICY CE-2.8
GRADE SEPARATIONS

Encourage the installation and improvement of grade separations at rail crossings that minimize impacts to adjacent properties and nonmotorized users.

H Eq S

POLICY CE-2.9
GOODS MOVEMENT

Maintain a network of truck routes limited to arterial streets to allow for goods movement and protect residential neighborhoods from adverse impacts.

H Eq S

GOAL CE-3: Active Transportation

A safe, balanced, and integrated network of travelways for nonmotorized modes of transportation that connects people to activity centers, inspiring healthy and active lifestyles.

POLICY CE-3.1
NONMOTORIZED TRAVELWAY NETWORK

Expand and maintain a citywide network of nonmotorized travelways within both the public and private realms that create linkages between neighborhoods, recreational amenities, schools, employment centers, and activity centers.

H Eq S

POLICY CE-3.2
NONMOTORIZED TRAVELWAY AMENITIES

Enhance nonmotorized travelways with amenities such as landscaping, shade trees, lighting, benches, crosswalks, rest stops, bicycle parking, and support facilities that promote a pleasant and safe experience.

H Eq S

POLICY CE-3.3
SAFE ROUTES TO SCHOOL

Lead the development and implementation of safer routes to school by partnering with the school districts, residents, property owners, and community stakeholders.

H Eq S

POLICY CE-3.4
REGIONAL COORDINATION

Coordinate development of the City's active transportation and transit network with adjacent jurisdictions, OCTA, and other appropriate agencies.

H Eq S

POLICY CE-3.5
EDUCATION AND ENCOURAGEMENT

Encourage active transportation choices through education, special events, and programs.

H Eq S Ed

POLICY CE-3.6
TRANSIT CONNECTIVITY

Enhance first and last mile connectivity to transit facilities through safe, accessible, and convenient linkages.

H Eq S

POLICY CE-3.7
COMPLETE STREETS DESIGN

Enhance streets to facilitate safe walking, bicycling, and other nonmotorized forms of transportation through community participatory design.

H Eq S

POLICY CE-3.8
SANTA ANA RIVER AND GOLDEN LOOP

Proactively pursue the improvement and restoration of the Santa Ana River natural habitat and the completion of the Golden Loop to serve as a multi-use recreational amenity.

H S

POLICY CE-3.9
NEIGHBORHOOD TRAFFIC

Develop innovative strategies to calm neighborhood traffic, increase safety, and eliminate collisions.

H

GOAL CE-4: Transportation, Land Use, and Design

Coordinated transportation planning efforts with land use and design strategies that encourage sustainable development and achieve broader community goals.

POLICY CE-4.1
INTENSE DEVELOPMENT AREAS

Program multimodal transportation and public realm improvements that support new development in areas along transit corridors and areas planned for high intensity development.

H S

POLICY CE-4.2
PROJECT REVIEW

Encourage active transportation, transit use, and connectivity through physical improvements and public realm amenities identified during the City's Development Review process.

H Eq S

POLICY CE-4.3
TRANSPORTATION MANAGEMENT

Coordinate with OCTA, employers, and developers to utilize TDM (transportation demand management) strategies and education to reduce vehicle trips and parking demands.

H S

POLICY CE-4.4
FAIR SHARE IMPACTS

Ensure that all development projects pay their fair share of the system improvements necessary to accommodate the transportation needs of their projects.

Eq S

POLICY CE-4.5
LAND USE DEVELOPMENT DESIGN

Ensure that building placement and design features create a desirable and active streetscape.

H S

POLICY CE-4.6
ROADWAY CAPACITY ALTERNATIVES

Promote reductions in automobile trips and vehicle miles traveled by encouraging transit use and nonmotorized transportation as alternatives to augmenting roadway capacity.

H S

POLICY CE-4.7
PARKING

Explore and implement a flexible menu of parking options and other strategies to efficiently coordinate the response to parking demands.

S

POLICY CE-4.8
NOISE MITIGATION

Encourage physical and operational improvements to reduce noise levels around major roads, freeways, and rail corridors, in particular around sensitive land uses.

H Eq

POLICY CE-4.9
AIR POLLUTION MITIGATION

Consider land use, building, site planning, and technology solutions to mitigate exposure to transportation related air pollution.

H Eq S

GOAL CE-5: Sustainable Transportation Design

A transportation system that is attractive, safe, state-of-the-art, and supports community, environmental, and conservation goals.

POLICY CE-5.1
ENHANCED STREET DESIGN

Improve the beauty, character, and function of travelways with amenities such as landscaped parkways and medians, bike lanes, public art, and other amenities.

H S

POLICY CE-5.2
RAIL CORRIDORS

Coordinate with rail service providers to improve the aesthetics of rail corridors, and reduce noise levels, and mitigate traffic conflicts and other environmental hazards.

H Eq S

POLICY CE-5.3
TRAVEL VIEWS

Promote the undergrounding of utilities and the reduction of visual clutter along travelways.

S

POLICY CE-5.4
GREEN STREETS

Leverage opportunities along streets and public rights-of-way to improve water quality through use of landscaping, permeable pavement, and other best management practices.

S

POLICY CE-5.5
STREET DESIGN

Design and retrofit streets based on their combined land use context and road function to achieve safety objectives.

H Eq S

POLICY CE-5.6
CLEAN FUELS AND VEHICLES

Encourage the use of alternative fuel vehicles and mobility technologies through the installation of supporting infrastructure.

S

POLICY CE-5.7
INFRASTRUCTURE CONDITION

Enhance travelway safety by maintaining streets, alleys, bridges, sidewalks, lighting, and other transportation infrastructure in excellent condition.

S

POLICY CE-5.8
TRAFFIC SAFETY

Prioritize the safety of all travelway users when designing transportation improvement and rehabilitation projects.

H S

GOAL EP-1: Job Creation and Retention

Foster a dynamic local economy that provides and creates employment opportunities for all residents in the City.

POLICY EP-1.1
PROTECT INDUSTRIAL

Protect industrial uses that provide quality job opportunities including middle-income jobs; provide for secondary employment and supporting uses; and maintain areas where smaller emerging industrial uses can locate in a multi-tenant setting.

Eq S

POLICY EP-1.2
ATTRACT BUSINESS

Strengthen and expand citywide business attraction efforts in order to achieve the City's full employment potential.

Eq S

POLICY EP-1.3
LIVING-WAGE EMPLOYMENT

Promote new and retention of existing job-producing businesses that provide living-wage employment opportunities.

Eq S

POLICY EP-1.4
JOB SKILLS

Pursue available financial and tax incentives to improve residents' employment skills and workforce preparation.

Eq Ed

POLICY EP-1.5
ACCESS THROUGH EDUCATION

Support education and employment training on a citywide basis to improve access to higher-wage and emerging occupations.

Eq Ed

POLICY EP-1.6
COMPREHENSIVE APPROACH

Collaborate with chambers of commerce, educational institutions, and other partners to prepare residents to seek and thrive in current and emerging employment environments.

Ed

POLICY EP-1.7
TARGETED RESOURCES

Target business attraction and retention resources to firms with high positive net revenue implications for local government, particularly those engaged in business-to-business taxable sales transactions.

S

POLICY EP-1.8
GROWING TAX BASE

Collaborate with the City chambers of commerce to promote fiscal stability and growth of sales tax and employment generating businesses in the City.

S

POLICY EP-1.9
AVOID CONFLICT OF USES

Avoid potential land use conflicts by prohibiting the location of sensitive receptors and noxious land uses in close proximity.

H Eq S

POLICY EP-1.10
CREATIVE CLASS

Target the attraction of arts and culture related industries to create jobs, attract investments, and stimulate the local economy through tourism.

C S

GOAL EP-2: Diverse Economic Base

Maintain and enhance the diversity and regional significance of the City's economic base.

POLICY EP-2.1
HIGH-GROWTH BUSINESSES

Promote economic development opportunities in high-growth business clusters that match the changing skillset of the City's resident population.

Eq S

POLICY EP-2.2
DELIBERATE INVESTMENT

Pursue business attraction and retention prospects in sectors which broaden and strengthen the local economy.

Eq S

POLICY EP-2.3
COMPLEMENTARY BUSINESSES

Encourage the development of mutually beneficial and complementary business clusters within the community.

S

POLICY EP-2.4
COMMUNITY-LED ECONOMIC DEVELOPMENT

Support community-based economic development initiatives, such as buy-local campaign, marketing strategies, and worker cooperatives.

Eq S Ed

POLICY EP-2.5
SUFFICIENT INDUSTRIAL LAND

Ensure sufficient availability of industrial zoned properties and businesses that provide employment opportunities for the City's resident population.

Eq S

POLICY EP-2.6
SMALL BUSINESS ASSISTANCE

Support and encourage small business development, incubators, and microenterprises through start-up assistance and identification of fiscal resources for entrepreneurship.

Eq S Ed

POLICY EP-2.7
INFRASTRUCTURE AS AN AMENITY

Provide state-of-the-art infrastructure systems with sufficient capacity to attract emerging businesses, encourage efficient public service delivery, and foster a sustainable community.

C S

POLICY EP-2.8
EMERGING BUSINESSES

Pursue and grow emerging business and industry that further fiscal and environmental sustainability of the community.

S

POLICY EP-2.9
ENERGY CONSERVATION

Collaborate with utility providers and regional partners to encourage business and industry to improve performance in energy efficiency, water conservation, and waste reduction.

S

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POLICY EP-2.10
GREEN BUSINESS
Support the growth of a diverse green business sector that facilitates and promotes environmental sustainability and creates a competitive advantage for business attraction activities.

H S

POLICY EP-2.11
GOODS PRODUCING SECTOR
Support economic development initiatives and land use strategies that preserve and foster an environment that allows the goods producing sector to thrive.

S

POLICY EP-2.12
RESILIENCY
Collaborate with governmental agencies and businesses to develop, maintain, and deploy physical and financial strategies that enable businesses of all sizes and their employees to withstand and recover from the acute impacts of flooding, extreme weather events, and public health epidemics or pandemics.

H Eq S

GOAL EP-3: Business Friendly Environment

Promote a business friendly environment where businesses thrive and build on Santa Ana's strengths and opportunities.

POLICY EP-3.1
LEVERAGE HISTORIC AND CULTURAL ASSETS

Market the City's historic and cultural assets to increase the attraction of businesses and their employees to Santa Ana's places and destinations.

C S

POLICY EP-3.2
CITY BRANDING

Promote Santa Ana as a "Smart City" and regional leader in sustainability, equity, innovation, place making, collaboration, and community pride in products Made in Santa Ana.

C Eq S

POLICY EP-3.3
MITIGATE IMPACTS

Promote the development of sustainable and equitable new land use plans that proactively mitigates negative impacts on existing residents and businesses.

H Eq S

POLICY EP-3.4
COMPLETE COMMUNITIES

Encourage the development of "complete communities" that provide a range of housing, services, amenities, and transportation options to support the retention and attraction of a skilled workforce and employment base.

C H Eq S

POLICY EP-3.5
SIMPLIFY THE PROCESS

Provide a streamlined development process and assist businesses with permit processing.

Eq Ed

POLICY EP-3.6
RESPONSIVE TO TRENDS

Maintain flexible and up-to-date land use regulations that are responsive to changing business trends, best practices, technological advancements, and community needs.

Eq Ed

POLICY EP-3.7
FACILITATING INVESTMENT

Promote a solution-based customer focus in order to facilitate additional development and investment in the community.

Eq S Ed

POLICY EP-3.8
COMPREHENSIVE ANALYSIS OF LAND USE

Pursue a balance of fiscal and qualitative community benefits when making land use decisions.

H Eq S

POLICY EP-3.9
CIVIC CULTURE AND COMMUNITY SERVICE

Facilitate a business culture that encourages community service and wellness programs for residents and employees.

C H Eq S Ed

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POLICY EP-3.10
RETHINKING STRIP-COMMERCIAL

Promote the creation of distinctive neighborhood serving districts through the renovation or redevelopment of existing strip-commercial development.

S

POLICY EP-3.11
IMPROVE IMAGE

Create vibrant public spaces through arts and culture projects that enhance urban quality of life, expand the tax base, and improve regional and community image.

C H S

GOAL EP-4: Economic Development Strategies

Promote strategies that create an economic development mindset integrated throughout City Hall.

POLICY EP-4.1
ECONOMIC DEVELOPMENT RESPONSIBILITY

Promote a spirit in which economic development is the responsibility of each elected official, appointed official, and City employee.

C Ed

POLICY EP-4.2
ECONOMIC DEVELOPMENT TRAINING

As financial resources are available, invest in economic development training for staff, elected and appointed officials, and key community stakeholders.

Ed

POLICY EP-4.3
BUSINESS VISITATION

Encourage frequent dialogue between City representatives and owners and managers of businesses operating in Santa Ana.

S Ed

POLICY EP-4.4
ECONOMIC DEVELOPMENT STRATEGY

Adopt and regularly update a comprehensive economic development strategic plan, either as a stand-alone plan or as part of the City's Strategic Plan.

C

POLICY EP-4.5
ECONOMIC DEVELOPMENT PARTNERS

Collaborate effectively with regional economic development partners to achieve specific measurable goals for Santa Ana.

Ed

POLICY EP-4.6
PUBLIC-PRIVATE PARTNERSHIPS

Prioritize municipal initiatives and investments in areas in which private sector businesses and property owners are voluntarily providing private funding through special financing districts (such as assessment districts and business improvement districts).

S

GOAL PS-1: Public Facilities

Provide quality and efficient facilities that are adequately funded, accessible, safe, and strategically located.

POLICY PS-1.1
MAINTENANCE AND DESIGN

Provide and maintain public facilities that reinforce community identity through high quality design.

C S

POLICY PS-1.2
EQUITABLE DISTRIBUTION

Ensure public services and facilities reflect changing population needs and are equitably distributed and accessible, with priority assigned to improving areas that are underserved and/or within environmental justice area boundaries.

Eq

POLICY PS-1.3
CULTURAL CENTERS

Support the expansion, creation, and continued operation of cultural institutions and organizations that serve Santa Ana residents.

C

POLICY PS-1.4
CIVIC CENTER ENHANCEMENTS

Explore opportunities to activate the Civic Center by incorporating social, cultural, entertainment venue programming, and improving infrastructure and connectivity to Downtown and surrounding neighborhoods.

C

POLICY PS-1.5
COMMUNITY BENEFIT

Collaborate with community stakeholders to expand recreational, educational, cultural opportunities, promote active lifestyles, and maximize community benefit.

H Eq

POLICY PS-1.6
FACILITY LOCATIONS

Support land use decisions related to community facilities that preserve quality of life for the City's residents and surrounding community.

H Eq

POLICY PS-1.7
SUSTAINABLE AND RESILIENT PRACTICES

The development or rehabilitation of any public facility or capital improvement shall incorporate site design and building practices that promote sustainability, energy efficiency, and resiliency.

S

POLICY PS-1.8
ACCESS FOR ALL

Improve Connectivity and ADA accessibility at all public facilities.

Eq

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POLICY PS-1.9
SUPPORTIVE HOUSING
Collaborate with community stakeholders to identify and encourage the development of suitable sites for housing with support services.

Eq

POLICY PS-1.10
FAIR SHARE
Require that new development pays its fair share of providing improvements to existing or creation of new public facilities and their associated costs and services.

Eq S

POLICY PS-1.11
SAFETY
Remove actual and perceived safety concerns that create barriers to physical activity by requiring adequate lighting, street visibility, and areas of clear connectivity, especially for new projects or improvements within environmental justice area boundaries.

H Eq

GOAL PS-2: Public Safety

Preserve a safe and secure environment for all people and property.

POLICY PS-2.1
PUBLIC SAFETY AGENCIES

Collaborate with the Police Department and the Fire Authority to promote the implementation of crime prevention through environmental design principles for all development projects.

S Ed

POLICY PS-2.2
CODE COMPLIANCE

Require all development to comply with the provisions of the most recently adopted fire and building codes and maintain an ongoing fire inspection program to reduce fire hazards.

Ed

POLICY PS-2.3
CRIME PREVENTION

Coordinate, partner, and build relationships with community members and stakeholders to develop and implement crime prevention strategies through restorative practices that focus on rehabilitation, community service, and public safety.

Eq Ed

POLICY PS-2.4
COMMUNITY PARTNERSHIPS

Provide alternative methods to improve police services that support community partnerships, build public trust, and proactively address public safety issues.

Eq Ed

POLICY PS-2.5
SAFETY PROGRAMS

Promote early childhood education and prevention programs that improve public safety and maintain ongoing community education opportunities.

Ed

POLICY PS-2.6
SCHOOL SAFETY

Collaborate with local schools to establish and implement comprehensive and coordinated services that enhance the security and safety of students, educators, and administrators on and off campus.

Ed

POLICY PS-2.7
STAFFING LEVELS

Maintain staffing levels for sworn peace officers, fire fighters, emergency medical responders, and civilian support staff to provide quality services and maintain an optimal response time citywide.

Eq

POLICY PS-2.8
EFFICIENCY STANDARDS

Ensure that equipment, facilities, technology, and training for emergency responders are updated and maintained to meet modern standards of safety, dependability, and efficiency.

S

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POLICY PS-2.9
QUALITY EMPLOYEES
Enhance public safety efforts by actively seeking a diverse and talented pool of public safety candidates who possess the values and skills consistent with those of the community.

Eq Ed

POLICY PS-2.10
EMERGENCY MANAGEMENT PLANS
Maintain, update, and adopt an Emergency Operations Plan and Hazard Mitigation Plan to prepare for and respond to natural or human generated hazards.

S

POLICY PS-2.11
RESILIENT FACILITIES AND INFRASTRUCTURE
Coordinate with utilities and public agencies to develop, maintain, relocate, and/or upgrade critical local and regional public facilities and infrastructure systems to ensure their resiliency during times of extreme weather or natural disasters.

S

POLICY PS-2.12
AUTOMATIC MUTUAL AID
Participate in agreements for automatic and mutual aid with other local, state, federal, and nongovernmental emergency service providers to improve protection services and emergency response throughout the region.

S

POLICY PS-2.13
EXTREME HEAT
Maintain an adequate amount and distribution of cooling centers throughout the City, with consideration given to areas with concentrations of those most vulnerable to the dangers of extreme heat.

H S

POLICY PS-2.14
VULNERABLE POPULATIONS
Coordinate with and encourage the use of community-based networks to aid vulnerable populations in preparing for emergencies and provide assistance with evacuation and recovery.

Eq S Ed

POLICY PS-2.15
RECOVERY
Coordinate with the County and other local agencies to reestablish and expedite services to assist affected residents and businesses in the short- and long-term recovery from emergencies and natural disasters.

S

GOAL PS-3: Utility Infrastructure

Supply, maintain, and expand City services and infrastructure improvements through innovative funding options and sustainable practices.

POLICY PS-3.1
SERVICE PARTNERSHIPS

Partner with service providers to ensure access to a wide range of state-of-the-art telecommunication systems and services for households, businesses, institutions, public spaces, and public agencies.

Eq S

POLICY PS-3.2
WASTEWATER SERVICE

Provide and maintain wastewater collection facilities which adequately serve existing land uses and future development projects while maximizing cost efficiency.

Eq S

POLICY PS-3.3
WASTEWATER TECHNOLOGY

Explore new technologies that treat and process wastewater that reduce overall capacity needs of centralized wastewater systems.

S

POLICY PS-3.4
DRAINAGE FACILITIES

Expand and maintain storm drain facilities to accommodate the needs of existing and planned development.

Eq

POLICY PS-3.5
GREEN INFRASTRUCTURE

Incorporate sustainable design and Low Impact Development (LID) techniques for storm water facilities and new development to achieve multiple benefits, including enhancing preserving and creating open space and habitat, reducing flooding, and improving runoff water quality.

S

POLICY PS-3.6
WATER SERVICE

Provide water quality and service that meets or exceeds State and Federal drinking water standards.

H S

POLICY PS-3.7
EMERGENCY CONNECTIONS

Maintain emergency connections with local and regional water suppliers in the event of delivery disruption.

H S

POLICY PS-3.8
CONSERVATION STRATEGIES

Implement cost effective conservation strategies and programs that increase water use efficiency.

S

POLICY PS-3.9
HOUSEHOLD RECYCLING

Expand household recycling services and educational awareness programs.

S Ed

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POLICY PS-3.10
DEVELOPMENT PROJECTS

Encourage new development and reuse projects to incorporate recycling and organics collection activities aligned with state waste reduction goals.

S

POLICY PS-3.11
WASTE COLLECTION

Support infill development projects that provide adequate and creative solutions for waste and recycling collection activities.

S

POLICY PS-3.12
SEWER AND WATER

Maintain and upgrade sewer and water infrastructure through impact fees from new development and exploring other funding sources.

H S

GOAL CN-1: Air Quality and Climate

Protect air resources, improve regional and local air quality, and minimize the impacts of climate change.

POLICY CN-1.1
REGIONAL PLANNING EFFORTS

Coordinate air quality planning efforts with local and regional agencies to meet State and Federal ambient air quality standards in order to protect all residents from the health effects of air pollution.

H Eq

POLICY CN-1.2
CLIMATE ACTION PLAN

Consistency with emission reduction goals highlighted in the Climate Action Plan shall be considered in all major decisions on land use and investments in public infrastructure.

H S

POLICY CN-1.3
EDUCATION

Promote efforts to educate businesses and the general public about air quality standards, reducing the urban heat island effect, health effects from poor air quality and extreme heat, and best practices they can make to improve air quality and reduce greenhouse gas emissions.

H Ed

POLICY CN-1.4
DEVELOPMENT STANDARDS

Support new development that meets or exceeds standards for energy-efficient building design and site planning.

S

POLICY CN-1.5
SENSITIVE RECEPTOR DECISIONS

Consider potential impacts of stationary and non-stationary emission sources on existing and proposed sensitive uses and opportunities to minimize health and safety risks. Apply special considerations and regulations on the siting of facilities that might significantly increase pollution near sensitive receptors within environmental justice area boundaries

H

POLICY CN-1.6
NEW AND INFILL RESIDENTIAL DEVELOPMENT

Promote development that is mixed-use, pedestrian-friendly, transit oriented, and clustered around activity centers.

S

POLICY CN-1.7
HOUSING AND EMPLOYMENT OPPORTUNITIES

Improve the City's jobs/housing balance ratio by supporting development that provides housing and employment opportunities to enable people to live and work in Santa Ana.

Eq

POLICY CN-1.8
PROMOTE ALTERNATIVE TRANSPORTATION

Promote use of alternate modes of transportation in the City of Santa Ana, including pedestrian, bicycling, public transportation, car sharing programs and emerging technologies.

S Ed

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POLICY CN-1.9
PUBLIC INVESTMENT ALTERNATIVE TRANSPORTATION INFRASTRUCTURE

Continue to invest in infrastructure projects that support public transportation and alternate modes of transportation in the City of Santa Ana, including pedestrian, bicycling, public transportation, car sharing programs, and emerging technologies.

S

POLICY CN-1.10
TRANSPORTATION MANAGEMENT

Continue to support and invest in improvements to the City's Transportation Management System, including projects or programs that improve traffic flow and reduce traffic congestion.

S

POLICY CN-1.11
PUBLIC INVESTMENT IN LOW- OR ZERO EMISSION VEHICLES

Continue to invest in low-emission or zero-emission vehicles to replace the City's gasoline powered vehicle fleet and to transition to available clean fuel sources such as bio-diesel for trucks and heavy equipment.

S

POLICY CN-1.12
SUSTAINABLE INFRASTRUCTURE

Encourage the use of low or zero emission vehicles, bicycles, non-motorized vehicles, and car-sharing programs by supporting new and existing development that includes sustainable infrastructure and strategies such as vehicle charging stations, drop-off areas for ride-sharing services, secure bicycle parking, and transportation demand management programs.

S

POLICY CN-1.13
CITY CONTRACT PRACTICES

Support businesses and contractors that use reduced-emissions equipment for city construction projects and contracts for services, as well as businesses that practice sustainable operations.

S

POLICY CN-1.14
TRANSPORTATION DEMAND MANAGEMENT

Require and incentivize projects to incorporate Transportation Demand Management (TDM) techniques.

H S Ed

POLICY CN-1.15
COMMUNITY EMISSIONS REDUCTION

Collaborate with the South Coast Air Quality Management District and local stakeholders in advance of designation as a priority community for air monitoring and reduction, and implement measures and strategies identified in other air monitoring and emissions reduction plans that are applicable to and feasible for Santa Ana.

H Eq S

POLICY CN-1.16
INDIRECT SOURCE RULES

Support the development of regional legislation such as the drayage truck rule, advanced clean truck route, and heavy-duty low N0x rule by the South Coast Air Quality Management District.

H Eq S

POLICY CN-1.17
INDOOR RECREATION

Encourage new development to provide indoor recreation space when located in areas with high levels of localized air pollution or if site is adjacent to freeways or heavy industrial uses.

H Eq

GOAL CN-2: Natural Resources

Preserve and enhance Santa Ana's natural and environmental resources while maintaining a balance between recreation, habitat restoration, and scenic resources.

POLICY CN-2.1
NATIVE WILDLIFE HABITAT PROTECTION

Protect and enhance natural vegetation in parks and open spaces for wildlife habitat, erosion control, and to serve as noise and scenic buffers.

S

POLICY CN-2.2
BIODIVERSITY PRESERVATION

Collaborate with State and County agencies to promote biodiversity and protect sensitive biological resources.

S

POLICY CN-2.3
RESOURCE MANAGEMENT

Efficiently manage soil and mineral resource operations to eliminate significant nuisances, hazards, or adverse environmental effects on neighboring land uses.

H S

POLICY CN-2.4
SCENIC LINKAGES

Ensure that development and travelways surrounding key destinations, historic sites, recreational areas, and open space preserve and create scenic linkages.

H S

GOAL CN-3: Energy Resources

Reduce consumption of and reliance on non-renewable energy, and support the development and use of renewable energy sources.

POLICY CN-3.1
INTERAGENCY COORDINATION
Consult with regional agencies and utility companies to pursue energy efficiency goals and expand renewable energy strategies.

S Ed

POLICY CN-3.2
EDUCATION PROGRAMS
Support education programs to provide information on energy conservation and alternatives to non-renewable energy sources.

S Ed

POLICY CN-3.3
DEVELOPMENT PATTERNS
Promote energy efficient-development patterns by clustering mixed use developments and compatible uses adjacent to public transportation.

H S

POLICY CN-3.4
SITE DESIGN
Encourage site planning and subdivision design that incorporates the use of renewable energy systems.

S

POLICY CN-3.5
LANDSCAPING
Encourage the planting of native and diverse tree species to reduce heat island effect, reduce energy consumption, and contribute to carbon mitigation.

S

POLICY CN-3.6
LIFE CYCLE COSTS
Encourage construction and building development practices that use renewable resources and life cycle costing in construction and operating decisions.

S

POLICY CN-3.7
ENERGY CONSERVATION DESIGN AND CONSTRUCTION
Incorporate energy conservation features in the design of new construction and rehabilitation projects.

S

POLICY CN-3.8
ENERGY-EFFICIENT PUBLIC FACILITIES
Promote and encourage efficient use of energy and the conservation of available resources in the design, construction, maintenance, and operation of public facilities, infrastructure, and equipment.

S

POLICY CN-3.9
ENERGY GENERATION IN PUBLIC FACILITIES
Encourage and support the generation, transmission, use, and storage of locally-distributed renewable energy in order to promote energy independence, efficiency, and sustainability.

S

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POLICY CN-3.10
ENERGY CONSERVATION IN PUBLIC PROJECTS

Work with businesses and contractors that use energy-efficient practices in the provision of services and equipment for city construction projects.

S

POLICY CN-3.11
ENERGY-EFFICIENT TRANSPORTATION INFRASTRUCTURE

Continue to support public and private infrastructure for public transportation such as bus routes, rail lines, and the OC Streetcar.

S

GOAL CN-4: Water Resources

Conserve and replenish existing and future water resources.

POLICY CN-4.1
WATER USE

Encourage and educate residents, business owners, and operators of public facilities to use water wisely and efficiently.

S Ed

POLICY CN-4.2
LANDSCAPING

Encourage public and private property owners to plant native or drought-tolerant vegetation.

S Ed

POLICY CN-4.3
RECYCLED WATER SYSTEMS

Continue to coordinate with the Orange County Water District, Orange County Sanitation District, and developers for opportunities to expand use of reclaimed water systems.

S

POLICY CN-4.4
IRRIGATION SYSTEMS

Promote irrigation and rainwater capture systems that conserve water to support a sustainable community.

S Ed

POLICY CN-4.5
WATER SUPPLY

Continue to collaborate with Orange County Water District and Metropolitan Water District to ensure reliable, adequate, and high quality sources of water supply at a reasonable cost.

S

POLICY CN-4.6
WATER QUALITY

Work with public and private property owners to reduce storm water runoff and to protect the water quality percolating into the aquifer and into any established waterway.

S

GOAL OS-1: Parks, Open Space, and Recreation

Provide a safe, accessible, sustainable, and diverse park and facility system with recreational opportunities accessible to all residents.

POLICY OS-1.1
PARK MASTER PLAN

Create and maintain a Santa Ana parks master plan that incorporates data on need, demographics, and health outcomes.

H Eq S

POLICY OS-1.2
PARKS AND RECREATION NETWORK

Support a comprehensive and integrated network of parks, open space, and recreational facilities that maintains and provides a variety of active and passive recreational opportunities that meets the needs of all Santa Ana residents, regardless of age, ability, or income.

H Eq S

POLICY OS-1.3
PARK STANDARD

Achieve a minimum park standard of two acres per 1,000 residents in the city.

H Eq S

POLICY OS-1.4
PARK CONNECTIVITY

Establish and enhance options for residents to access existing and new park facilities through safe walking, bicycling, and transit routes.

H Eq S

POLICY OS-1.5
DEVELOPMENT AMENITIES

Ensure all new development provides open space and effectively integrates pedestrian and multi-modal travelways to promote a quality living environment.

H Eq S

POLICY OS-1.6
SUSTAINABLE LANDSCAPE

Promote citywide use of drought tolerant landscape and development practices for wise water use and energy consumption.

S

POLICY OS-1.7
COMMUNITY BUILDING

Ensure that park facilities and programs reflect the priorities of residents in the surrounding neighborhoods, with attention to place-making elements that foster social interaction and community pride such as art, landscape, monuments, murals, play equipment, and seating.

C Eq

POLICY OS-1.8
CREATIVE SOLUTIONS

Develop creative and flexible solutions to create infill parks in neighborhoods where traditional pocket, neighborhood, and community parks are not feasible.

H Eq S

POLICY OS-1.9
FUNDING SOURCES

Explore and pursue all available funding for the acquisition of parkland, the development of park facilities, programming, and maintenance of existing and new parks, including nontraditional funding sources.

H Eq

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POLICY OS-1.10
SHARED USE
Collaborate with school districts, faith-based communities, and community serving organizations to expand shared use facilities through cooperative agreements, as well as pursuing multiple use strategies of publicly owned land.

H Eq

POLICY OS-1.11
ACCESSIBILITY
Design new and renovated existing parks, recreation facilities, and trails to provide access to residents of all physical abilities.

H Eq

POLICY OS-1.12
NEIGHBORHOOD NEEDS
Consider unique neighborhood needs in the development of open spaces and programs.

H Eq

POLICY OS-1.13
INDOOR RECREATION
Encourage new development to provide indoor recreation space when located in areas with high levels of localized air pollution or if site is adjacent to freeways or heavy industrial uses.

H Eq

GOAL OS-2: Public Health and Safety

Provide a system of parks, open spaces, and community centers that are well-maintained, safe, and healthy environments for all users.

POLICY OS-2.1
SAFETY

Create a safe environment through implementation of crime prevention through environmental design (CPTED) principles in public spaces.

H

POLICY OS-2.2
NEIGHBORHOOD ENGAGEMENT

Encourage residents, neighborhood groups, businesses, schools, organizations, and public agencies to partner in the creation and maintenance of safe and well maintained publicly-owned park and recreation facilities.

H Eq Ed

POLICY OS-2.3
HAZARDOUS MATERIALS

Reduce or eliminate, as feasible, the use of pesticides and herbicides that negatively impact human health at park facilities and publicly accessible open spaces.

H S

POLICY OS-2.4
URBAN FOREST

Maintain, preserve, and enhance the city's urban forest as an environmental, economic, and aesthetic resource to improve residents' quality of life.

H S

POLICY OS-2.5
URBAN AGRICULTURE

Expand urban agriculture opportunities in private development and public spaces, including home gardens, community gardens, and urban farms.

H

POLICY OS-2.6
FACILITY MAINTENANCE

Ensure all park facilities and open spaces are well maintained.

H Eq

GOAL OS-3: Corridors and Pathways

Preserve, expand, and create additional open space areas and linkages throughout the City to protect the natural and visual character of the community, and to connect to local and regional activity centers.

POLICY OS-3.1
RECREATIONAL CORRIDORS

Establish and maintain an integrated recreational and multi-modal commuter corridor network linking open spaces, housing, community services, and employment centers.

H Eq S

POLICY OS-3.2
LINKING DEVELOPMENT

Promote bicycle and pedestrian linkages and amenities throughout new and existing development to promote use of alternative modes of transportation and active lifestyles.

H S

POLICY OS-3.3
PUBLICLY OWNED LAND

Maintain and explore options for publicly owned land for the creation of open space pathways and corridors.

H Eq S

POLICY OS-3.4
GREENWAY CORRIDORS

Coordinate with government and private sector to explore opportunities to incorporate pedestrian, multi-modal, and landscape amenities along the OC Streetcar route, flood control channels, and other underutilized sites.

H Eq S

POLICY OS-3.5
VISUAL CORRIDORS

Protect visual corridors of and adjacent to public open spaces from intrusive and incompatible development.

S

POLICY OS-3.6
NATURALIZING THE SANTA ANA RIVER

Explore opportunities to reintroduce natural habitat along the Santa Ana River to provide natural habitat and educational and recreational opportunities.

S

GOAL N-1: Land Use Compatibility

Ensure that existing and future land uses are compatible with current and projected local and regional noise conditions.

POLICY N-1.1
NOISE STANDARDS

Utilize established Citywide Noise Standards and guidelines to inform land use decisions and guide noise management strategies.

Eq Ed

POLICY N-1.2
SOUND DESIGN

Encourage functional and attractive designs to mitigate excessive noise levels.

H Ed

POLICY N-1.3
REGIONAL NOISE IMPACTS

Collaborate with local and regional transit agencies and other jurisdictions to minimize regional traffic noise and other sources of noise in the City.

H Eq

POLICY N-1.4
SENSITIVE USES

Protect noise sensitive land uses from excessive, unsafe, or otherwise disruptive noise levels.

H Eq

GOAL N-2: Noise Generators

Reduce the impact of known sources of noise and vibration.

POLICY N-2.1
TRANSPORTATION RELATED NOISE

Reduce noise generated from traffic, railroads, transit, and airports to the extent feasible.

H Eq

POLICY N-2.2
STATIONARY RELATED NOISE

Minimize noise impacts from commercial and industrial facilities adjacent to residential uses or zones where residential uses are permitted.

H Eq

POLICY N-2.3
TEMPORARY AND/OR NUISANCE NOISE

Minimize the effects of intermittent, short-term, or other nuisance noise sources.

H Eq Ed

GOAL N-3: Airport and Land Use Environs

Protect sensitive land uses from airport related noise impacts.

POLICY N-3.1
RESIDENTIAL DEVELOPMENT

Residential development within the John Wayne Airport (JWA) 65 dB(A) CNEL Noise Contour or greater is not supported.

Eq

POLICY N-3.2
FLIGHT PATHS

Advocate that future flight path selection be directed away from existing noise sensitive land uses.

H Eq

POLICY N-3.3
RESIDENTIAL MITIGATION

Require all residential land uses in 60 dB(A) CNEL or 65 dB(A) CNEL Noise Contours to be sufficiently mitigated so as not to exceed an interior standard of 45 dB(A) CNEL.

H Eq Ed

GOAL S-1: Flood Safety

Protect life and minimize property damage, social and economic disruptions caused by flood and inundation hazards.

POLICY S-1.1
REGIONAL COLLABORATION

Continue to consult with agencies to maintain the most current flood hazard and floodplain information; use the information as a basis for project review and to guide development in accordance with regional, state, and federal standards.

S

POLICY S-1.2
CLIMATE CHANGE

Evaluate the need to expand the capacity of flood control facilities to minimize flood hazards to people, property, and the environment based on changing weather conditions associated with climate change.

S

POLICY S-1.3
STORM DRAIN INFRASTRUCTURE

Update the Drainage Master Plan to prioritize improvements to existing system deficiencies, and plan for infrastructure needs that support the General Plan land use vision.

S

POLICY S-1.4
CRITICAL INFRASTRUCTURE

Design, construct, and retrofit critical public facilities and utilities located in flood-prone areas to maintain their structural and operational integrity during floods.

S

POLICY S-1.5
FLOOD AWARENESS

Promote education of flooding hazards and bring awareness to resources and programs that assist property owners, residents, and businesses to protect their homes and property from flood damage.

Ed

POLICY S-1.6
ALTERNATIVE FLOOD CONTROL METHODS

Explore and encourage natural flood control infrastructure and techniques that create new open areas to capture storm water, recharge aquifers, prevent flooding, and that expand recreation opportunities.

S

POLICY S-1.7
SURFACE WATER INFILTRATION

Encourage site drainage features that reduce impermeable surface area, increase surface water infiltration, and minimize surface water runoff during storm events on private and public developments.

S

POLICY S-1.8
DEVELOPMENT IN FLOOD ZONE

Continue to implement federal, state, and regional requirements related to new construction in flood plain areas to ensure that future flood risks to life and property are minimized.

H S

GOAL S-2: Hazardous Materials

Protect residents and environmental resources from contaminated hazardous material sites and minimize risks associated with the use, production, storage, transport, and disposal of hazardous materials.

POLICY S-2.1
REGIONAL COLLABORATION

Consult and collaborate with federal, state, and regional agencies to identify and regulate the disposal and storage of hazardous materials, prevent the illegal transportation and disposal of hazardous waste, facilitate the cleanup of contaminated sites, and facilitate the cleanup of contaminated sites.

H S

POLICY S-2.2
HAZARDOUS WASTE GENERATORS

Collaborate with appropriate agencies to identify and inventory all users and handlers of hazardous materials to proactively mitigate potential impacts.

H S

POLICY S-2.3
TRANSPORTATION AND STORAGE

Coordinate with the County of Orange, the California Department of Transportation, and other relevant parties to enforce state and local laws regulating the storage and transport of hazardous materials within the City of Santa Ana, and limit truck routes through the City to arterials streets away from natural habitats and sensitive land uses.

Eq

POLICY S-2.4
PLANNING AND REMEDIATION

Determine the presence of hazardous materials and/or waste contamination prior to approval of new uses and require that appropriate measures be taken to protect the health and safety of site users and the community.

H Eq

POLICY S-2.5
EDUCATION AND BEST PRACTICES

Promote public awareness of best practices for and participation in household hazardous waste management and disposal.

Ed

POLICY S-2.6
EXISTING SENSITIVE USES

Partner and collaborate with property owners, businesses, and community groups to develop strategies to protect and minimize risks from existing hazardous material sites to existing nearby sensitive uses, with priority given to uses within environmental justice area boundaries.

Eq Ed

GOAL S-3: Geologic and Seismic Hazards

Provide a safe environment for all Santa Ana residents and workers while minimizing risk of injury, loss of life, property damage, and social and economic impacts caused by geologic and seismic hazards.

POLICY S-3.1
HAZARD IDENTIFICATION

Explore opportunities to identify and encourage the upgrade of structures and facilities that are at risk from seismic hazards.

H S

POLICY S-3.2
SEISMIC AND GEOTECHNICAL STANDARDS

Ensure that all new development abides by the current city and state seismic and geotechnical requirements and that projects located in areas with potential for geologic or seismic hazards prepare a hazards study.

H

POLICY S-3.3
KEY PUBLIC FACILITIES AND SYSTEMS

Coordinate with relevant utility service providers to ensure that major utility systems remain resilient in the event of a major earthquake and are seismically upgraded.

S

POLICY S-3.4
MULTIAGENCY EDUCATION CAMPAIGN

Develop cooperative partnerships and strengthen communication among public agencies, residents, nonprofit organizations, and businesses to promote sharing of educational information regarding seismic and geologic hazards and safety.

Ed

GOAL LU-1: Growing Responsibly

Provide a land use plan that improves quality of life and respects our existing community.

POLICY LU-1.1
COMPATIBLE USES
Foster compatibility between land uses to enhance livability and promote healthy lifestyles.

H

POLICY LU-1.2
HOMEOWNERSHIP OPPORTUNITIES
Support innovative development policies to expand homeownership opportunities at all income levels.

Eq

POLICY LU-1.3
EQUITABLE DISTRIBUTION OF OPEN SPACE
Promote the creation of new open space and community serving amenities in park deficient areas , with priority given to those that are also within environmental justice area boundaries.

H Eq

POLICY LU-1.4
COUNTY SEAT
Support the location of new and enhanced regional, state, and federal governmental facilities in the Civic Center to reinforce Santa Ana as the County Seat.

S

POLICY LU-1.5
DIVERSE HOUSING TYPES
Incentivize quality infill residential development that provides a diversity of housing types and accommodates all income levels and age groups.

Eq S

POLICY LU-1.6
TRANSIT ORIENTED DEVELOPMENT
Encourage residential mixed-use development, within the City's District Centers and Urban Neighborhoods, and adjacent to high quality transit.

H S

POLICY LU-1.7
ACTIVE TRANSPORTATION INFRASTRUCTURE
Invest in active transportation connectivity between activity centers and residential neighborhoods to encourage healthy lifestyles.

C H S

POLICY LU-1.8
DEVELOPMENT TRADEOFFS
Ensure that new development projects provide a net community benefit.

Eq S

POLICY LU-1.9
PUBLIC FACILITIES AND INFRASTRUCTURE
Evaluate individual new development proposals to determine if the proposals are consistent with the General Plan, and to ensure that they do not compound existing public facility and service deficiencies.

Eq S

POLICY LU-1.10
DOWNTOWN ORANGE COUNTY
Balance development within the downtown to continue to serve as a cultural and economic hub for existing and future residents.

C S

GOAL LU-2: Land Use Needs

Provide a balance of land uses that meet Santa Ana's diverse needs.

POLICY LU-2.1
EMPLOYMENT OPPORTUNITIES

Provide a broad spectrum of land uses and development that offer employment opportunities for current and future Santa Ana residents.

Eq S

POLICY LU-2.2
CAPTURE LOCAL SPENDING

Encourage a range of commercial uses to capture a greater share of local spending, and offer a range of employment opportunities.

S Ed

POLICY LU-2.3
SUPPORTIVE SPACES

Provide a diversity of land uses that support residents, visitors, and businesses, such as open space, areas for community gatherings, and outdoor entertainment venues.

C H S

POLICY LU-2.4
COST AND BENEFIT OF DEVELOPMENT

Balance the benefits of development with its fiscal impacts on the City and on quality of life.

S

POLICY LU-2.5
BENEFITS OF MIXED USE

Encourage infill mixed-use development at all ranges of affordability to reduce vehicle miles traveled, improve jobs/housing balance, and promote social interaction.

C H Eq

POLICY LU-2.6
ENCOURAGE INVESTMENT

Promote rehabilitation of properties and encourage increased levels of capital investment to create a safe and attractive environment.

H Ed

POLICY LU-2.7
BUSINESS INCUBATOR

Support land use decisions that encourage the creation, development, and retention of businesses in Santa Ana.

Eq S

POLICY LU-2.8
CITY IMAGE

Encourage land uses, development projects, and public art installations that promote the City's image as a cultural and business friendly regional center.

C S Ed

POLICY LU-2.9
OPEN SPACE NEEDS

Establish and maintain public open space and recreation requirements for new residential and nonresidential uses to provide sufficient open space and recreational opportunities for Santa Ana residents and visitors.

H Eq S

POLICY LU-2.10
SMART GROWTH

Focus high density residential in mixed-use villages, designated planning focus areas, Downtown Santa Ana, and along major travel corridors.

S

GOAL LU-3: Compatibility of Uses

Preserve and improve the character and integrity of existing neighborhoods and districts.

POLICY LU-3.1
COMMUNITY BENEFITS

Support new development which provides a net community benefit and contributes to neighborhood character and identity.

C S Ed

POLICY LU-3.2
EMPOWER COMMUNITY

Facilitate community engagement and dialogue in policy decisions and outcomes affecting land use and development, with supplemental opportunities for proposed planning activities within environmental justice area boundaries.

Eq Ed

POLICY LU-3.3
ENFORCEMENT OF STANDARDS

Maintain a robust and proactive code enforcement program that partners with community stakeholders and is responsive to community needs.

H Eq S

POLICY LU-3.4
COMPATIBLE DEVELOPMENT

Ensure that the scale and massing of new development is compatible and harmonious with the surrounding built environment.

S

POLICY LU-3.5
ADAPTIVE REUSE

Encourage the preservation and reuse of historical buildings and sites through flexible land use policies.

C S Ed

POLICY LU-3.6
FOCUSED DEVELOPMENT

Facilitate the transformation of the transit corridors through focusing medium and high density pedestrian-oriented mixed-use development at key intersections.

H S

POLICY LU-3.7
ATTRACTIVE ENVIRONMENT

Promote a clean, safe, and creative environment for Santa Ana's residents, workers, and visitors.

C H S

POLICY LU-3.8
SENSITIVE RECEPTORS

Avoid the development of sensitive receptors in close proximity to land uses that pose a hazard to human health and safety, due to the quantity, concentration, or physical or chemical characteristics of the hazardous materials that they utilize, or the hazardous waste that they generate or emit.

H Eq S

POLICY LU-3.9
NOXIOUS, HAZARDOUS, DANGEROUS, AND POLLUTING USES

Improve the health of residents, students, and workers by limiting the operation of noxious, hazardous, dangerous, and polluting uses that are in close proximity to sensitive receptors, with priority given to discontinuing such uses within environmental justice area boundaries.

H Eq S

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POLICY LU-3.10
COMMUNITY ATTRACTIONS

Support the development of regional land uses that allow for entertainment, sports and unique venues that benefit the local community and attract a wide range of visitors.

C

POLICY LU-3.11
AIR POLLUTION BUFFERS

Promote landscaping and other buffers to separate existing sensitive uses from rail lines, heavy industrial facilities, and other emissions sources. As feasible, apply more substantial buffers within environmental justice area boundaries.

H Eq S

POLICY LU-3.12
INDOOR AIR QUALITY

Require new sensitive land uses proposed in areas with high levels of localized air pollution to achieve good indoor air quality through landscaping, ventilation systems, or other measures.

H Eq S

GOAL LU-4: Complete Communities

Support a sustainable Santa Ana through improvements to the built environment and a culture of collaboration.

POLICY LU-4.1
COMPLEMENTARY USES
Promote complete neighborhoods by encouraging a mix of complementary uses, community services, and people places within a walkable area.

H S

POLICY LU-4.2
PUBLIC REALM
Maintain and improve the public realm through quality architecture, street trees, landscaping, and other pedestrian-friendly amenities.

H Eq S

POLICY LU-4.3
SUSTAINABLE LAND USE STRATEGIES
Encourage land uses and strategies that reduce energy and water consumption, waste and noise generation, air quality impacts, and light pollution.

S Ed

POLICY LU-4.4
NATURAL RESOURCE CAPTURE
Encourage the use of natural processes to capture rainwater runoff, sustainable electric power, and passive climate control.

S Ed

POLICY LU-4.5
VMT REDUCTION
Concentrate development along high quality transit corridors to reduce vehicle miles traveled (VMT) and transportation related carbon emissions.

S

POLICY LU-4.6
HEALTHY LIVING CONDITIONS
Support diverse and innovative housing types that improve living conditions and promote a healthy environment.

Eq S Ed

POLICY LU-4.7
DIVERSE COMMUNITIES
Promote mixed-income developments with mixed housing types to create inclusive communities and economically diverse neighborhoods.

C Eq S

POLICY LU-4.8
COMMUNITY PARTNERSHIPS
Collaborate with property owners, community organizations, and other local stakeholders to identify opportunities for additional open space and community services, such as community gardens and gathering places.

C H Eq S

POLICY LU-4.9
RECREATIONAL AMENITIES
Encourage public and commercial recreational facilities in areas that are park and open space deficient.

C H Eq

POLICY LU-4.10
THRIVING DOWNTOWN
Encourage new development and enhancement of Downtown Santa Ana through creative, sustainable, and innovative design solutions.

GOAL HP-1: Historic Areas and Resources

Preserve and enhance Santa Ana's historic areas and resources to maintain a unique sense of place.

POLICY HP-1.1
ARCHITECTURAL AND DESIGN STANDARDS

Preserve unique neighborhoods and structures in Santa Ana through implementation of the Citywide Design Guidelines and historic preservation best practices.

C S

POLICY HP-1.2
FEDERAL STANDARDS FOR REHABILITATION

Ensure rehabilitation of historic buildings comply with the Secretary of Interior's Standards for the Treatment of Historic Properties and that new construction in historic districts is compatible with context.

C S Ed

POLICY HP-1.3
HISTORIC DISTRICTS AND DESIGN STANDARDS

Explore opportunities to preserve neighborhoods with largely intact historic buildings and character through the creation of historic districts, identfication of historically sensitive areas, or neighborhood context sensitive design standards.

C Eq S

POLICY HP-1.4
PROTECTING RESOURCES

Support land use plans and development proposals that actively protect historic and cultural resources.

C Eq S

POLICY HP-1.5
STRUCTURE AND SYSTEMS MAINTENANCE

Encourage maintenance, care, and systems upgrades of historic resources to avoid the need for major rehabilitation, prevent loss of historic resources, and remediate health concerns such as lead based paint and mold.

H Eq S Ed

POLICY HP-1.6
LEAD BY EXAMPLE

Ensure that all City-owned historic resources and cultural facilities reflect exceptional architecture and historically appropriate features to celebrate Santa Ana as a world-class city.

C H Eq S Ed

POLICY HP-1.7
PRESERVING HUMAN ELEMENT

Encourage participation in oral history programs to capture Santa Ana's historic and cultural narrative.

C Eq Ed

POLICY HP-1.8
REUSE OF HISTORIC BUILDINGS

Support flexible land use standards to facilitate the adaptive reuse of historic buildings with a variety of economically viable uses, while minimizing impacts to the historic value and character of sites and structures.

C H S

POLICY HP-1.9
HISTORIC DOWNTOWN

Strengthen the image and identity of Downtown through unifying design and architectural themes that are compatible with existing historic fabric.

C

GOAL HP-2: Cultural and Historic Resources

Promote the City's cultural and historic resources to advance Santa Ana's role in Southern California history.

POLICY HP-2.1
RESOURCE STEWARDSHIP

Expand community outreach to educate property owners and businesses regarding responsibilities and stewardship requirements of the City's historic resources.

H Eq S Ed

POLICY HP-2.2
EDUCATIONAL AWARENESS

Provide educational opportunities to foster community awareness and pride in Santa Ana's history.

C Eq Ed

POLICY HP-2.3
COMMEMORATING HISTORY

Support efforts to identify and commemorate historic structures and sites, and historically sensitive areas in Santa Ana through murals, plaques, and educational exhibits.

C Eq Ed

POLICY HP-2.4
LOCAL AND REGIONAL PARTNERSHIPS

Strengthen relationships and programs with local and regional institutions and organizations to promote the appreciation, maintenance, rehabilitation, and preservation of Santa Ana's historic and cultural resources.

C H Eq S Ed

POLICY HP-2.5
ECONOMIC DEVELOPMENT TOOL

Promote economic development through heritage education and the promotion of tourism.

Ed

POLICY HP-2.6
CENTER CORE

Promote Santa Ana's identity as the cultural and historic downtown of Orange County.

C Ed

GOAL HP-3: Historic Preservation

Develop, implement, and maintain a nationally recognized historic preservation program.

POLICY HP-3.1
HISTORIC RESOURCE SURVEY

Maintain a comprehensive program to inventory and preserve historic and cultural resources, including heritage landscape and trees.

Eq S Ed

POLICY HP-3.2
INCENTIVIZE PRESERVATION

Support incentive programs that promote restoration, rehabilitation, salvage, and adaptive reuse of historic buildings.

C H Eq S

POLICY HP-3.3
ACCESSIBLE PRESERVATION PROGRAM

Explore strategies to promote a historic preservation program that is robust, equitable, and accessible.

C Eq S Ed

POLICY HP-3.4
PRESERVATION PROGRAM CERTIFICATION

Maintain Santa Ana's status as a Certified Local Government (CLG) to further the City's historic resource program and pursue all available funding for preservation.

C S

POLICY HP-3.5
LOCAL PRESERVATION GROUPS

Collaborate with the Santa Ana Historical Preservation Society, community groups, and individuals to promote public awareness and educational opportunities that highlight historic preservation.

C Eq S Ed

POLICY HP-3.6
STAFF DEVELOPMENT

Collaborate with local and regional historic preservation groups to maintain a training program that promotes best practices in preservation techniques.

C Ed

GOAL UD-1: Physical Character

Improve the physical character and livability of the City to promote a sense of place, positive community image, and quality environment.

POLICY UD-1.1
DESIGN QUALITY

Ensure all developments feature high quality design, materials, finishes, and construction.

Eq

POLICY UD-1.2
PUBLIC ART

Require public art as part of major developments and the public realm improvements.

C

POLICY UD-1.3
DELINEATION OF PUBLIC SPACES

Encourage site design that clearly defines public spaces through building placement and orientation.

Eq Ed

POLICY UD-1.4
SAFETY THROUGH DESIGN

Incorporate crime prevention design features into private and public developments to prevent loitering, vandalism and other undesirable activities.

H Eq

POLICY UD-1.5
ATTRACTIVE PUBLIC SPACES

Encourage community interaction through the development and enhancement of plazas, open space, people places, and pedestrian connections with the public realm.

C H Eq

POLICY UD-1.6
ACTIVE TRANSPORTATION INFRASTRUCTURE

Support the creation of citywide public street and site amenities that accommodate and promote an active transportation-friendly environment.

H Eq S

POLICY 1.7
VISUAL CLUTTER

Promote the beautification and accessibility of the public realm through the undergrounding of utility lines and aboveground equipment.

Eq

GOAL UD-2: Sustainable Environment

Improve the built environment through sustainable development that is proportional and aesthetically related to its setting.

POLICY UD-2.1
ENHANCED PUBLIC REALM EXPERIENCE

Encourage development to enhance the existing environment through the use of creative architectural design and sustainable streetscape treatments that are consistent on each corridor.

C S

POLICY UD-2.2
COMPATIBILITY WITH SETTING

Encourage the compatibility of new development with the scale, bulk, and pattern of existing development.

Eq

POLICY UD-2.3
NEW LIFE FOR OLD BUILDINGS

Encourage the preservation and reuse of historic and architecturally significant structures to maintain urban fabric and reduce overall energy consumption associated with new construction.

C S

POLICY UD-2.4
INTENTIONAL DESIGN

Encourage design and architecture on private and public property that accentuate focal points, activity nodes, and historic areas.

C

POLICY UD-2.5
RELATION TO SURROUNDINGS

Ensure new development exhibits a functional, comfortable scale in relation to its neighborhood.

C Eq

POLICY UD-2.6
PRESERVE NEIGHBORHOOD CHARACTER

Preserve the character and uniqueness of existing districts and neighborhoods.

C S

POLICY UD-2.7
BUILDING AND STRENGTHENING IDENTITY

Collaborate with community stakeholders to strengthen and foster development of community identity and district character through complementary architecture, unique streetscapes, and programming.

C S

POLICY UD-2.8
INNOVATIVE DEVELOPMENT STRATEGIES

Explore development and subdivision options that promote new opportunities for sustainable, livable, and affordable development.

Eq S

POLICY UD-2.9
VISUAL AESTHETIC OF BUILT ENVIRONMENT

Ensure that on and off-premise signs and communication equipment are situated to minimize detrimental impacts to the aesthetic quality, character, and image of the surrounding area.

H Eq

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POLICY UD-2.10
GREENING THE BUILT ENVIRONMENT

Promote planting of shade trees and require, where feasible, site design that uses appropriate tree species to shade parking lots, streets, and other facilities with the goal of reducing the heat island effect.

H S

POLICY UD-2.11
SUSTAINABLE PRACTICES

Encourage sustainable development through the use of drought tolerant landscaping, permeable hardscape surfaces, and energy efficient building design and construction.

S

GOAL UD-3: Attractive Travelways

Create and maintain safe and attractive travelways through coordinated streetscape design.

POLICY UD-3.1
LANDSCAPED TRAVELWAYS

Promote visually appealing and sustainable landscaping along freeway corridors, roadway medians, and parkways.

H S

POLICY UD-3.2
ACTIVATE PATHS

Strengthen and activate the design of paths and adjacent development through enhanced and cohesive streetscapes, architectural themes, and landscaping.

H S

POLICY UD-3.3
FOSTER COMMUNITY BUILDING

Promote a safe environment that facilitates social interaction and improves active transportation along corridors.

C H

POLICY UD-3.4
IMPROVEMENTS TO STREETSCAPE

Promote streetscape improvement plans that are responsive to community needs, the nature of adjacent uses, path characteristics, street classification, pedestrian scale, and view corridors.

H Eq

POLICY UD-3.5
ACTIVITY NODE LINKAGES

Promote streetscape designs that link major destination points, landmarks, and local activity nodes.

H S

POLICY UD-3.6
LINEAR PARK SYSTEM

Support open space improvements along roadways and non-vehicular paths, such as bike or multi-use trails.

H Eq S

POLICY UD-3.7
NATURAL RECREATIONAL AMENITIES

Enhance natural and recreational features of Santiago Creek and the Santa Ana River corridors and provide linkages throughout the community.

H S

POLICY UD-3.8
PLEASANT TRAVEL EXPERIENCE

Maximize the use of street trees and parkway landscaping to create a pleasant travel experience and positive City image.

H S

POLICY UD-3.9
SCENIC VIEWS

Preserve and enhance scenic views along corridors and other travelways.

C S

CONTINUED ON NEXT PAGE >>

POLICY UD-3.10
COORDINATED STREET IMPROVEMENT PLANS

Coordinate citywide landscape medians and street trees with land use plans and development projects.

H S

POLICY UD-3.11
URBAN FOREST

Create a diverse urban forest with a variety of sustainable trees in medians, parkways, public open space, and private development.

H S

GOAL UD-4: Nodes and People Places

Create nodes and urban hubs throughout the City to foster community, education, arts and culture, business activities, entertainment, and establish Santa Ana as a vibrant center.

POLICY UD-4.1
INTENTIONAL DEVELOPMENT

Support development growth in nodes consistent with the City's vision as the dynamic urban center of Orange County.

C S

POLICY UD-4.2
IMAGE MAKING THROUGH ARCHITECTURE

Promote development within nodes to reflect the significance of the area and cultivate a positive image of Santa Ana through high quality architecture.

C S

POLICY UD-4.3
ACTIVATE OPEN SPACE

Ensure architectural and landscape design activates open space, as a means to promote community interaction and enhance the aesthetic quality of development.

C H S

POLICY UD-4.4
VIBRANT STREET LIFE

Encourage development within nodes that promote pedestrian activities, enhanced amenities, and engaging designs that allow for discovery, excitement, and social interaction.

H Eq S

POLICY UD-4.5
OPEN SPACE AT NODES

Promote creative, multi-purpose public space within nodes, major development projects, and people places.

H Eq

POLICY UD-4.6
COMMUNITY LED INSTALLATIONS

Provide for opportunities to incorporate distinctive, innovative and community informed public art in plazas and open spaces, to promote pedestrian activity.

C Eq

GOAL UD-5: Focus Intersections

Create focal points at major intersections to enhance community identity and open space.

POLICY UD-5.1
BUILDING PRESENCE AT INTERSECTIONS

Create a strong presence at focus intersections by locating intense building mass and open space areas along the street that include high quality design and materials.

C

POLICY UD-5.2
LINKAGES BETWEEN PUBLIC ART

Promote public art in conveniently accessible and prominent places to physically and visually link development with streetscape and paths.

C Eq

POLICY UD-5.3
ACTIVATING INTERSECTIONS

Encourage projects at focal intersections that incorporate vertical design features or mixed-use development as a means to provide visual presence and encourage pedestrian activity in these areas.

C S

POLICY UD-5.4
INTERSECTIONS FOR ALL TRAVEL MODES

Strengthen active transportation connections and amenities at focal intersections to promote a pleasant and safe experience for non-motorized forms of travel.

H Eq S

GOAL UD-6: Landmarks

Create new and protect existing City landmarks and memorable places that convey positive images.

POLICY UD-6.1
DESIGN WITH LANDMARKS

Strengthen the design of development to frame and enhance landmarks, natural features, and view corridors.

C S

POLICY UD-6.2
APPROPRIATE DESIGN NEAR LANDMARKS

Ensure development near existing landmarks is supportive and respectful of architecture, site, and other design features of the landmark.

C Eq S

POLICY UD-6.3
CREATE NEW LANDMARKS

Encourage new development that will lead to the creation of new landmarks in the City and bolster community pride.

C

GOAL UD-7: Gateways

Create and strengthen gateways into the City that promote a sense of arrival.

POLICY UD-7.1
FIRST IMPRESSION

Strengthen the architectural design of developments near gateways to communicate a sense of arrival and inspire positive images of the City.

C

POLICY UD-7.2
STREETSCAPE IMPROVEMENTS

Enhance Santa Ana's gateways to include unique and distinctive streetscape improvements.

C

POLICY UD-7.3
IMPROVED FREEWAY INTERFACE DESIGN

Collaborate with Caltrans and adjacent jurisdictions to enhance freeway interchanges that create a sense of place and arrival.

C Ed

POLICY UD-7.4
MONUMENTS AT GATEWAYS

Promote 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 at City gateways.

C

POLICY UD-7.5
TRANSIT CORRIDOR BEAUTIFICATION

Improve transit and rail corridors and interfaces to create a welcoming experience for all travelers.

C Eq S

Appendix B-b Santa Ana General Plan Buildout Methodology

Appendices

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Santa Ana General Plan Buildout Methodology

June 2020

Purpose, Design, and Limitations

The following summarizes the methodology and factors used to calculate existing and buildout conditions for purposes of the General Plan and its analysis through an environmental impact report. All figures are estimates generated using the best available data for analysis at a citywide level, with additional detail provided by specific planning/focus areas and traffic analysis zones.

Whenever possible, the figures generated were derived from authoritative data sources, such as the U.S. Census or California Department of Finance. Such sources are subject to their own error rates and may summarize data at different geographic levels or in different categories. When more precise data was not available, figures generated for existing and projected figures were compared to aggregated or citywide totals from authoritative sources, understanding that such comparisons are primarily for the purpose of determining order-of-magnitude accuracy.

It is important to note that the buildout figures represent an informed but estimated projection of a future condition. The actual construction of development will likely vary by parcel and planning area in terms of location and mix of uses. The analysis in the General Plan Environmental Impact Report provides a programmatic assessment of potential impacts, enabling tiering for future projects that are consistent with the assumptions on some CEQA topics (other project-level impacts will still need to be evaluated through the appropriate environmental clearance under CEQA).

Existing Conditions

Housing Units and Building Square Footage

Existing conditions figures (see Table 1) reflects the built environment as of January 2020, using parcel data from the City of Santa Ana Planning Information Network, augmented by projects listed as already under construction in the City's January 2020 monthly development project report (see Table 5).

Households and Population

The number of households was generated by multiplying the total number of housing units by the occupancy rate as reported by the California Department of Finance for 2019 (see source notes in Table 4). Population was generated by multiplying the total number of households by persons per household rates, varying for single family and multi-family units, as reported in the 2018 American Community Survey 1-year estimates (see Table 4).

Students

The number of K-12 and college students currently attending schools in Santa Ana was obtained from the California Department of Education and Rancho Santiago Community College District, respectively (see Table 5).

Employment

The number of jobs (employment) in Santa Ana was generated by dividing building square footage (by land use) by employment generation factors (see Table 3). The building use and square footage data was obtained from the City of Santa Ana Planning Information Network, augmented by projects listed as already under construction in the City's January 2020 monthly development project report. The employment generation factors were derived by first dividing the building square footage by factors provided by the City and sourced to the Santa Ana OCP 2002/2006 Interagency Team. The results were compared to total employment figures reported citywide and by industry sector (with rough equivalents identified for each land use category), by the U.S. Census Bureau for 2017. The employment generation factors were adjusted as necessary to bring calculated figures for existing employment generally in line with figures reported by the U.S. Census in 2017.

Employed Persons

The number of employed persons is calculated exclusively as an input into the Orange County Traffic Analysis Model (OCTAM) to conduct the traffic analysis of the General Plan as part of the environmental impact report. The total estimated number of employed residents varies between different U.S. Census datasets. The Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (LEHD) reports data based on W-2 and W-4 forms related to wages and worker's compensation, while the American Community Survey relies on statistical surveys of self-reported data. The LEHD figures are generally considered more appropriate for traffic analysis purposes since the job information is more consistent and more likely to involve vehicular travel outside of the home.

The number of employed persons in Santa Ana was generated by multiplying the total population in households by the percentage of population age 16 and over by the employment-to-population ratio, as reported by the U.S. Census Bureau in 2018 (see Table 4). These calculations, drawn from the ACS, are then reduced proportionally to bring figures in line with the total reported by LEHD.

Buildout Conditions

Proposed Plan

In coordination with a General Plan Advisory Group, the City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.

There are seven other planning areas that represent specific plans and other special zoning areas that were previously adopted: Adaptive Reuse Overlay (2014), Bristol Street Corridor Specific Plan (1991/2018), Harbor Mixed Use Corridor Specific Plan (2014), MainPlace Specific Plan (2019), Metro East Mixed Use Overlay Zone (2007/2018), Midtown Specific Plan (1996), and Transit Zoning Code Specific Development (2010). The potential for new development in these areas is based on the forecasted buildout at the time of the respective zoning

document's adoption, minus the amount of new development built between their adoption date and 2019. The most recent adoption/amendment date for each zoning document is noted above in parentheses.

Growth outside of the focus areas and special planning areas is expected to be incremental and limited. Some growth was projected for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan. Some growth was also projected for the commercial and retail area south of the West Santa Ana Boulevard focus area. Finally, some additional residential development is expected to occur on a small portion (five percent) of single-family and multi-family lots through the construction of second units.

Focus Areas

Parcels within focus areas were first evaluated for the potential for new uses (units or building square footage), through redevelopment, intensification, and/or turnover. The analysis was conducted by MIG in 2019, in support of the City of Santa Ana, using the City of Santa Ana Planning Information Network as of April 2019. MIG determined the potential based on the building-to-land-value ratio. Those parcels that were vacant or exhibited a building-to-land-value ratio below 1.0 were determined to have potential for new uses. Exceptions include religious and governmental institutions.

For parcels without the potential for new uses, existing building square footage (non-residential) and/or existing units (residential) were carried over into future buildout. For parcels with potential for new uses, buildout factors can be found in Table 2. These factors were established by the City, assisted by MIG, based on a comparison of development throughout southern California that matched the vision established for each focus area. MIG identified the density and intensity factors corresponding with such development to inform the City's focus area buildout factors.

After calculating future buildout conditions using the density/intensity factors, PlaceWorks assisted the City in evaluating the potential implications of the potential buildout figures for each focus area, informed by analyses by IBI Group (circulation) and AECOM (market) conducted in 2019 and 2020. PlaceWorks concluded that the City should not assume a maximum theoretical buildout based on maximum density/intensity standards but should forecast and plan for growth beyond current market demand. PlaceWorks recommended that the City apply a buildout factor of 80% to the totals generated using the factors in Table 2 to arrive at buildout projections for 2045 that are realistic, market-friendly, consistent with the visions for each focus area, and more compatible with the proposed roadway network. The following information substantiates the General Plan buildout development assumptions and adjustments.

Realistic vs Maximum Theoretical Buildout

Density and intensity standards are provided in a general plan to convey the maximum scale and intensity for broad land use categories. Zoning standards are then applied at a parcel level to guide and control density and intensity at a development project level. When calculating buildout, a jurisdiction is permitted to assume that every single parcel will develop at the maximum permitted density/intensity. However, this assumption of absolute buildout runs the risk of overestimating the amount of building space and residential units within the identified planning horizon (in this case the year 2045). Overestimating buildout can lead to unnecessary and misleading concerns, mitigation measures, and planning efforts, as well as a misallocation of current and future

public funds. Accordingly, the City of Santa Ana General Plan calculated a realistic or more likely buildout scenario for projecting growth between 2020 and 2045.

Past Development Trends

While 25 years is a long period of time, the City of Santa Ana is a highly urbanized place containing relatively few vacant lots. The process of intensifying and/or redeveloping parcels of land that already contain functional uses and structures is often substantially more complicated and costly compared to developing vacant land. A review of the City's property records indicates that the pace of new development, intensification, and redevelopment has occurred over a much longer period of time to reach where the City is today. The average floor area ratios (amount of building space compared to the total area of the parcel) throughout the focus areas are 0.22 to 0.41 for commercial, 0.28 to 0.43 for industrial, 0.26 to 1.29 for office, and 0.40 for mixed use. Average densities are 4.5 to 6.5 dwelling units per acre (du/ac) for single family units and 13.5 to 24.8 units per acre for multi-family units.

Current Development Trends

Of course, past development trends do not necessarily match the likely and/or desired scale, intensity, or pace of new development envisioned by the updated General Plan. Current development trends can be identified through recent development projects and applications. The following list contains projects that were under construction, entitled, or in review as of January 2020. The projects are listed by planning area, with the proposed project intensity details shown alongside the maximum intensity standards of the desired general plan or zoning designation. This list demonstrates that some current projects are building to their maximum potential, but the majority are building at roughly 60% to 75% of the maximum potential (either in terms of residential density and/or building space).

- Metro East Mixed Use Overlay
  - Active Urban District, no maximum on stories
    - AMG Family Affordable Apartments, 6 stories, 80 du/ac, 10,000 sq. ft. of commercial
    - Central Pointe Mixed-Use Development, 5 stories, 75 du/ac, 8,800 sq. ft. of commercial
    - The Madison, 6 stories, 93 du/ac, 6,600 sq. ft. of commercial
    - Wermers Elks Site "Elan" Mixed-Use Development, 6 stories, 97 du/ac, 20,000 sq. ft. of commercial
  - Neighborhood Transitional District, allows up to 4 stories
    - AMCAL First Street Apartments, 3 stories, 32 du/ac
- 55/Dyer Focus Area
  - District Center, up to 90 du/ac, up to 1.7 FAR (Heritage) and up to 5.0 FAR (Bowery)
    - The Bowery Mixed-Use Project, 79 du/ac, 80,000 sq. ft. of commercial
    - The Heritage, 65 du/ac, 18,400 sq. ft. of commercial, and 56,000 sq. ft. of office
- MainPlace Specific Plan
  - District Center, up to 90 du/ac, up to 2.1 FAR
    - 2700 N Main, 71 du/ac
    - Magnolia at the Park, 58 du/ac
- Adaptive Reuse Overlay
  - Adaptive reuse standards/incentives, minimum 500-sq. ft. units, can exceed general plan density
    - Meta Housing Santa Ana Arts Collective Adaptive Re-Use, 61 du/ac

- Transit Zoning Code
  - Transit Village Zone, up to 25 stories
    - Crossroads at Washington, 4 stories, 38 du/ac, 10,060 sq. ft. of commercial
  - Downtown Zone, up to 10 stories
    - 3rd & Broadway, 10 stories of residential, 14,816 sq. ft. of commercial, 75-room hotel
    - 4th and Mortimer Mixed-Use Development, 6 stories of residential, 49 du/ac, 15,800 sq. ft. of commercial
    - First American Title Co. Site, 7 stories of residential, 12,350 sq. ft. of commercial
  - Urban Neighborhood 2, up to 5 stories
    - Tom's Trucks Residential & Adaptive Reuse Development, 3 stories, 14 du/ac

Market Analysis

AECOM conducted a market analysis for the General Plan update in 2019 and 2020 (final Santa Ana Economic Indicators Report, May 2020). The report concluded that the demand for new residential development could reach upwards of 15,520 units through 2040 (including pipeline projects, per Figure 7.2 in the Economic Indicators Report Report), although the report also noted that housing demand could increase if the housing pipeline remains strong if it can increase its capture rate of countywide growth. AECOM determined that future demand for office and industrial space would continue to be in line with historical rates, and demand for retail would continue to be tied to household growth and spending. While such findings may seem to justify relatively low levels of growth (especially compared to maximum buildout standards), jurisdictions must plan increased capacity throughout planning areas to create responsive and flexible market areas. New development requires not only market demand but also property owners willing to sell and/or redevelop. This means that new development is often limited to a fraction of the land theoretically available and suitable for reuse and/or development.

Density Bonus Assumptions

State law allows a graduated density bonus for the inclusion of affordable housing units --- for an increasing number of affordable units (by percentage), a project is allowed an increasing ability to exceed the permitted density. The amount of density bonus is generally capped at 35 percent. Recent updates to state housing law (Assembly Bill 1763, effect January 1, 2020), enables projects that are 100 percent affordable (either 100% lower income or 80% lower and 20% moderate (as defined in Section 50053 of the Health and Safety Code), to obtain a density bonus of 80 percent, or no limit if within one-half mile of a major transit stop.

However, not every project will include affordable units and not every project that includes affordable units will need a density bonus. Projects are not required to build at densities that exceed maximum limits; the law only requires that jurisdictions grant the density bonus if requested. The buildout methodology was based on past development trends, current development trends, and a forecasted market analysis. These trends accounted for any units approved (density bonus or otherwise), to determine the appropriate density and amount of development to assume.

Additionally, the optimal density of affordable units is at or below the densities levels assumed for forecasting buildout. Generally, projects beyond 50 to 70 units per acre require Type 1 construction (steel and concrete structure), which is dramatically more expensive compared to Type V construction (wood structure).

Accordingly, affordable projects are rarely greater than 70 units per acre (exceptions for very small parcels). The average densities used to calculate projected buildout at 2045 are 50 to 90 units per acre in the three most intense focus areas (55/Dyer, 17th/Grand, and South Bristol), with the other two applying a residential assumption at 30 units per acre over a broad area to account for development at or above the maximum density of 30 units per acre (maximum is 20 units per acre for projects proposed exclusively residential in the South Main Focus Area; maximum is 30 units per acre for a relatively small part of the West Santa Ana Boulevard Focus Area).

Roadway Network Performance

IBI Group conducted an analysis of existing roadway conditions in 2019 (documented in Section 5 of Santa Ana General Plan Update Traffic Impact Study, June 2020), including an analysis of existing and future roadway segment and intersections that are likely to experience roadway congestion issues created by future growth, even with feasible mitigation. While roadway congestion (level-of-service or LOS) is not a topic evaluated in the environmental impact report (removed through Senate Bill 743, passed in 2013), the performance of the City's roadway network remains a concern of the City and its residents, businesses, and other stakeholders. PlaceWorks and IBI Group recommended reduced (below absolute maximum) buildout assumptions for the focus areas given known or likely roadway (segment and/or intersection) performance issues alongside the City's desire to make adjustments to a number of roadway classifications.

Adopted and Existing Plans

Adaptive Reuse (AR) Overlay Zone

In consultation with the City, it was determined that 1,000 residential units could be developed over the planning period. A total of 800 units were distributed proportionally among parcels covered by AR Zone only (not in a specific plan or focus area). The remaining 200 units were distributed proportionally among parcels throughout the Midtown Specific Plan. For non-residential building square footage, it was assumed that no additional growth would occur during the planning period, and existing building square footage was carried over into future buildout.

Bristol Street Corridor Specific Plan

The City was determined that parcels with existing single/multi-family units would not redevelop during the planning period, and therefore existing units were carried forward into future buildout. For non-residential building square footage, due to the location and age of existing non-residential development, turnover was considered to potentially occur during the planning period.

Harbor Street Corridor Specific Plan

The Harbor Corridor Specific Plan was adopted in 2014 and included a comprehensive buildout analysis that spanned a similar planning period. Accordingly, the buildout conditions were carried over as detailed in the Specific Plan, adjusting for new development constructed or entitled since 2014.

MainPlace Specific Plan

The MainPlace Specific Plan was adopted in 2019 and included a comprehensive buildout analysis that spanned a similar planning period. Accordingly, the buildout conditions were carried over as detailed in the Specific Plan, adjusting for new development constructed or entitled since 2019.

Metro East Overlay Zone

The Metro East Mixed Use Overlay Zone, adopted in 2007 and amended in 2018, included a cumulative buildout analysis that spanned a similar planning period. Accordingly, the buildout conditions were carried over as detailed in the Specific Plan, distributed proportionally throughout the plan area and adjusting for new development constructed or entitled since 2019.

Midtown Specific Plan

The City determined that the Midtown Specific Plan (adopted in 1996) would experience little net growth during the planning period, so existing single/multi-family units and building square footage were largely carried forward into future buildout. To account for adaptive reuse projects, 200 multifamily units were distributed across eligible parcels.

Transit Zoning Code

The Transit Zoning Code was adopted in 2010 and included a cumulative buildout analysis that spanned a similar planning period. The cumulative buildout conditions for residential and non-residential development were carried over as detailed in the Specific Plan, distributed proportionally throughout the plan area according to the block system established in working maps (previously identified under the Draft Renaissance Specific Plan).

All Other Areas of the City

The City assumed a small increase (five percent) of residential units through the construction of second units, which are distributed throughout the City by traffic analysis zone and is not concentrated in a subset of neighborhoods. A 10 percent increase in non-residential building square footage (and associated employment), was assumed for the professional offices surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan, as well as the commercial and retail areas along 1st Street south of the West Santa Ana Boulevard focus area. Current development projects as listed in the City of Santa Ana monthly development project report (as of January 2020), were incorporated as follows: projects under construction and nearing occupancy were factored into the existing conditions figures; all other projects were included as potential future growth.

Current General Plan

As part of the technical analyses, it is common to evaluate a buildout scenario that reflects the currently adopted General Plan. It is also important to keep the overall buildout approach generally consistent with that used in developing the Proposed Plan buildout, with obvious exceptions for areas that are planned differently—in this case, the focus areas. The buildout for focus areas was based on the land designations as of January 2020, using a combination of current assumptions stated in the 1998 Land Use Element (Table A-4, Land Use Plan Build-out Capacities), past and current trends, and the results of the 2020 Economic Indicators Report by AECOM.

Other Projections

Orange County Projections (OCP)

The Center for Demographic Research (CDR) is the entity through which jurisdictions in Orange County distribute and generate population, housing, and employment projections for Orange County. This includes the use of OCP figures to communicate expected growth for the regional transportation plan. The latest OCP figures were

finalized (September 2018) prior to the current land use planning and buildout efforts associated with the General Plan update. Interim adjustments can be made to the OCP figures if significant changes in land use or other policies will have a significant impact on the projections, and if these changes can be documented. The buildout for the Santa Ana General Plan will be finalized upon the adoption of the General Plan at the end of 2020, with implementation beginning in 2021. The General Plan land use plan and buildout projections will be incorporated into the OCP figures in 2021/2022.

Southern California Association of Governments (SCAG)

As the metropolitan planning organization SCAG is responsible for developing long-range transportation plans and a sustainability strategy for the vast majority of Southern California. The centerpiece of that planning work is Connect SoCal, the 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS). This effort includes population, housing, and employment projections for each jurisdiction between 2020 and 2045.

SCAG is required by federal law to prepare and update (ever four years) a long-range RTP that identifies a feasible transportation system, adequate financial plan, and strategies to move people and goods efficiently. SCAG must also develop a SCS to integrate land use and transportation strategies that will achieve California Air Resources Board (CARB) greenhouse gas emissions reduction targets. In regard to housing, the SCS must demonstrate, on a regional level, areas sufficient to house all the population of the region, including the eight-year projection of the Regional Housing Needs Assessment (RHNA).

SCAG is also responsible for preparing the RHNA, a quantification of the housing need in each jurisdiction during specified planning periods. SCAG is in the process of developing the 6th cycle RHNA allocation plan which will cover the planning period October 2021 through October 2029. It is planned for adoption by SCAG in October 2020. Per Senate Bill 375 (2008), the RHNA must be consistent with the adopted SCS. The update process for the 2020 RTP/SCS began in 2018, and a draft of the proposed RTP/SCS was released in November 2019. SCAG's Regional Council approved the final RTP/SCS (aka Connect SoCal) on May 7, 2020, for the limited purpose of federal transportation conformity, so that SCAG could submit the plan to the Federal Highway Administration and Federal Transit Administration for review prior to the June 1, 2020, deadline, as required by the federal Clean Air Act. As of June 2020, the Regional Council anticipates the approval of Connect SoCal in its entirety sometime in late 2020 (possibly 120 days from May 7, 2020), following additional engagement with stakeholders to consider the impacts of the novel coronavirus (COVID-19) pandemic on the plan and its implementation.

The period to file RHNA appeals is expected to commence on the eighth day after the Regional Council adopts the Connect SoCal in its entirety. The appeals process will then follow the adopted RHNA Appeals Procedures with timelines updated to reflect the delay of the Connect SoCal Plan adoption.

Note that the adoption dates for the RTP/SCS and RHNA may be pushed due to circumstances related to the novel coronavirus (COVID-19) crisis. The buildout for the Santa Ana General Plan will be finalized upon the adoption of the General Plan at the end of 2020, with implementation beginning in 2021. The General Plan land use plan and buildout projections will be incorporated into the 2024 RTP/SCS, for which the update process should being in 2022.

Table 1 Existing Conditions, Potential Growth, and Buildout Conditions in Santa Ana, 2020 to 2045

	EXISTING [1]			GROWTH [2]			BUILDOUT		
PLANNING AREA	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs
FOCUS AREAS	**6,380**	**13,421,155**	**28,428**	**17,575**	**2,263,130**	**6,616**	**23,955**	**15,684,285**	**35,044**
55 Freeway/Dyer Road	1,221	5,666,453	8,898	8,731	475,830	4,404	9,952	6,142,283	13,302
Grand Avenue/17th Street	561	1,400,741	3,568	1,722	-696,847	-1,946	2,283	703,894	1,622
South Bristol Street	220	1,577,511	3,337	5,272	3,505,130	7,855	5,492	5,082,641	11,192
South Main Street	1,720	1,685,978	3,455	588	-739,316	-1,304	2,308	946,662	2,151
West Santa Ana Boulevard	2,658	3,090,472	9,170	1,262	-281,667	-2,393	3,920	2,808,805	6,777
SPECIFIC PLAN / SPECIAL ZONING	**4,685**	**13,924,891**	**38,548**	**15,839**	**3,033,554**	**1,154**	**20,524**	**16,958,445**	**39,702**
Adaptive Reuse Overlay Zone [4]	260	976,935	3,043	1,000	0	-476	1,260	976,935	2,567
Bristol Street Corridor Specific Plan	136	140,348	294	-1	2,791	-12	135	143,139	282
Harbor Corridor Specific Plan	1,324	1,767,937	3,286	3,298	200,045	-1,708	4,622	1,967,982	1,578
Main Place Specific Plan	0	1,108,080	2,216	1,900	1,318,843	3,164	1,900	2,426,923	5,380
Metro East Overlay Zone	844	2,516,056	7,524	4,707	2,169,891	4,734	5,551	4,685,947	12,258
Midtown Specific Plan	607	1,885,065	4,824	0	-66,812	-209	607	1,818,253	4,615
Transit Zoning Code	1,514	5,530,470	17,361	4,935	-591,204	-4,339	6,449	4,939,266	13,022
ALL OTHER AREAS OF THE CITY [5]	**67,727**	**39,772,550**	**92,004**	**2,847**	**552,536**	**3,666**	**70,574**	**40,325,086**	**95,670**
CITYWIDE TOTAL	**78,792**	**67,118,596**	**158,980**	**36,261**	**5,849,220**	**11,436**	**115,053**	**72,967,816**	**170,416**

Notes:

1. Existing represents conditions as of December 2019 as derived from the City of Santa Ana Planning Information Network and projects already under construction per the January 2020 monthly development project report.
2. The potential growth for new development in specific plan / special zoning area is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between its adoption date and 2019.
3. Only includes nonresidential building square footage.
4. The figures shown on the row for the Adaptive Reuse Overlay represents parcels that are exclusively in the Adaptive Reuse Overlay boundary. Figures for parcels that are within the boundaries of both the Adaptive Reuse Overlay Zone and a specific plan, other special zoning, or focus area boundary are accounted for in the respective specific plan, other special zoning, or focus area.
5. The City has included an assumption for growth on a small portion (five percent) of residential parcels through the construction of second units, which is distributed throughout the City and is not concentrated in a subset of neighborhoods. Additional growth includes known projects in the pipeline and an increase of 10 percent in building square footage and employment for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan, as well as the commercial and retail along 1st Street south of the West Santa Ana Boulevard focus area.

Source: City of Santa Ana with assistance from PlaceWorks, 2020.

Table 2: Focus Area Buildout Factors

Focus Area	Density [1]	Intensity (FAR) [1]					Use Ratio (pct. of land) [1]						
Land Use	*DU/ac*	*Comm.*	*Off.*	*Ind.*	*Ins.*	*Hotel*	*Res.*	*Comm.*	*Off.*	*Ind.*	*Ins.*	*Hotel*	*O.S.*
55 Freeway / Dyer Road													
District Center	85	0.5	0.5	-	-	1.0	75%	15%	5%	-	-	-	5%
General Commercial	-	1.0	-	-	-	-	-	100%	-	-	-	-	-
Industrial / Flex	-	0.5	1.0	0.75	-	-	-	5%	30%	65%	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
17th Street / Grand Avenue													
District Center	50	0.5	0.5	-	-	-	75%	15%	5%	-	-	-	5%
General Commercial	-	0.28	-	-	-	-	-	100%	-	-	-	-	-
Industrial / Flex	-	0.5	0.75	0.6	-	-	-	5%	30%	65%	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Urban Neighborhood	30	0.5	0.5	-	-	-	75%	15%	5%	-	-	-	5%
South Bristol Street													
District Center Area A [2]	80	1.0	2.0	-	-	3.0	35%	5%	50%	-	-	5%	5%
District Center Area B [3]	90	1.0	2.0	-	-	3.0	75%	7%	7%	-	-	3%	8%
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Urban Neighborhood	30	0.5	0.5	-	-	-	65%	25%	5%	-	-	-	5%
South Main Street													
Industrial / Flex	-	0.75	0.5	0.3	-	-	-	15%	30%	55%	-	-	-
Institutional	-	-	-	-	0.36	-	-	-	-	-	100%	-	-
Low Density Residential	7	-	-	-	-	-	100%	-	-	-	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Urban Neighborhood	30	0.5	0.5	-	-	-	70%	20%	5%	-	-	-	5%
West Santa Ana Boulevard													
Corridor Residential	30	-	-	-	-	-	100%	-	-	-	-	-	-
General Commercial	-	1.0	-	-	-	-	-	100%	-	-	-	-	-
Industrial / Flex	15	0.5	0.75	0.6	-	-	5%	15%	30%	50%	-	-	-
Institutional	-	-	-	-	1.09	-	-	-	-	-	100%	-	-
Low Density Residential	7	-	-	-	-	-	100%	-	-	-	-	-	-
Low-Medium Density Residential	13.7	-	-	-	-	-	100%	-	-	-	-	-	-
Medium Density Residential	24.8	-	-	-	-	-	100%	-	-	-	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Professional and Administrative Office	-	-	2.0	-	-	-	-	-	100%	-	-	-	-
Urban Neighborhood	30	0.5	0.5	-	-	-	80%	10%	5%	-	-	-	5%

Notes:

1. Density, intensity, and use ratio figures determined by the City of Santa Ana in collaboration with MIG, 2019. The FAR figures address nonresidential building square footage only. The resulting buildout figures, with the exception of South Bristol Street District Center Area B, were then multiplied by a factor of 80% to arrive at projections for 2045.
2. Includes all District Center areas north of MacArthur Blvd and on the east side of Bristol south of MacArthur (~52 acres).
3. Includes all District Center areas south of Macarthur Blvd and west of Bristol (~58 acres).

Table 3: Employment Factors

Employment Generation Factors		
Land Use	**Existing Factor**	**Buildout Factor**
Commercial	500 sq. ft. / emp.	500 sq. ft. / emp.
Office / Office Park	286 sq. ft. / emp.	364 sq. ft. / emp.
Business Park / R&D	300 sq. ft. / emp.	333 sq. ft. / emp.
Light Industrial	400 sq. ft. / emp.	500 sq. ft. / emp.
Heavy Industrial	500 sq. ft. / emp.	500 sq. ft. / emp.
Warehouse	800 sq. ft. / emp.	800 sq. ft. / emp.
Medical	400 sq. ft. / emp.	222 sq. ft. / emp.
Government Office	286 sq. ft. / emp.	286 sq. ft. / emp.
Hospital	400 sq. ft. / emp.	364 sq. ft. / emp.
Religious Institution	800 sq. ft. / emp.	800 sq. ft. / emp.
Hotel / Motel	0.9 / room	0.9 / room
School	0.1 / student	0.1 / student
Park	0.75 / acre	0.75 / acre
Employed Persons Factors		
Population age 16+ (% of total)	76.8%	
Employment/working population ratio	63.7%	
LEHD / ACS employment	84.0%	

Source:
- Existing employment generation factors based on U.S. Census Bureau, Longitudinal Employer-Household Dynamics Origin-Destination Employment Statistics (LEHD), 2017, accessed and aggregated by PlaceWorks in March 2020.
- Buildout employment generation factors based on OCTA Typical Employment Conversion Factors, June 2001 allowable ranges; adjusted by Santa Ana OCP 2002/2006 Interagency Team.
- Population age 16+ derived by comparing total population in households and workforce population 16 and over, reported by the U.S. Census, American Community Survey (ACS) 2018 5-Year Estimates, Tables B25033 and S2301), accessed in March 2020.
- Employed/ working population ratio as reported by the U.S. Census, ACS 2018 5-Year Estimates, Table S2301), accessed in March 2020.
- LEHD / ACS employment compares the number of employed residents reported by LEHD to self-reported data in ACS 2017 5-Year Estimates, accessed in March 2020.

Table 4: Persons per Household Assumptions

Units in Structure	2000	2010	2011	2012	2013	2014	2015	2016	2017	2018	2045
Citywide	4.37	4.30	4.26	4.41	4.14	3.97	4.33	4.20	4.11	3.97	3.62
Single family[1]	5.01	4.92	4.98	4.94	4.84	4.81	5.00	4.85	4.73	**4.59[3]**	**4.30[4]**
Multi-family[2]	4.07	4.01	3.86	4.15	3.82	3.51	4.01	3.86	3.74	**3.58[3]**	**3.12[4]**
2 to 4	4.40	4.84	4.09	4.77	3.90	3.56	4.48	4.37	4.01	4.03	3.43
5 to 19	3.93	3.78	3.75	4.31	3.69	3.55	4.01	3.85	3.53	3.99	3.60
20 to 49	4.67	4.20	4.35	4.49	4.31	3.81	4.10	4.20	3.92	2.95	2.05
50 or more	3.71	3.58	3.67	3.55	3.71	3.19	3.43	3.18	3.74	2.77	2.41

Notes:
1. A category representing the aggregate figure for single family detached and single family attached units, as reported in the Census tables.
2. A category representing the aggregate figure for multi-family units with two or more units in the structure, as reported in the Census tables.
3. Factors used to generate population estimates for existing conditions.
4. Factors used to generate population estimates for buildout conditions.

Source:
- 2000 (Decennial Census Tables HCT003 and H033), accessed and aggregated (weighted average) by PlaceWorks in March 2020.
- 2010-218 (U.S. Census, American Community Survey 1-Year Estimates, Tables B25124 and B25033), accessed and aggregated (weighted average) by PlaceWorks in March 2020.
- 2045 derived through trendline analysis of 2000-2018 data by PlaceWorks in March 2020.
- Occupancy rate of 95.94% from the California Department of Finance, Table 2: E-5 City/County Population and Housing Estimates, 1/1/2019, downloaded in March 2020.

Table 5: Student Enrollment for Public and Private Schools in Santa Ana, 2018/2019

School	Enrollment	School	Enrollment
Garden Grove Unified School District		**Santa Ana Unified School District continued**	
Edward Russell Elementary	502	Manuel Esqueda Elementary	1,100
Heritage Elementary	452	Martin Elementary	645
Newhope Elementary	396	Martin Luther King Jr. Elementary	640
R. F. Hazard Elementary	468	Martin R. Heninger Elementary	1,151
Rosita Elementary	480	McFadden Intermediate	1,184
Stephen R. Fitz Intermediate	687	Middle College High	349
Bethel Baptist	225	Mitchell Child Development Center	419
Saint Barbara Elementary	325	Monroe Elementary	300
Santa Clara Nursery School	24	Monte Vista Elementary	516
Orange County Department of Education		Orange County School of the Arts	2,177
Samueli Academy	529	Pio Pico Elementary	563
Citrus Springs Charter	256	Raymond A. Villa Fund. Intermediate	1,390
College and Career Preparatory Academy	241	REACH Academy	34
Ednovate - Legacy College Prep.	189	Saddleback High	1574
Scholarship Prep	436	Santa Ana High	3,057
Vista Condor Global Academy	132	Santiago Elementary	1,152
Vista Heritage Global Academy	275	Segerstrom High	2,435
Orange Unified School District		Sierra Intermediate	757
Fairhaven Elementary	544	Taft Elementary	544
Panorama Elementary	404	Theodore Roosevelt Elementary	572
Santa Ana Unified School District		Thomas A. Edison Elementary	515
Edward B. Cole Academy	373	Valley High	2,150
Orange County Educational Arts Academy	622	Walker Elementary	401
Abraham Lincoln Elementary	790	Wallace R. Davis Elementary	538
Advanced Learning Academy	364	Washington Elementary	750
Andrew Jackson Elementary	745	Willard Intermediate	708
Carl Harvey Elementary	409	Wilson Elementary	578
Cesar E. Chavez High	385	**Tustin Unified School District**	
Century High	1,660	Arroyo Elementary	640
Community Day Intermediate and High	34	Foothill High	2,467
Diamond Elementary	509	Guin Foss Elementary	443
Douglas MacArthur Fundamental Intermediate	1,210	Hewes Middle	1,003
El Sol Santa Ana Science and Arts Academy	919	Loma Vista Elementary	454
Franklin Elementary	409	Red Hill Elementary	563
Fremont Elementary	536	Tustin Memorial Elementary	584
Garfield Elementary	723	**SBE – Magnolia Science Academy**	
George Washington Carver Elementary	386	Magnolia Science Academy Santa Ana	674
Gerald P. Carr Intermediate	1,405	**Private**	
Gonzalo Felicitas Mendez Fund. Intermediate	1,392	Ari Guiragos Minassian Armenian	109
Greenville Fundamental Elementary	1,043	Blind Children's Learning Center	60
Hector Godinez Fundamental High School	2,449	Calvary Chapel Private School	251
Heroes Elementary	565	Calvary Chapel High/Maranatha Christian Acad.	1,370
Hoover Elementary	357	Calvary Christian School	322
Jefferson Elementary	707	Fairmont Private School	300
Jim Thorpe Fundamental	927	Foothill Montessori School	76
John Adams Elementary	420	Mater Dei High School	2,200
John F. Kennedy Elementary	619	Nova Academy Early College High	430
John Muir Fundamental Elementary	876	Reedemer Christian School	19
Jose Sepulveda Elementary	372	Saint Anne School	220
Julia C. Lathrop Intermediate	948	Saint Joseph Elementary	220
Lorin Griset Academy	371	School of Our Lady	185
Lowell Elementary	709	The Prentice School	140
Lydia Romero-Cruz Elementary	196	**Rancho Santiago Community College District**	
Madison Elementary	1,009	Santa Ana College	36,411

Source: Santa Ana College student enrollment figure (2018 student headcount) from the Rancho Santiago Community College District, https://www.rsccd.edu/Discover-RSCCD/Pages/default.aspx, accessed in March 2020. All other student enrollment figures from the California Department of Education, California School Directory, 2018/2019 enrollment data, accessed in March 2020.

Table 6: Student Generation Rates

School District	Multi-Family Unit	Single Family Unit
Santa Ana Unified	0.4475	0.9099
Garden Grove Unified	0.3081	0.59877
Orange Unified	0.3735	0.4922
Tustin Unified	0.3072	0.6063

Sources:
- SAUSD, 2020 Residential Development School Fee Justification Study.
- GGUSD, 2020 Response to Service Questionnaire for Draft EIR. Multi-family rate reflects an average of rates for single family attached and multi-family units.
- OUSD, 2018 Fee Justification Report.
- TUSD, 2018 Fee Justification Report.

Table 7: Pipeline Projects as of January 2020

APN	Project Name	Address	Land Use	Res Units	Nonres Sq. Ft.	Status
198-081-28	The Line	3630 W Westminster Avenue	Residential Apartments and Commercial	228	4,248	Under Construction
002-312-35	Saint Thomas 3-Lot Subdivision	2828 N Flower Street	Single-Family Residential	3		Site Plan Review
002-210-40	2700 Main Street Apartments	2700 N Main Street	Residential Apartments	247		Site Plan Review
002-210-42	MainPlace Mall Revitalization Plan	2800 N Main Street	Residential	1900		DA Entitled
002-210-42	MainPlace Mall Revitalization Plan	2800 N Main Street	Hotel (400 rooms)		n/a	DA Entitled
002-210-42	MainPlace Mall Revitalization Plan	2800 N Main Street	Office		750,000	DA Entitled
002-210-42	MainPlace Mall Revitalization Plan	2800 N Main Street	Commercial		270,000	DA Entitled
041-213-04	Town and Country Manor (revise entitlement)	555 E Memory Lane	Senior Care Facility		46,218	Plan Check
390-171-03	Starbucks	2701 N Grand Avenue	Restaurant with Drive-thru		907	Under Construction
003-010-27	Magnolia at the Park	2525 N Main Street	Residential Apartments	347		Site Plan Review
003-010-27	Magnolia at the Park	2525 N Main Street	Demo Office Building for Apartments	0	-81,172	Site Plan Review
396-141-01	Starbucks Drive-thru & Retail Pad	2301 N Tustin Avenue	Restaurant with Drive-thru		3,567	Under Construction
003-113-41	Hampton Inn Hotel	2056 N Bush Street	Relocate SFD to 2125 North Main, change to commercial	-1	922	Plan Check
003-113-59	Hampton Inn Hotel	2115 N Main Street	SFD/Office Change to Commercial	-1	2,627	Plan Check
003-113-61	Hampton Inn Hotel	2058 N Bush Street	Demo SFD	-1		Plan Check
003-113-63	Hampton Inn Hotel	2119 N Main Street	Demo Office Building		-1,619	Plan Check
003-113-81	Hampton Inn Hotel	2129 N Main Street	Hampton Inn Hotel		73,322	Plan Check
399-031-23	The Academy Charter High School	1901 N Fairview Street	"Family" apartments	8		Under Construction
399-031-23	The Academy Charter High School	1901 N Fairview Street	Educational (High School)		146,136	Under Construction
399-031-24	Samuelli Academy Master Plan Revisions	1919 N Fairview Street	Master plan to modify schools classrooms		-6,530	Entitled
396-211-48	North Grand Car Wash	1821 N Grand Ave	Car Wash		5,243	Site Plan Review
396-211-48	North Grand Car Wash	1821 N Grand Ave	Demo Restaurant		-6,592	Site Plan Review

Table 7: Pipeline Projects as of January 2020

APN	Project Name	Address	Land Use	Res Units	Nonres Sq. Ft.	Status
396-031-16	Rocket Express Car Wash	1703 E Seventeenth Street	Car Wash		4,292	Entitled
396-031-16	Rocket Express Car Wash	1703 E Seventeenth Street	Demo Existing Commercial		-20,146	Entitled
396-052-43	Sexlinger Homes	1584 E Santa Clara Avenue	Single Family Residence	23		Under Construction
396-341-06	Tustin Service Station and Car Wash	2230 N Tustin Avenue	Commercial		3,600	Site Plan Review
405-262-20	In-N-Out Burger Bristol Rebuild & Expansion	815 N Bristol	Restaurant Rebuild & Expansion		1,776	Entitled
405-272-19	North Bristol Medical Project	1415 N Bristol	Medical Office Buildings		5,120	Plan Check
005-153-19	Arts Collective Meta Housing Adaptive Reuse	1666 N Main Street	Convert Office to Residential Apartments	58		Under Construction
398-522-18	Broadway Live/Work Units	1412 N Broadway	Live/work units	3		Site Plan Review
398-533-07	Craftsman Residential Duplex	1002 N Van Ness Avenue	Residential Apartments	2		Site Plan Review
398-541-13	The Orleans Adaptive Reuse Apartments	1212 N	Convert Existing Office to Residential Apartments	24		Under Construction
398-552-12	YCU Conversion of SFD to Office Use	1008 N Broadway	Convert Historic Structure SFD to Office	-1	2,800	Under Construction
398-561-18	One Broadway Plaza	1109 N Broadway	Office Tower		518,000	Entitled
398-561-18	One Broadway Plaza	1109 N Broadway	Restaurant		16,000	Entitled
003-153-48	Bridging the Aqua	317 E Seventeenth Street	Residential Apartments	57		Under Construction
100-161-46	Nguyen Medical Plaza	5030 Westminster Avenue	Commercial		5,800	Site Plan Review
004-020-12	Lam Residential	1514 N English Street	Single Family Residence	6		Site Plan Review
007-313-16	Tiny Tim Plaza Mixed Use	2223 W Fifth Street	Mixed Use Residential Apartments/Commercial	54	51,300	Under Construction
939-450-61	Vista Heritage School Expansion	2609 W Fifth Street	School Expansion (6-8th to K-8th/Enroll 470 to 870)		n/a	Site Plan Review
398-191-02	Certified Transportation	628 E Washington Avenue	Bus Terminal Maintenance Bldg		7,165	Plan Check
400-231-02	Target Shopping Center Commercial Pads	1330 E Seventeenth Street	Commercial		9,112	Under Construction
400-242-02	Ednovate Charter High School	1450 E Seventeenth Street	Convert 24,428 Office to School w/4,940 SF addition		4,940	Under Construction
400-062-01	Park Court Office Building A	1801 E Parkcourt Place	Office building		3,968	Site Plan Review
400-121-09	Raising Cane's Restaurant	2250 E Seventeenth Street	Demo Existing Restaurant		-10,000	Under Construction
400-121-09	Raising Cane's Restaurant	2250 E Seventeenth Street	Restaurant		3,935	Under Construction
400-164-10	Calvary Church Master Plan	1010 N Tustin Avenue	Master plan to modify center, classrooms, and office		50,000	Site Plan Review
198-101-07	Bewley Street Townhomes	1122 N Bewley Street	Residential Townhomes	11		Site Plan Review
198-102-20	John Le 5-Unit Development	1113 N Bewley Street	Residential Apartments	5		Site Plan Review
198-182-23	First & Harbor Commercial Development	121 N Harbor Boulevard	Commercial		36,606	Entitled
198-182-23	First & Harbor Commercial Development	121 N Harbor Boulevard	Demo Commercial		-6,400	Entitled
198-182-36	Fifth and Harbor Mixed Use Apartments	421 N Harbor Boulevard	Mixed Use Residential Apartments/Commercial	94	9,900	Entitled
198-281-05	Hue-Vo Two Unit Development	3402 W Seventh Street	Single-Family Residential	3		Site Plan Review
198-281-25	West Fifth Villas	3417 W Fifth Street	Residential Condos	8		Entitled
005-185-30	Eight Eight 8 - Adaptive Reuse	888 N Main Street	Convert Office to Mixed-Use/Residential Apartments	121	3,700	Plan Check
005-185-30	Eight Eight 8 - Adaptive Reuse	888 N Main Street	Convert Office to Mixed-Use/Residential Livework Aprt	25		Plan Check

Table 7: Pipeline Projects as of January 2020

APN	Project Name	Address	Land Use	Res Units	Nonres Sq. Ft.	Status
398-236-03	Legacy Square Mixed-Use Development	609 N Spurgeon Street	Demolition of Institutional Building	0	-8,030	Entitled
398-236-03	Legacy Square Mixed-Use Development	609 N Spurgeon Street	Demolition of Church	0	-22,330	Entitled
398-236-03	Legacy Square Mixed-Use Development	609 N Spurgeon Street	Mixed Use Residential Apartments/Commercial	93	7,267	Entitled
099-221-28	CN Square Office Building	402 N Euclid Street	Office Building		4,025	Site Plan Review
100-231-01	Euclid-Hazard 7-Eleven Service Station	813 N Euclid Street	Gas Station/Convenience Store		3,045	Site Plan Review
100-301-03	Euclid Commercial Plaza	111 N Euclid Street	Commercial		2,680	Plan Check
100-281-05	Bui 8-Unit Development	301 N Mountain View	Residential Apartments	8		Site Plan Review
398-214-01	Walnut Pump Station	723 W Walnut Street	Water Pump		3,800	Plan Check
398-325-01	4th and Mortimer (Block A)	409 E Fourth Street	Mixed Use Residential Apartments/Commercial	93	99,985	Site Plan Review
398-325-01	4th and Mortimer (Block A)	409 E Fourth Street	Demolition of Commercial Building		-22,330	Site Plan Review
398-327-09	201 E. 4th Street	401 N Bush Street	Residential Apartments	24		Under Construction
398-328-01	First American Site Mixed-Use Redevelopment	114 E Fifth Street	Mixed Use Residential Apartments/Commercial	218	8,900	Site Plan Review
398-330-08	4th and Mortimer (Block B)	509 E Fourth Street	Mixed Use Residential Apartments/Commercial	40	5,827	Site Plan Review
398-471-03	Tom's Trucks Residential Development	1008 E Fourth Street	Single Family Residence	117		Entitled
400-071-03	Madison Project	200 N Cabrillo Park Drive	Mixed Use Residential Apartments/Commercial	260	6,500	Entitled
402-181-11	AMG East First Senior Apartments	2222 E First Street	Residential Apartments	418	10,000	Under Construction
402-191-01	AMG East First Apartments/1st Point One	2114 E First Street	Mixed Use Residential Apartments/Commercial	552	10,000	Entitled
108-131-49	610 Newhope Condos	610 S Newhope Street	Residential Condos	9		Plan Check
188-021-08	4404 W. First Street	4404 W First Street	Commercial		3,662	Site Plan Review
144-341-04	Hoa Buddhist Center Addition	3222 W First Street	Church/Temple Expansion		9,256	Site Plan Review
144-551-51	Veteran's Village (Jamboree)	3314 W First Street	Residential Apartments	76		Under Construction
007-332-07	7-Eleven Store and Gas Station	1904 W First Street	Gas Station/Convenience Store		2,480	Site Plan Review
405-214-04	King Street Five Home Subdivision	1102 N King Street	Single Family Residence	5		Plan Check
011-154-43	AMCAL First Street Family Apartments	1440 E First Street	Residential Apartments	69		Under Construction
402-222-01	Wermers Properties Mixed-Use Development	1660 E First Street	Mixed Use Residential Apartments/Commercial	603	8,900	Entitled
108-073-14	Saigon Reformed Presbyterian	5321 W McFadden Avenue	Church/Temple Expansion		2,000	Site Plan Review
010-272-22	Star Wok	1019 S Bristol Street	Demo Apartment	-4		Plan Check
010-272-22	Star Wok	1019 S Bristol Street	Demo Mini Market		-1,645	Plan Check
010-272-22	Star Wok	1019 S Bristol Street	Restaurant		2,546	Plan Check
108-244-30	Archangel Michael Coptic Orthodox Church	4405 W Edinger Avenue	Church/Temple Expansion		9,928	Site Plan Review
108-244-30	Archangel Michael Coptic Orthodox Church	4319 W Edinger Avenue	Demo of SFD for church expansion	-1		Site Plan Review
108-244-30	Archangel Michael Coptic Orthodox Church	4325 W Edinger Avenue	Demo of SFD for church expansion	-1		Site Plan Review
108-244-30	Archangel Michael Coptic Orthodox Church	4326 W Regent Drive	Demo of SFD for church expansion	-1		Site Plan Review
108-244-30	Archangel Michael Coptic Orthodox Church	4330 W Regent Drive	Demo of SFD for church expansion	-1		Site Plan Review

Table 7: Pipeline Projects as of January 2020

APN	Project Name	Address	Land Use	Res Units	Nonres Sq. Ft.	Status
108-244-30	Archangel Michael Coptic Orthodox Church	4402 W Regent Drive	Demo of SFD for church expansion	-1		Site Plan Review
407-107-23	Haphan Housing	3025 W Edinger Avenue	Residential Townhomes	18		Entitled
402-111-36	McFadden Village Chevron	2120 E McFadden Avenue	Commercial		2,037	Under Construction
013-040-29	Mater Dei Park Structure	1202 W Edinger Avenue	Parking Structure		3 Story	Under Construction
403-164-08	TLC Care Facility	2032 S Cypress Avenue	Change of Use SF to Care Facility (12 Bed)		n/a	Site Plan Review
140-061-94	Shea Homes	2001 W MacArthur Boulevard	Single Family Residence	42		Under Construction
412-191-04	South Coast Speedwash	2402 S Bristol Street	Commercial Retail/Restaurant		8,183	Permits Issued
412-191-04	South Coast Speedwash	2402 S Bristol Street	Car Wash		26,153	Permits Issued
412-191-04	South Coast Speedwash	2402 S Bristol Street	Demo Existing Car Wash		-5,410	Permits Issued
016-051-28	Softscapes New Building	2605 S Cypress Avenue	Office/Industrial Building		2,665	Plan Check
016-082-48	Our Lady of Guadalupe Office/Residence	542 E Central	Office/Residential Apartment	1	6,372	Site Plan Review
016-151-11	Tapestry by Hilton and Restaurant	1580 E Warner Avenue	6-story Hotel		79,375	Site Plan Review
016-151-11	Tapestry by Hilton and Restaurant	1580 E Warner Avenue	Restaurant		5,000	Site Plan Review
430-221-13	Heritage Village Residential Phase A	1951 E Dyer Road	Mixed-Use Residential Apartments	335	65,700	Under Construction
430-221-13	Heritage Village Residential Phase B	1901 E Dyer Road	Mixed-Use Residential Apartments	403	4,100	Under Construction
430-221-13	Heritage Village Residential Phase C	2001 E Dyer Road	Mixed-Use Residential Apartments	483	4,200	Under Construction
430-222-07	Bowery: Redhill & Warner Mixed-Use	2300 S Redhill Ave	Residential Apartments and Commercial	1,150	80,000	Site Plan Review
411-141-12	Shea ITT	666 E Dyer Road	Industrial		40,000	Under Construction
411-074-03	Legado at the MET	200 E First American Way	Residential Apartments	278		Entitled
414-271-03	Shell Service Station Retail Building	3820 S Fairview Street	Demo Fuel Kiosk		-80	Site Plan Review
414-271-03	Shell Service Station Retail Building	3820 S Fairview Street	Gas Station/Convenience Store		1,600	Site Plan Review
412-541-07	Christ Our Savior Church	2000 W Alton Avenue	Demo Existing Modular Church		-7,190	Under Construction
412-541-07	Christ Our Savior Parcel Map	2000 W Alton Avenue	New Church, Community Center, and Office		46,307	Under Construction
410-111-02	Legacy Multi-Family Residential At Sunflower	651 W Sunflower Ave	Residential Apartments	226		Entitled
410-111-02	Legacy Multi-Family Residential At Sunflower	651 W Sunflower Ave	Demo Church	0	-9,875	Entitled
400-032-02	Russell/Fisher Gas Station & Com Ctr	325 N Tustin Avenue	Commercial		7,368	Entitled
400-032-02	Russell/Fisher Gas Station & Com Ctr	325 N Tustin Avenue	Demo Restaurant for commercial bldg.		-3,440	Entitled
400-032-02	Russell/Fisher Gas Station & Com Ctr	325 N Tustin Avenue	Car Wash		4,354	Site Plan Review
400-032-03	Russell/Fisher Gas Station & Com Ctr	301 N Tustin Avenue	Commercial		2,778	Entitled
400-032-03	Russell/Fisher Gas Station & Com Ctr	301 N Tustin Avenue	Demo Carwash for commercial gas station		-1,780	Entitled
400-032-03	Russell/Fisher Gas Station & Com Ctr	301 N Tustin Avenue	Commercial		2,778	Site Plan Review

Source: City of Santa Ana, Major Planning Projects and Monthly Development Reports, January 2020.

Table 8: Focus Area Buildout Factors for Current General Plan Scenario *(the GP land use plan adopted in 1998, with amendments through 2019)*

Focus Area	Density [1]	Intensity (FAR) [1]					Use Ratio (pct. of land) [1]						
Land Use	*DU/ac*	*Comm.*	*Off.*	*Ind.*	*Ins.*	*Hotel*	*Res.*	*Comm.*	*Off.*	*Ind.*	*Ins.*	*Hotel*	*O.S.*
55 Freeway / Dyer Road													
District Center	90	1.0	1.0	-	-	-	40%	10%	50%	-	-	-	-
General Commercial	-	0.5	-	-	-	-	-	100%	-	-	-	-	-
Industrial	-	-	-	0.45	-	-	-	-	-	100%	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Professional and Administrative Office	-	-	0.5	-	-	-	-	-	100%	-	-	-	-
17th Street / Grand Avenue													
General Commercial	-	0.5	-	-	-	-	-	100%	-	-	-	-	-
Institutional	-	-	-	-	0.5	-	-	-	-	-	100%	-	-
Low Density Residential	7	-	-	-	-	-	-	-	-	-	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Professional and Administrative Office	-	-	0.5	-	-	-	-	-	100%	-	-	-	-
South Bristol Street													
District Center	90	1.0	1.0	-	-	-	40%	10%	50%	-	-	-	-
General Commercial	-	0.5	-	-	-	-	-	100%	-	-	-	-	-
Medium Density Residential	15	-	-	-	-	-	100%	-	-	-	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Professional and Administrative Office	-	-	0.5	-	-	-	-	-	100%	-	-	-	-
South Main Street													
District Center	90	1.0	1.0	-	-	-	40%	10%	50%	-	-	-	-
General Commercial	-	0.5	-	-	-	-	-	100%	-	-	-	-	-
Industrial	-	-	-	0.45	-	-	-	-	-	100%	-	-	-
Institutional	-	-	-	-	0.5	-	-	-	-	-	100%	-	-
Low Density Residential	7	-	-	-	-	-	100%	-	-	-	-	-	-
West Santa Ana Boulevard													
General Commercial	-	0.5	-	-	-	-	-	100%	-	-	-	-	-
Industrial	-	-	-	0.45	-	-	-	-	-	100%	-	-	-
Institutional	-	-	-	-	0.5	-	-	-	-	-	100%	-	-
Low Density Residential	7	-	-	-	-	-	100%	-	-	-	-	-	-
Medium Density Residential	15	-	-	-	-	-	100%	-	-	-	-	-	-
Open Space	-	-	-	-	-	-	-	-	-	-	-	-	100%
Professional and Administrative Office	-	-	0.5	-	-	-	-	-	100%	-	-	-	-
Urban Neighborhood	30	0.5	0.5	-	-	-	50%	30%	20%	-	-	-	-

Notes:

1. Density, intensity, and use ratio figures determined using a combination of current assumptions stated in the 1998 Land Use Element (Table A-4, Land Use Plan Build-out Capacities), past and current trends, and the results of the 2020 Economic Indicators Report by AECOM. Maximum densities/intensities were assumed for conventional residential and industrial categories, while commercial and office categories were assumed to build out below maximum intensities. A balance of residential and nonresidential uses, with maximum residential densities and below-maximum nonresidential intensities, was assumed for the mixed used categories of Urban Neighborhood and District Center.

Table 9: Citywide Figures by Orange County Traffic Analysis Model (OCTAM) Category

Statistic	Existing Conditions	2045 Projections		
		Current GP	80% / 50% Prop GP	Proposed GP
K-12 Enrollment [1]	58,097	69,074	72,675	75,480
College Enrollment [2]	36,411	36,411	36,411	36,411
Total Population [3]	334,774	383,202	411,804	431,629
Household Population	330,256	378,684	407,286	427,111
Employed Population	135,717	155,615	167,368	175,515
Total Households	76,314	94,104	103,864	109,883
Median HH Income [4]	see note	see note	see note	see note
Retail Employment [5,8]	20,738	22,957	17,297	18,002
Services Employment [6,8]	45,602	60,513	48,260	52,367
Other Employment [7,8]	95,324	98,967	96,580	98,875

Notes:

1. Only includes students attending schools within the city boundaries.
2. No projection data was available.
3. Total Population includes all individuals living in households, institutional group quarters, and non-institutional group quarters.
4. Median household income figures generated by the traffic model.
5. Retail employment estimated to account for 50% of jobs generated by commercial land uses.
6. Services employment estimated to account for 50% of jobs generated by commercial land uses, 70% of jobs generated by office land uses, and 100% of jobs generated by hotel land uses.
7. Other ("Base") employment estimated to account for 30% of jobs generated by office land uses and 100% of jobs generated by industrial, institutional, and open space land uses.
8. The employment figures are subject to rounding when aggregated by parcel into traffic analysis zones, resulting in a 0.69% rounding delta.

Source: Figures aggregated and projected by PlaceWorks, 2020.

Appendix C Air Quality and Greenhouse Gas Emissions Modeling

Appendices

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Model Inputs

	Baseline Year 2020		Proposed GP 2045		Net Change
	City	Total	City	Total	Total
Households	78,792	78,792	115,053	115,053	36,261
Non-Residential Square Footage[1]	67,118,596	67,118,596	72,967,816	72,967,816	5,849,220
Population	334,774	334,774	431,629	431,629	96,855
Employment	158,980	158,980	170,416	170,416	11,436
Service Population	**493,754**	**493,754**	**602,045**	**602,045**	**108,291**

Notes:

[1] Based on the City of Santa Ana Existing Conditions, Potential Growth, and Buildout Conditions, 2020 to 2045.

Growth Rates from Baseline	Existing	2045
Housing Growth Rate	1.00	1.46
Population Growth Rate	1.00	1.29
Employment Growth Rate	1.00	1.07
Service Population Growth Rate	1.00	1.22

	Existing	**Proposed**	**Net Change**
ELECTRICITY	2020	2045	
City			
Residential Electricity (kWh)	380,621,219	555,787,557	175,166,337
Nonresidential Electricity (kWh)	1,189,836,014	1,275,425,174	85,589,160
Total Electricity (kWh)	**1,570,457,233**	**1,831,212,730**	260,755,497
NATURAL GAS	2020	2045	
City			
Residential Natural Gas (Therms)	21,783,050	31,807,865	10,024,814
Nonresidential Natural Gas (Therms)	27,074,864	29,022,456	1,947,592
Total Natural Gas (Therms)	**48,857,914**	**60,830,320**	11,972,406
TRANSPORTATION	2020	2045	
City			
VMT/Day	11,407,124	11,518,959	111,835
WATER	2020	2045	
City			
Water (acre-feet/year)	31,151	38,101	6,950
WASTEWATER	2020	2045	
City			
Indoor Water as a Percent of Total Water Use	95%	95%	
Wastewater (acre-feet/year)	29,593	36,196	6,603
SOLID WASTE	2020	2045	
Waste Generation (tons/year)	324,679	396,172	71,492
Waste Generation ADC (tons/year)	30,778	37,555	6,777
Total Waste Disposal (tons/year)	355,457	433,726	78,269

Sources:

Energy use utilizes a seven-year (2012-2018) average annual electricity consumption based on data provided by Southern California Edison (SCE) and and five-year (2014-2018) average annual natural gas consumtion average based on data provided by SoCal Gas. Baseline year energy estimates are also adjusted to account for energy consumption associated with the former SOI area recently annexed into the City. Forecasts in energy are based on the change in households.

VMT provided by IBI Group.

Total water demand and wastewater generation data provided by Fuscoe Engineering, Inc.

Waste generation based on waste commitment for the City of Santa Ana is obtained from CalRecycle. Forecasts are based on an average 2014-2016 disposal rate and adjusted for increases in population and employment for the City and SOI.

CITY OF SANTA ANA - CRITERIA AIR POLLUTANT INVENTORY

EXISTING BASELINE	2020 - lbs/day					
SECTORS	**ROG**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Transportation	831	5,596	25,067	90	1,362	602
Energy - Residential (Natural Gas)	64	550	234	4	44	44
Energy - Nonresidential* (Natural Gas)	80	727	611	4	55	55
Energy sub-total	*144*	*1,277*	*845*	*8*	*100*	*100*
Area Source - Consumer Products	4,212	0	0	0	0	0
Area Sources (Light Commercial Equipment,Portable Equip)	154	415	6,330	1	38	31
Other (Construction Equipment) **	28	182	589	0	13	11.11
Total	5,369	7,470	32,832	99	1,513	744

EXISTING w/2045 EMISSION RATES	2045 Existing Land Uses - lbs/day					
SECTORS	**ROG**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Transportation	355	2,232	13,143	59	1,296	532
Energy - Residential (Natural Gas)	64	550	234	4	44	44
Energy - Nonresidential* (Natural Gas)	80	727	611	4	55	55
Energy sub-total	144	1,277	845	8	100	100
Area Sources - Consumer Products	4,212	0	0	0	0	0
Area Sources (Light Commercial Equipment,Portable Equip)	154	415	6,330	0.96	38	31
Other (Construction Equipment) **	28	182	589	0	13	11
Total	4,893	4,106	20,907	69	1,447	673
Net Change from Baseline (2020)	-475	-3,364	-11,925	-30	-66	-71

FORECAST YEAR 2045	2045 Land Uses - lbs/day					
SECTORS	**ROG**	**NO_x**	**CO**	**SO_x**	**PM_{10}**	**$PM_{2.5}$**
Transportation	359	2,254	13,272	60	1,309	537
Energy - Residential (Natural Gas)	94	803	342	5.13	65	65
Energy - Nonresidential* (Natural Gas)	86	780	655	4.68	59	59
Energy sub-total	180	1,583	997	9.80	124	124
Area Sources - Consumer Products	6,156	0	0	0	0	0
Area Sources (Light Commercial Equipment,Portable Equip)	165	445	6,786	1	41	33
Other (Construction Equipment) **	28	182	589	0	13	11
Total	6,888	4,463	21,643	71	1,487	705
Net Change from Baseline (2045 Existing)	1,994	357	736	3	40	32
Net Change from Baseline (2020)	1,519	-3,007	-11,189	-28	-26	-39

Notes:

Transportation. EMFAC2017 and IBI Group. The SAFE Rule NOx, CO, PM_{10}, and $PM_{2.5}$ exhaust adjustment factors for light duty vehicles (LDA, LDT1, LDT2, and MDV) is applied for year 2045.

Emissions forecasts estimated based on changes in housing (residential energy), employment (nonresidential energy), or service population (transportation)

Energy. Based on a five-year average (2014-2018) of natural gas data as provided by SoCal Gas.

Area Sources. OFFROAD2017. Estimated based on employment (Light Commercial Equipment) for City of Santa Ana as a percentage of Orange County. Does not include emissions from wood-burning fireplaces.

Other Sources. OFFROAD2017. Construction emissions estimated based on housing permit data for Orange County and City of Santa Ana from the US Census. **Excludes fugitive emissions from construction sites.

Excludes Permitted Sources: Because the reductions associated with the Industrial sector are regulated separately by SCAQMD and are not under the jurisdiction of the City of Santa Ana, these emissions are not included in the emissions inventory.

CITY OF SANTA ANA - COMMUNITY GHG EMISSIONS INVENTORY

	$MTCO_2e$			
SECTORS	**2020**	**Percent of Total**	**2045**	**Percent of Total**
Transportation	1,463,006	66%	1,061,237	54%
Residential (Natural Gas and Electricity)	208,050	9%	303,797	16%
Nonresidential* (Natural Gas and Electricity)	432,202	20%	463,292	24%
Solid Waste (Waste Commitment)	56,603	3%	69,017	4%
Water/Wastewater	34,084	2%	41,688	2%
Other - Offroad Equipment	18,678	1%	17,713	1%
Total Community Emissions	2,212,622	100%	1,956,744	100%
Service Population	493,754		602,045	
$MTCO_2e$/SP	4.48		3.25	

Notes: Based on IPCC's Fourth Assessment Report GWPs

Emissions forecast based on changes in housing (residential energy), employment (nonresidential energy), or service population (waste, water/wastewater, transportation).

Transportation. EMFAC2017 and IBI Group. The SAFE Rule CO_2 exhaust adjustment factor for light duty vehicles (LDA, LDT1, LDT2, and MDV) is applied for year 2045.

Energy. Energy use utilizes a seven-year (2012-2018) average annual electricity consumption average based on data provided by Southern California Edison (SCE) and a five-year (2014-2018) natural gas consumption average based on data provided by SoCal Gas. Emissions from electricity utilizes a CO_2e intensity factor based on the SCE CO_2 intensity factor reported for year 2019 identified in the SCE 2019 Corporate Responsibility & Sustainability report and the CH_4 and N_2O intensity factors from the latest US EPA eGRID data. Electricity and natural gas use from industrial and permitted facilities may be included with the overall amounts for non-residential uses as the 15/15 Rule was triggered.
Water/Wastewater. Includes fugitive emissions from wastewater processing and energy associated with water/wastewater treatment and conveyance. Water use is estimated based on data provided by Fuscoe Engineering.

Waste. Landfill Emissions Tool Version 1.3 and CalRecycle. Waste generation based on three year average (2016-2018) waste commitment for the City of Santa Ana obtained from CalRecycle. Assumes 75 percent of fugitive GHG emissions are captured within the landfill's Landfill Gas Capture System with a landfill gas capture efficiency of 75%. The Landfill gas capture efficiency is based on the California Air Resources Board's (CARB) Local Government Operations Protocol (LGOP), Version 1.1. Significant CH_4 production typically begins one or two years after waste disposal in a landfill and continues for 10 to 60 years or longer. Consequently, the highest CH_4 emissions from waste disposal in a given year are reported and have been adjusted to utilize IPCC's Fifth Assessment global warming potential assigned for CH_4.

Other Sources. OFFROAD2017. Estimated based on employment (Light Commercial Equipment) and construction permits (Construction Equipment) for the City of Santa Ana as a percentage of Orange County.

Industrial Sector are "point" sources that are permitted by SCAQMD and are not under the jurisdiction of the City of Santa Ana; and therefore, not included in the City of Santa Ana's community GHG emissions inventory.

CITY OF SANTA ANA - GHG EMISSIONS INVENTORY COMPARISON

	Substantial Increase	
	Change from 2020 $MTCO_2e$	
SECTORS	**2045 Buildout**	**Percent Change from 2020**
Transportation	(401,769)	-27%
Residential (Natural Gas and Electricity)	95,747	46%
Nonresidential* (Natural Gas and Electricity)	31,090	7%
Waste	12,414	22%
Water/Wastewater	7,604	22%
Other - Offroad Equipment	(965)	-5%
Total Community Emissions	(255,878)	-11.6%

Criteria Air Pollutants (VOCs): Area Sources - Consumer Products

Source: CalEEMod Users Guide. Version 2016.3.2

Residential and Non-Residential Consumer Product Use[a]

Emissions = EF x Building Area

SCAQMD EF =	2.04E-05	lbs/sqft/day
Non-SCAQMD EF =	2.14E-05	lbs/sqft/day

Sources/Notes:

a. California Emissions Estimator Model, Version 2016.3.2, Users Guide. Appendix A.

AVERAGE HOUSING SQFT ASSUMPTIONS

Year Structure was Built	Percent of Housing Stock [a]	Average Square Feet of New Single Family Homes[b]	Average Square Feet (Weighted)
2010 or later	0.9%	2,533	24
2000 to 2009	3.0%	2,404	72
1980 to 1999	15.0%	1,968	295
1979 or earlier	81.1%	1,699	1,378
	100%		1,768

Sources/Notes:

a. United States Cenus Bureau, American FactFinder, City of Santa Ana, California, Selected Housing Characteristics, 2016 American Community Survey 5-Year Estimates, Year structure built. https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=CF

b. United States Census Bureau, Characteristics of New Housing, Characteristics of New Single-Family Houses Completed, Median and Average Square Feet by Location. Obtained from https://www.census.gov/construction/chars/completed.html

	2020	2045
	CEQA Baseline	**Proposed Project**
Non-Residential SQFT	67,118,596	72,967,816
Housing Units	78,792	115,053
Residential SQFT	139,342,204	228,798,091
lbs VOC per day	4,212	6,156

Water and Wastewater

Water Demand/Wastewater Generation Calculations

Source: Fuscoe Engineering, Inc. 2020, May 29. City of Santa Ana General Plan Update: Water Supply and Demand Technical Report

	Water Demand (acre-feet/year)	Water Demand (gallons/year)
Year	Total	Total
2020	31,151.00	10,150,597,865
2045	38,101.00	12,415,265,296

	Wastewater Generation (acre-feet/year)	Wastewater Generation (gallons/year)
Year	Total	Total
2020	29,593.45	9,643,067,972
2045	36,195.95	11,794,502,032

Wastewater, Percent of total Water Use: 95%

Fugitive Emissions - Process Emissions from WWTP with Nitrification/Denitrification

CH_4 - Microorganisms can biodegrade soluble organic material in wastewater under aerobic (presence of oxygen) or anaerobic (absence of oxygen) conditions. Anaerobic conditions result in the production of CH_4.

N_2O - Treatment of domestic wastewater during both nitrification and denitrification of the nitrogen present leads to the formation of N_2O, usually in the form of urea, ammonia, and proteins. These compounds are converted to nitrate through the aerobic process of nitrification. Denitrification occurs under anoxic conditions (without free oxygen), and involves the biological conversion of nitrate into dinitrogen. N_2O can be an intermediate product of both processes, but more often is associated with denitrification.

Notes: Waste discharge facilities in compliance with the United States Environmental Protection Agency's Clean Water Standards do not typically result in CH_4 emissions. However, poorly-operated aerobic wastewater treatment systems can result in the generation of CH_4. Because wastewater treatment systems are assumed to operate in compliance with state and federal laws pertaining to water quality, CH_4 emissions from centralized aerobic treatments are not included in the inventory.

Fugitive Emissions - Process Emissions from WWTP with Nitrification/Denitrification for combustion of biogas.

Anaerobic digesters produce methane-rich biogas which is typically combusted on-site. In some cases the biogas is combusted simply for the purpose of converting methane to CO_2, which has a lower global warming potential than methane. In many cases, a cogeneration system is used to harvest the heat from combustion and use it to generate electricity for on-site energy needs. In both cases, inherent inefficiencies in the system result in incomplete combustion of the biogas, which results in remaining methane emissions. Excludes biogenic emissions from combustion of biogas.

LGOP Version 1.1. Equation 10.1.

CH_4 = Wastewater x Digester Gas x FCH_4 x ρ_{CH4} x (1-DE) x 0.0283 x 10^-3 x 10^-3

	CEQA Baseline	Proposed Project
wastewater (gallons)=	9,643,067,972	11,794,502,032

Digester gas	0.01	ft^3 biogas/gallon wastewater
FCH_4	0.65	fraction of CH4 in biogas
ρ_{CH4}	662.00	g/m^3; density of CH_4 at standard conditions
DE	0.99	CH4 destruction efficiency
0.0283 =	0.0283	m^3/ft^3; conversion factor
10^-3 =	1.00E-03	MT/kg conversion factor
10^-3 =	1.00E-03	kg/g conversion factor

	CEQA Baseline	Proposed Project
	MTons	
CH_4 =	11.74	14.36
CO_2e =	329	402

Source: California Air Resources Board (CARB). 2010, May. Local Government Operations Protocol (LGOP), Version 1.1. The LGOP protocol provides default values for all the terms except the digester gas, which is assumed to be 0.1 cubic feet of biogas per gallon of wastewater effluent based on USEPA methodology outlined in the CalEEMod program manual. California Air Pollution COntrol Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod), Version 2016.3.2. User's Manual. USEPA. 2008. Page 8-12. USEPA cites Metcalf & Eddy, Inc., 1991, "Wastewater Engineering: Treatment Disposal, and Reuse," 3rd Ed. McGraw Hill Publishing.

Water and Wastewater

Buildout Fugitive Emissions - Process Emissions from WWTP with Nitrification/Denitrification from discharge into aquatic environments

LGOP Version 1.1. Equation 10.9.

N_2O = Wastewater x 10^-6 x Nload x 44/28 x EF effluent x 10^3

	2020	2040	
wastewater (Liters)=	36,499,012,272	44,642,190,189	
10^-6 =	1.00E-06		conversion factor; kg/mg
N Load	26.00		mg/L of wastewater
44/28	1.57		Ratio of molecular weights for N_2O and N_2
EF effluent	0.005		kg/N_2O/kg N
10^-3 =	1.00E-03		conversion factor: MTons/kg

	2020	**2040**
	MTons	
N_2O	7.46	9.12
CO_2e =	1,976	2,417

Source: California Air Resources Board (CARB). 2010, May. Local Government Operations Protocol (LGOP), Version 1.1. The LGOP protocol provides default values for all the terms except the Nitrogen Load, which is assumed to be 26 mg of N per Liter of wastewater effluent based on USEPA methodology outlined in the CalEEMod program manual. California Air Pollution Control Officers Association (CAPCOA). 2017. California Emissions Estimator Model (CalEEMod), Version 2016.3.2. Appendix A. USEPA 2013. California Statewide average. USEPA Database at http://cfpub.epa.gov/dmr/ez_search.cfm.

Total Fugitive Emissions - Process Emissions from WWTP with Nitrification/Denitrification

	2020	**2045**
CO_2e =	2,305	2,819

Wastewater Modeling assumes 0% septic treatment for years 2020 and 2045.

Water and Wastewater

Energy for Water Conveyance, Treatment, Distribution, and Wastewater Treatment (Southern California)

Water Supply and Conveyance	Water Treatment	Water Distribution	Total Water	Wastewater Treatment (Tertiary)
	kWhr/million gallons			
9,727	111	1,272	11,110	1,911

Source: California Energy Commission (CEC). 2006, December. Refining Estimates of Water-Related Energy Use in California. CEC-500-2006-118. Prepared by Navigant Consulting, Inc. Based on the electricity use for Southern California.

SCE

	WCI -WECC Region Intensity factor			CO_2e
	CO_2 MTons/MWH[1,2]	CH_4 MTons/MWH[3]	N_2O MTons/MWH[3]	MTons/MWh
2019	0.241	0.000015	0.000002	0.242

[1] Southern California Edison. 2020. 2019 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2019-sustainability-report.pdf

[2] Based on SCE 2019 reported CO_2e intensity factor of 534 lbs/MWh subtracted by the CH_4 intensity factor of 0.034 lb/MWh and the N_20 intensity factor of 0.004 lb/MWh utilizing the IPCC Fifth Assessment Report global warming potentials of 28 and 265, respectively, to avoid double counting. Per methodology utilized in CalEEMod. Version 2016.3.2, User's Guide, however N2O and CH4 intensity factors based on US EPA eGRID2018 data.

[3] United State Environmental Protection Agency. 2020, March 9. eGRID2018 Total Output Emission Rates, WECC California Region. (CH_4 = 0.034 lbs/MWh & N_2O = 0.004 lbs/MWh)

ABAU Carbon Intensity for SCE Energy

	2019	2030	CO_2e
Assumed Percent Renewable[1]	35.0%	60%	MTons/MWh
CO_2e MTons/Mwh without Renewable	0.3726436		0.149

[1] Southern California Edison. 2020. 2019 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2019-sustainability-report.pdf.

GHG Emissions from Energy Associated with Water/Wastewater

	2020	2045
Energy Associated with Water Use	**MwH/Year**	
Water	112,773	137,934
Wastewater	18,428	22,539
Total Water/Wastewater	131,201	160,473

Wastewater Modeling assumes 0% septic treatment for years 2020 and 2045.

GHG Emissions from Energy Associated with Water Use/Wastewater Generation	2020	2045
	$MTCO_2e$/Year	
Water	27,316	33,410
Wastewater	4,464	5,459
Total Water/Wastewater	31,779	38,869

Total GHGs

	2020	2045
GHG Emissions from Water/Wastewater Use	**$MTCO_2e$/Year**	
Water	27,316	33,410
Wastewater	6,768	8,278
Total Water/Wastewater	34,084	41,688

General Conversion Factors

lbs to kg	0.4536
kg to MTons	0.001
Mmbtu to Therm	0.1
Therms to kwh	29.30711111
kilowatt hrs to megawatt hrs	0.001
lbs to Tons	2000
Tons to MTon	0.9071847

Source: California Air Resources Board (CARB). 2010. Local Government Operations Protocol. Version 1.1. Appendix F, Standard Conversion Factors

General Conversion Factors

	Global Warming Potentials (GWP) AR5
CO_2	1
CH_4	28
N_2O	265

Water and Wastewater

Source: Intergovernmental Panel on Climate Change (IPCC). 2013. Fifth Assessment Report: Climate Change 2013. New York: Cambridge University Press.

gallons to Liters	3.785
killowatt hrs to megawatt hrs	0.001
gallons to AF	325851.4290

Water Demand and Wastewater for City of Santa Ana

Existing Annual AFY[1]

	Water Demands (AFY)	Average 2016-2018 Annual Units
Single Family Residential	19,323	19,323
Multi-Family Residential	5,862	5,862
Commercial	4,318	4,318
Potable and Recycled Irrigation	1,648	1,648
Total	31,151	31,151

[1] Fuscoe Engineering, Inc. 2020, May 29. City of Santa Ana General Plan Update: Water Supply and Demand Technical Report

Annual Gallons[1]

	7/1/17 to 6/30/18	Average 2016-2018 Annual Gallons
Single Family Residential	6,296,418,873	6,296,418,873
Multi-Family Residential	1,910,138,562	1,910,138,562
Commercial	1,407,024,618	1,407,024,618
Potable and Recycled Irrigation	537,002,448	537,002,448
City	10,150,584,501	10,150,584,501

[1] *1 acre-foot/year (AFY): 325,851 gallons/year*

Fuscoe Wastewater Generation

Annual Gallons[1]

	2016	Average 2012-2016 Annual Therms
Single Family Residential	5,981,597,929	5,981,597,929
Multi-Family Residential	1,814,631,634	1,814,631,634
Commercial	1,336,673,387	1,336,673,387
Potable and Recycled Irrigation	510,152,326	510,152,326
City	9,643,055,276	9,643,055,276

Area	Population	Employment
City	334,774	158,980

*Water Demand**

Residential Annual Gal/Resident:	18,808	gal/resident
Non-Residential Annual Gal/Employee:	3,378	gal/employee

** Annual use divided by residents/employees within the City of Santa Ana boundaries.*

*Wastewater**

Residential Annual Therms/Resident:	17,868	kWH/resident
Non-Residential Annual Therms/Employee:	3,209	kWH/employee

** Annual use divided by residents/employees within the City of Santa Ana boundaries.*

Solid Waste Disposal - City of Santa Ana

Source: CalRecycle, 2019, Disposal Reporting System, Jurisdiction Reporting by Facility, https://www2.calrecycle.ca.gov/LGCentral/DisposalReporting/Destination/DisposalByFacility

Waste Generated Within City Limits

Waste in Place Method

Years

historic population estimates

Year	Interstate Tons + Transform Tons	ADC+AIC	Total
2016	321,938	29,720	
2017	309,695	33,281	
2018	342,405	29,332	
2020[a]	324,679	30,778	355,457

City Service Popuation[b]	493,401	persons
Former SOI Area Service Population[c,d]	353	persons

	Interstate Tons + Transform Tons	ADC+AIC	Total
Disposal Rate / SP	0.658	0.062	0.720
2020 (Former SOI Area)	***232***	***22***	***254***
2020 (City)	***324,679***	***30,778***	***355,457***
2020 (Total City)	***324,911***	***30,800***	***355,711***
Year 2045 Buildout	***396,172***	***37,555***	***433,726***
Increase from 2020	71,260	6,755	78,015

[a] *Average 3-year disposal used to forecast waste disposal in 2040*

[b] *Represents the net change between the baseline service population for the City of 493,754 persons subtracted by the service population for the former 17th Street and Tustin Unincorporated Island SOI.*

[c] *Associated with the recently annexed 17th Street and Tustin Unincorporated Island area.*

[d] *Service population of 375 persons consist of 275 residents and 78 employees. Source: Orange County Local Agency Formation Commission. 2019, November 13. Proposed "Reorganization of the 17th Street and Tustin Unincorporated Island to the City of Santa Ana and Municipal Water District of Orange County (RO 19-07)"; Data compiled by MIG.*

Landfill Emission Tool (version 1.3) Model Results using the Methane Commitment Method (~50 years of decomposition)

	MT CH_4 in CO_2e	$MTCO_2e$ w/LFG Capture		$MTCO_2e$ w/LFG Capture	
Year	2020 Disposal	2020 Disposal	2020 Disposal (AR5 GWPs)*	2045 Disposal	2045 Disposal (FAR GWPs)*
1	2,999	750	1,000	914	1,219
2	5,919	1,480	1,973	1,804	2,406
3	5,802	1,450	1,934	1,769	2,358
4	5,687	1,422	1,896	1,734	2,311
5	5,574	1,394	1,858	1,699	2,266
6	5,464	1,366	1,821	1,666	2,221
7	5,356	1,339	1,785	1,633	2,177
8	5,250	1,312	1,750	1,600	2,134
9	5,146	1,286	1,715	1,569	2,091
10	5,044	1,261	1,681	1,538	2,050
11	4,944	1,236	1,648	1,507	2,009
12	4,846	1,212	1,615	1,477	1,970
13	4,750	1,188	1,583	1,448	1,931
14	4,625	1,156	1,542	1,410	1,880
15	4,519	1,130	1,506	1,377	1,837
16	4,412	1,103	1,471	1,345	1,793
17	4,306	1,077	1,435	1,313	1,750
18	4,200	1,050	1,400	1,280	1,707
19	4,094	1,023	1,365	1,248	1,664
20	3,988	997	1,329	1,216	1,621
21	3,881	970	1,294	1,183	1,578
22	3,775	944	1,258	1,151	1,534
23	3,669	917	1,223	1,118	1,491
24	3,563	891	1,188	1,086	1,448
25	3,457	864	1,152	1,054	1,405
26	3,350	838	1,117	1,021	1,362
27	3,244	811	1,081	989	1,319

28	3,138	785	1,046	957	1,275
29	3,032	758	1,011	924	1,232
30	2,926	731	975	892	1,189
31	2,819	705	940	859	1,146
32	2,713	678	904	827	1,103
33	2,607	652	869	795	1,060
34	2,501	625	834	762	1,016
35	2,395	599	798	730	973
36	2,288	572	763	698	930
37	2,182	546	727	665	887
38	2,076	519	692	633	844
39	1,970	492	657	600	801
40	1,864	466	621	568	757
41	1,757	439	586	536	714
42	1,651	413	550	503	671
43	1,545	386	515	471	628
44	1,439	360	480	439	585
45	1,333	333	444	406	542
46	1,226	307	409	374	498
47	1,120	280	373	341	455
48	1,014	254	338	309	412
49	908	227	303	277	369
50	802	200	267	244	326
51	695	174	232	212	283
52	589	147	196	180	239
53	483	121	161	147	196
54	377	94	126	115	153
55	271	68	90	82	110
56	164	41	55	50	67
57	58	15	19	18	24
TOTAL	**169,808**	**42,452**	**56,603**	**51,763**	**69,017**

*Landfill Emissions Tool Version 1.3 is based on the IPCC Second Assessment Report global warming potential. The numbers in this column are the CO_2e emissions from CH_4 based on IPCC's Fourth Assessment GWPs.

Conversion

SAR GWP CH4:*	21
AR5 GWP CH4:**	28

*Intergovernmental Panel on Climate Change (IPCC). 1995. Second Assessment Report: Climate Change 1995.

**Intergovernmental Panel on Climate Change (IPCC). 2014. Fifth Assessment Report: Climate Change 2014.

Waste. Landfill Emissions Tool Version 1.3 and CalRecycle. Biogenic CO_2 emissions are not included.

Notes

LFG capture Efficiency 0.75

Waste generation based on three year average (2016-2018) waste commitment for the City of Santa Ana obtained from CalRecycle. This sector captures only the waste that is generated by the City of Santa Ana residents in the inventory year. This sector does not include historically generated waste disposal.

This method assumes that the degradable organic component (degradable organic carbon, DOC) in waste decays slowly throughout a few decades, during which CH_4 and biogenic CO_2 are formed. If conditions are constant, the rate of CH_4 production depends solely on the amount of carbon remaining in the waste. As a result emissions of CH_4 from waste deposited in a disposal site are highest in the first few years after deposition, then gradually decline as the degradable carbon in the waste is consumed by the bacteria responsible for the decay. Significant CH_4 production typically begins one or two years after waste disposal in a landfill and continues for 10 to 60 years or longer.

Decomposition based on an average annual rainfall of 13.69 inches per year average in the City of Santa Ana (anaerobic decomposition factor (k) of 0.020) (Western Regional Climate Center. 2019. https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?ca7888).

The Landfill Gas Estimator only includes the landfill gas (LFG) capture in the landfill gas heat output and therefore the reduction and emissions from landfill gas capture are calculated separately. Assumes 75 percent of fugitive GHG emissions are captured within the landfill's Landfill Gas Capture System with a landfill gas capture efficiency of 75%. The Landfill gas capture efficiency is based on the California Air Resources Board's (CARB) Local Government Operations Protocol (LGOP), Version 1.1.

Biogenic CO_2 emissions are not included.

Electricity and Natural Gas Use Consumption for City of Santa Ana

Southern California Edison Electricity Use

Annual KWH

	2012	2013	2014	2015	2016	2017	2018	Average 2012-2018 Annual KWH
Residential	382,173,371	375,962,888	384,502,945	387,235,367	376,464,025	376,818,302	379,003,010	380,308,558
Commercial + Industrial	1,216,778,299	1,198,174,695	1,217,353,861	1,180,785,021	1,133,169,360	1,111,077,462	1,095,758,235	1,189,252,247

SoCal Gas Natural Gas Use

Annual Therms

	2012	2013	2014	2015	2016	2017	2018	Average 2014-2018 Annual Therms
Residential			21,909,034	21,220,339	21,842,233	22,062,372	21,791,804	21,765,156
Commercial + Industrial			26,450,661	27,324,706	24,279,474	28,365,442	28,887,618	27,061,580

Area	Population	Employment
City	334,499	158,902
Former SOI Area[a,b]	275	78

[a] *Associated with the recently annexed 17th Street and Tustin Unincorporated Island area.*

[b] *Source: Orange County Local Agency Formation Commission. 2019, November 13. Proposed "Reorganization of the 17th Street and Tustin Unincorporated Island to the City of Santa Ana and Municipal Water District of Orange County (RO 19-07)"; Data compiled by MIG.*

*Electricity**

Residential Annual KWH/Resident:	1,137	kWH/resident
Non-Residential Annual KWH/Employee:	7,484	kWH/employee

** Annual use divided by residents/employees within the City of Santa Ana boundaries minus the residents/employees in the former SOI area.*

Area	Residential Annual kWH	Commercial + Industrial Annual kWH
Former SOI Area	312,661	583,767

*Natural Gas**

Residential Annual Therms/Resident:	65	kWH/resident
Non-Residential Annual Therms/Employee:	170	kWH/employee

** Annual use divided by residents/employees within the City of Santa Ana boundaries minus the residents/employees in the former SOI area.*

Area	Residential Annual Therms	Commercial + Industrial Annual Therms
Former SOI Area	17,894	13,284

Disclaimer. The 15/15 Rule is intended to protect customer confidentiality by reducing the possibility of identifying customers through the release of usage information. The utilities apply the 15/15 Rule in releasing aggregated customer information. The rule was initially implemented by the California Public Utilities Commission during Direct Access proceedings in 1997 and was adopted through D. 97-10-031. The 15/15 rule requires that any aggregated information provided by the Utilities must be made up of at least 15 customers, and a customer's load must be less than 15% of an assigned category. If the number of customers in the compiled data is below 15, or if a single customer's load is more than 15% of the total data, categories (e.g., rate classes) must be combined before the information is released. The rule further requires that if the 15/15 rule is triggered for a second time after the data has been screened once already using the 15/15 rule, then the customer is dropped from the information provided.

Energy

Natural Gas Emission Factors

Natural Gas	Intensity factor			CO_2e
	$MTCO_2$/Therm	CH_4 MT/Therm	N_2O MT/Therm	MT/Therm
All Years	0.005302	5.E-07	1.E-08	**0.00532**

Source: CO_2, CH_4 and N_2O intensity based on Table G.3 of the LGOP for residential and non-residential (CO_2, 53.02 kg/Mmbtu; CH_4: 0.005 kg/MMBtu; N_2O: 0.0001 kg/MMBtu)

SCE

	WCI -WECC Region Intensity factor			CO_2e	
	CO_2 MTons/MWH[1,2]	CH_4 MTons/MWH[3]	N_2O MTons/MWH[3]	MTons/MWh	
2019	0.241	0.000015	0.000002	0.242	0.320

[1] Southern California Edison. 2020. 2019 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2019-sustainability-report.pdf

[2] Based on SCE 2019 reported CO_2e intensity factor of 534 lbs/MWh subtracted by the CH_4 intensity factor of 0.034 lb/MWh and the N_20 intensity factor of 0.004 lb/MWh utilizing the IPCC Fifth Assessment Report global warming potentials of 28 and 265, respectively, to avoid double counting. Per methodology utilized in CalEEMod. Version 2016.3.2, User's Guide, however N2O and CH4 intensity factors based on US EPA eGRID2018 data.

[3] United State Environmental Protection Agency. 2020, March 9. eGRID2018 Total Output Emission Rates, WECC California Region. (CH_4 = 0.034 lbs/MWh & N_2O = 0.004 lbs/MWh)

ABAU Carbon Intensity for SCE Energy

	2019	2030	CO_2e
Assumed Percent Renewable[1]	35.0%	60%	MTons/MWh
CO_2e MTons/Mwh without Renewable	0.3726436		0.149

[1] Southern California Edison. 2020. 2019 Sustainability Report. https://www.edison.com/content/dam/eix/documents/sustainability/eix-2019-sustainability-report.pdf.

GHG Emissions from Energy Use

	2020	Proposed Project 2045	Proposed Project 2040 ABAU
Electricity	**$MTCO_2e$/Year**		
Residential Electricity - City	92,193	134,622	82,844
Commercial + Industrial - City	288,200	308,931	190,112
Total	380,394	443,553	272,956

	2020	Proposed Project 2045	Proposed Project 2040 ABAU
Natural Gas			
Residential Electricity - City	115,856	169,175	169,175
Commercial + Industrial - City	144,002	154,360	154,360
Total	259,858	323,535	323,535

	2020	Proposed Project 2045	Proposed Project 2040 ABAU
Summary			
Residential Total - City	208,050	303,797	252,019
Commercial Total - City	432,202	463,292	344,472
Total	640,252	767,088	596,491

General Conversion Factors

lbs to kg	0.4536
kg to MTons	0.001
Mmbtu to Therm	0.1
Therms to kwh	29.30711111
kilowatt hrs to megawatt hrs	0.001
lbs to Tons	2000
Tons to MTon	0.9071847

Source: California Air Resources Board (CARB). 2010. Local Government Operations Protocol. Version 1.1. Appendix F, Standard Conversion Factors

	Global Warming Potentials (GWP) AR5
CO_2	1
CH_4	28
N_2O	265

Source: Intergovernmental Panel on Climate Change (IPCC). 2013. Fifth Assessment Report: Climate Change 2013. New York: Cambridge University Press.

Criteria Air Pollutants from Natural Gas

Rate	lbs/MBTU					
Natural Gas	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Residential	0.01078431	0.09215686	0.03921569	0.00058824	0.00745098	0.00745098
Non-Residential	0.01078431	0.09803922	0.08235294	0.00058824	0.00745098	0.00745098

Source: CalEEMod Version 2016.3.2

Natural Gas	2020 lbs/day					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Residential	64	550	234	4	44	44
Nonresidential	80	727	611	4	55	55
Total	144	1277	845	8	100	100

Natural Gas	Project 2045 lbs/day					
	ROG	NO_x	CO	SO_2	PM_{10}	$PM_{2.5}$
Residential	94	803	342	5	65	65
Nonresidential	86	780	655	5	59	59
Total	180	1583	997	10	124	124
Increase from Baseline	35	305	152	2	24	24

General Conversion Factors	
Mmbtu to Therm	0.1
lbs to Tons	2000
Tons to MTon	0.9071847

Source: California Air Resources Board (CARB). 2010. Local Government Operations Protocol. Version 1.1. Appendix F, Standard Conversion Factors

City of Santa Ana — TRANSPORTATION SECTOR

CRITERIA AIR POLLUTANTS

	lbs/day					
	ROG	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
Year 2020						
City	831	5,596	25,067	90	1,362	602
Total	**831**	**5,596**	**25,067**	**90**	**1,362**	**602**
Baseline in 2045						
City	355	2,232	13,143	59	1,296	532
Total	**355**	**2,232**	**13,143**	**59**	**1,296**	**532**
Year 2045						
City	359	2,254	13,272	60	1,309	537
Total	**359**	**2,254**	**13,272**	**60**	**1,309**	**537**

Source: EMFAC2017, Version 1.0.2.; California Air Resources Board. 2019, November 20. EMFAC Off-Model Adjustment Factors to Account for the SAFE Vehicle Rule Part One. https://ww3.arb.ca.gov/msei/emfac_off_model_adjustment_factors_final_draft.pdf.

GHG EMISSIONS

	MTons/year			
	N_2O	**CO_2**	**CH_4**	**CO_2e**
Year 2020				
City	57	1,447,080	26	1,463,006
Total	**57**	**1,447,080**	**26**	**1,463,006**
Year 2045				
City	42	1,049,931	10	1,061,237
Total	**42**	**1,049,931**	**10**	**1,061,237**

Source: EMFAC2017, Version 1.0.2

Note: MTons = metric tons; CO_2e = carbon dioxide-equivalent.

Source: EMFAC2017 v1.0.2 Web Database, https://www.arb.ca.gov/emfac/2017/; California Air Resources Board. 2020, June 26. EMFAC Off-Model Adjustment Factors for Carbon Dioxide (CO_2) Emissions to Account for the SAFE Vehicles Rule Part One and the Final Safe Rule. https://ww3.arb.ca.gov/msei/emfac_off_model_co2_adjustment_factors_06262020-final.pdf?utm_medium=email&utm_source=govdelivery; Based on the Intergovernmental Panel on Climate Change (IPCC) Fifth Assessment Report (AR5) Global Warming Potentials (GWPs)

Note: MTons = metric tons; CO_2e = carbon dioxide-equivalent. Includes Pavley + California Advanced Clean Car Standards, the Low Carbon Fuel Standard (LCFS), on-road diesel fleet rules, and the Smartway/Phase I Heavy Duty Vehicle Greenhouse Gas Regulation.

Year 2045 Existing: Criteria Air Pollutants

Based on EMFAC2017, Version 1.0.2., Orange County - South Coast Air Basin

	VMT Per Trip Type			
	I-I	I-X	X-I	Total
City	697,779	5,356,504	5,352,841	11,407,124
TOTAL	697,779	5,356,504	5,352,841	11,407,124

[1] Based on data provided by IBI Group

Emission year

		Year 2020					lbs/day		
Vehicle Type		**Speed**	**Percent of VMT of SpeedBin**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
City of Santa Ana									
All Other Buses	DSL	Aggregated	0.04%	0.08	13.70	0.81	0.08	1.58	0.70
LDA	GAS	Aggregated	52.02%	23.40	218.77	5,355.80	25.21	592.86	239.07
LDA	DSL	Aggregated	0.65%	0.82	1.43	27.24	0.24	7.42	3.01
LDA	ELEC	Aggregated	3.54%	0.00	0.00	0.00	0.00	39.86	15.81
LDT1	GAS	Aggregated	6.08%	3.07	28.28	638.12	3.41	69.33	28.00
LDT1	DSL	Aggregated	0.00%	0.00	0.01	0.04	0.00	0.01	0.00
LDT1	ELEC	Aggregated	0.25%	0.00	0.00	0.00	0.00	2.77	1.10
LDT2	GAS	Aggregated	16.89%	11.17	73.32	2,020.78	9.38	192.55	77.69
LDT2	DSL	Aggregated	0.17%	0.75	1.39	7.67	0.09	2.16	0.97
LDT2	ELEC	Aggregated	0.56%	0.00	0.00	0.00	0.00	6.27	2.49
LHD1	GAS	Aggregated	1.15%	0.94	26.51	34.39	1.83	24.67	10.33
LHD1	DSL	Aggregated	1.33%	12.79	23.15	60.44	1.19	31.42	13.71
LHD2	GAS	Aggregated	0.20%	0.17	5.22	6.10	0.37	5.03	2.11
LHD2	DSL	Aggregated	0.52%	5.18	15.21	25.04	0.52	14.97	7.01
MCY	GAS	Aggregated	0.48%	271.72	132.73	2,016.47	0.25	2.18	1.00
MDV	GAS	Aggregated	10.52%	7.90	51.40	1,289.98	7.12	120.04	48.46
MDV	DSL	Aggregated	0.38%	0.55	0.97	18.08	0.24	4.37	1.78
MDV	ELEC	Aggregated	0.41%	0.00	0.00	0.00	0.00	4.59	1.82
MH	GAS	Aggregated	0.06%	0.14	2.91	2.58	0.20	2.27	0.95
MH	DSL	Aggregated	0.03%	0.31	14.93	0.94	0.05	1.21	0.59
Motor Coach	DSL	Aggregated	0.02%	0.09	10.27	0.95	0.06	0.92	0.43
OBUS	GAS	Aggregated	0.04%	0.12	4.06	2.54	0.14	1.59	0.66
PTO	DSL	Aggregated	0.05%	0.31	56.15	4.97	0.17	0.06	0.06
SBUS	GAS	Aggregated	0.04%	0.11	1.32	1.94	0.06	6.88	2.94
SBUS	DSL	Aggregated	0.04%	0.10	18.92	1.29	0.09	7.82	3.35
T6 CAIRP heavy	DSL	Aggregated	0.02%	0.04	5.73	0.39	0.04	0.90	0.39
T6 CAIRP small	DSL	Aggregated	0.00%	0.01	0.78	0.05	0.01	0.12	0.05
T6 instate construction heavy	DSL	Aggregated	0.02%	0.05	8.05	0.48	0.04	0.93	0.42
T6 instate construction small	DSL	Aggregated	0.13%	0.23	34.91	2.27	0.22	4.88	2.14
T6 instate heavy	DSL	Aggregated	0.95%	1.72	273.96	17.27	1.53	35.92	15.83
T6 instate small	DSL	Aggregated	1.26%	2.19	337.39	21.96	2.16	47.31	20.74
T6 OOS heavy	DSL	Aggregated	0.01%	0.02	3.24	0.22	0.02	0.51	0.22
T6 OOS small	DSL	Aggregated	0.00%	0.00	0.47	0.03	0.00	0.07	0.03
T6 Public	DSL	Aggregated	0.01%	0.02	2.68	0.19	0.02	0.46	0.20
T6 utility	DSL	Aggregated	0.01%	0.01	1.14	0.09	0.01	0.24	0.10
T6TS	GAS	Aggregated	0.24%	0.54	4.96	10.97	0.77	8.57	3.58
T7 Ag	DSL	Aggregated	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T7 CAIRP	DSL	Aggregated	0.23%	0.95	115.41	10.20	0.48	6.61	3.00
T7 CAIRP construction	DSL	Aggregated	0.02%	0.07	9.03	0.80	0.04	0.51	0.23
T7 NNOOS	DSL	Aggregated	0.28%	1.08	128.26	11.68	0.59	7.91	3.52
T7 NOOS	DSL	Aggregated	0.09%	0.37	45.43	4.01	0.19	2.60	1.18
T7 POLA	DSL	Aggregated	0.39%	1.69	212.60	18.29	0.89	11.41	5.28
T7 Public	DSL	Aggregated	0.02%	0.10	9.95	0.84	0.06	0.64	0.27
T7 Single	DSL	Aggregated	0.24%	0.88	101.40	9.51	0.60	6.76	2.94
T7 single construction	DSL	Aggregated	0.04%	0.16	18.38	1.72	0.11	1.22	0.53
T7 SWCV	DSL	Aggregated	0.00%	0.00	3.99	0.01	0.01	0.03	0.01
T7 SWCV	NG	Aggregated	0.07%	1.29	9.62	256.19	0.00	1.77	0.67
T7 tractor	DSL	Aggregated	0.33%	1.38	168.62	14.87	0.72	9.63	4.37
T7 tractor construction	DSL	Aggregated	0.04%	0.16	19.38	1.68	0.09	1.06	0.49
T7 utility	DSL	Aggregated	0.00%	0.00	0.50	0.05	0.00	0.04	0.02
T7IS	GAS	Aggregated	0.00%	0.17	1.67	16.47	0.01	0.05	0.02
UBUS	GAS	Aggregated	0.02%	0.13	1.69	2.17	0.10	0.81	0.34
UBUS	DSL	Aggregated	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	NG	Aggregated	0.10%	2.25	11.94	1,224.03	0.00	2.51	0.97

	TOTAL	**355.23**	**2,231.84**	**13,142.67**	**59.42**	**1,296.34**	**531.60**

Based on EMFAC2017, Version 1.0.2, emission factors for Orange County - South Coast Air Basin

Year 2020 Existing: Criteria Air Pollutants

Based on EMFAC2017, Version 1.0.2., Orange County - South Coast Air Basin

	VMT Per Trip Type			
	I-I	I-X	X-I	Total
City	697,779	5,356,504	5,352,841	11,407,124
TOTAL	697,779	5,356,504	5,352,841	11,407,124

[1.] Based on data provided by IBI Group

Emission year

		Year 2020					lbs/day		
Vehicle Type		**Speed**	**Percent of VMT of SpeedBin**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
City of Santa Ana									
All Other Buses	DSL	Aggregated	0.03%	1.32	26.92	4.45	0.07	1.77	1.10
LDA	GAS	Aggregated	53.63%	165.55	602.41	10,197.06	37.16	626.86	260.82
LDA	DSL	Aggregated	0.49%	2.41	10.58	32.69	0.25	6.69	3.28
LDA	ELEC	Aggregated	0.90%	0.00	0.00	0.00	0.00	10.17	4.03
LDT1	GAS	Aggregated	5.53%	43.73	161.49	1,962.44	4.44	65.67	27.84
LDT1	DSL	Aggregated	0.00%	0.07	0.35	0.38	0.00	0.07	0.06
LDT1	ELEC	Aggregated	0.02%	0.00	0.00	0.00	0.00	0.23	0.09
LDT2	GAS	Aggregated	18.67%	86.40	399.01	4,694.99	16.49	218.08	90.67
LDT2	DSL	Aggregated	0.12%	0.55	1.32	4.54	0.08	1.51	0.69
LDT2	ELEC	Aggregated	0.09%	0.00	0.00	0.00	0.00	1.06	0.42
LHD1	GAS	Aggregated	1.52%	12.33	79.32	299.59	3.05	32.64	13.67
LHD1	DSL	Aggregated	0.99%	19.37	488.87	107.46	1.13	26.34	13.00
LHD2	GAS	Aggregated	0.25%	1.43	13.67	36.13	0.59	6.27	2.63
LHD2	DSL	Aggregated	0.38%	6.65	153.36	35.88	0.48	11.18	5.42
MCY	GAS	Aggregated	0.45%	272.17	126.17	2,163.37	0.24	2.00	0.90
MDV	GAS	Aggregated	12.51%	91.25	376.37	3,955.38	13.56	146.35	60.99
MDV	DSL	Aggregated	0.28%	1.09	4.39	17.65	0.26	3.53	1.63
MDV	ELEC	Aggregated	0.03%	0.00	0.00	0.00	0.00	0.32	0.13
MH	GAS	Aggregated	0.07%	1.20	7.58	34.90	0.31	2.63	1.10
MH	DSL	Aggregated	0.03%	0.58	31.93	2.54	0.07	1.97	1.25
Motor Coach	DSL	Aggregated	0.02%	1.06	22.53	4.00	0.07	1.16	0.74
OBUS	GAS	Aggregated	0.05%	0.83	6.33	21.58	0.21	1.78	0.74
PTO	DSL	Aggregated	0.03%	3.17	60.23	10.81	0.17	0.88	0.85
SBUS	GAS	Aggregated	0.02%	0.62	3.92	14.07	0.05	4.24	1.81
SBUS	DSL	Aggregated	0.05%	1.88	110.89	4.99	0.14	9.47	4.46
T6 Ag	DSL	Aggregated	0.00%	0.00	0.03	0.01	0.00	0.00	0.00
T6 CAIRP heavy	DSL	Aggregated	0.02%	0.19	7.12	0.81	0.04	0.81	0.40
T6 CAIRP small	DSL	Aggregated	0.00%	0.05	1.18	0.18	0.01	0.12	0.07
T6 instate construction heavy	DSL	Aggregated	0.03%	1.33	30.25	4.47	0.07	1.81	1.15
T6 instate construction small	DSL	Aggregated	0.16%	6.89	123.72	23.75	0.37	9.71	6.25
T6 instate heavy	DSL	Aggregated	0.65%	18.36	430.76	64.97	1.47	34.14	19.94
T6 instate small	DSL	Aggregated	1.05%	36.34	697.94	128.14	2.47	59.68	36.73
T6 OOS heavy	DSL	Aggregated	0.01%	0.10	3.92	0.45	0.02	0.46	0.23
T6 OOS small	DSL	Aggregated	0.00%	0.03	0.70	0.11	0.00	0.07	0.04
T6 Public	DSL	Aggregated	0.01%	0.22	24.30	0.68	0.04	0.68	0.36
T6 utility	DSL	Aggregated	0.01%	0.03	2.38	0.13	0.01	0.23	0.10
T6TS	GAS	Aggregated	0.46%	5.41	40.24	142.66	1.93	16.52	6.88
T7 Ag	DSL	Aggregated	0.00%	0.00	0.02	0.01	0.00	0.00	0.00
T7 CAIRP	DSL	Aggregated	0.19%	3.22	144.21	15.68	0.60	6.31	3.32
T7 CAIRP construction	DSL	Aggregated	0.02%	0.36	16.11	1.75	0.07	0.72	0.37
T7 NNOOS	DSL	Aggregated	0.23%	4.01	152.07	19.65	0.70	7.99	4.34
T7 NOOS	DSL	Aggregated	0.07%	1.21	55.86	5.94	0.23	2.46	1.29
T7 POLA	DSL	Aggregated	0.17%	6.50	222.30	20.83	0.65	5.88	3.13
T7 Public	DSL	Aggregated	0.02%	0.50	61.13	2.11	0.09	0.91	0.53
T7 Single	DSL	Aggregated	0.17%	7.33	193.85	28.27	0.60	8.12	5.27
T7 single construction	DSL	Aggregated	0.05%	2.54	72.08	9.61	0.19	2.63	1.75
T7 SWCV	DSL	Aggregated	0.02%	0.03	69.29	0.12	0.19	0.47	0.21
T7 SWCV	NG	Aggregated	0.04%	3.30	30.12	118.35	0.00	0.93	0.37
T7 tractor	DSL	Aggregated	0.29%	13.40	349.10	51.14	0.99	13.17	8.37
T7 tractor construction	DSL	Aggregated	0.04%	2.27	58.15	8.44	0.16	2.09	1.36
T7 utility	DSL	Aggregated	0.00%	0.02	1.54	0.08	0.01	0.04	0.02
T7IS	GAS	Aggregated	0.00%	0.19	1.38	7.98	0.01	0.02	0.01
UBUS	GAS	Aggregated	0.02%	0.12	2.19	2.56	0.13	0.78	0.32
UBUS	DSL	Aggregated	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	NG	Aggregated	0.09%	3.07	115.95	803.66	0.00	2.52	1.01
			TOTAL	**830.68**	**5,595.54**	**25,067.39**	**89.87**	**1,362.14**	**602.16**

Based on EMFAC2017, Version 1.0.2, emission factors for Orange County - South Coast Air Basin

Year 2045 Project: Criteria Air Pollutants

Based on EMFAC2017, Version 1.0.2., Orange County - South Coast Air Basin

	VMT Per Trip Type			
	I-I	I-X	X-I	Total
City	637,655	5,432,337	5,448,967	11,518,959
TOTAL	637,655	5,432,337	5,448,967	11,518,959

[1.] Based on data provided by IBI Group

Emission year

		Year 2020					lbs/day		
Vehicle Type		**Speed**	**Percent of VMT of SpeedBin**	**ROG**	**NOx**	**CO**	**SOx**	**PM10**	**PM2.5**
City of Santa Ana									
All Other Buses	DSL	Aggregated	0.04%	0.08	13.83	0.82	0.08	1.60	0.71
LDA	GAS	Aggregated	52.02%	23.63	220.91	5,408.31	25.45	598.67	241.42
LDA	DSL	Aggregated	0.65%	0.83	1.44	27.51	0.24	7.49	3.04
LDA	ELEC	Aggregated	3.54%	0.00	0.00	0.00	0.00	40.25	15.97
LDT1	GAS	Aggregated	6.08%	3.10	28.56	644.38	3.45	70.01	28.27
LDT1	DSL	Aggregated	0.00%	0.00	0.01	0.04	0.00	0.01	0.00
LDT1	ELEC	Aggregated	0.25%	0.00	0.00	0.00	0.00	2.80	1.11
LDT2	GAS	Aggregated	16.89%	11.28	74.04	2,040.59	9.48	194.44	78.45
LDT2	DSL	Aggregated	0.17%	0.76	1.41	7.75	0.09	2.18	0.98
LDT2	ELEC	Aggregated	0.56%	0.00	0.00	0.00	0.00	6.34	2.51
LHD1	GAS	Aggregated	1.15%	0.95	26.77	34.73	1.85	24.91	10.43
LHD1	DSL	Aggregated	1.33%	12.92	23.38	61.03	1.20	31.73	13.85
LHD2	GAS	Aggregated	0.20%	0.17	5.27	6.16	0.38	5.08	2.13
LHD2	DSL	Aggregated	0.52%	5.24	15.36	25.29	0.52	15.12	7.08
MCY	GAS	Aggregated	0.48%	274.38	134.03	2,036.24	0.26	2.20	1.01
MDV	GAS	Aggregated	10.52%	7.98	51.90	1,302.63	7.19	121.22	48.94
MDV	DSL	Aggregated	0.38%	0.56	0.98	18.26	0.24	4.42	1.80
MDV	ELEC	Aggregated	0.41%	0.00	0.00	0.00	0.00	4.63	1.84
MH	GAS	Aggregated	0.06%	0.14	2.94	2.61	0.21	2.29	0.96
MH	DSL	Aggregated	0.03%	0.31	15.08	0.95	0.05	1.23	0.59
Motor Coach	DSL	Aggregated	0.02%	0.09	10.37	0.96	0.06	0.93	0.43
OBUS	GAS	Aggregated	0.04%	0.12	4.10	2.57	0.14	1.60	0.67
PTO	DSL	Aggregated	0.05%	0.31	56.70	5.02	0.17	0.06	0.06
SBUS	GAS	Aggregated	0.04%	0.11	1.33	1.96	0.07	6.95	2.97
SBUS	DSL	Aggregated	0.04%	0.10	19.11	1.31	0.09	7.89	3.38
T6 CAIRP heavy	DSL	Aggregated	0.02%	0.04	5.79	0.40	0.04	0.91	0.40
T6 CAIRP small	DSL	Aggregated	0.00%	0.01	0.79	0.05	0.01	0.12	0.05
T6 instate construction heavy	DSL	Aggregated	0.02%	0.05	8.13	0.49	0.05	0.94	0.42
T6 instate construction small	DSL	Aggregated	0.13%	0.23	35.25	2.29	0.23	4.93	2.16
T6 instate heavy	DSL	Aggregated	0.95%	1.74	276.64	17.44	1.55	36.27	15.98
T6 instate small	DSL	Aggregated	1.26%	2.21	340.70	22.18	2.19	47.77	20.94
T6 OOS heavy	DSL	Aggregated	0.01%	0.02	3.27	0.23	0.02	0.52	0.22
T6 OOS small	DSL	Aggregated	0.00%	0.00	0.48	0.03	0.00	0.07	0.03
T6 Public	DSL	Aggregated	0.01%	0.02	2.71	0.19	0.02	0.46	0.20
T6 utility	DSL	Aggregated	0.01%	0.01	1.15	0.09	0.01	0.24	0.10
T6TS	GAS	Aggregated	0.24%	0.54	5.01	11.08	0.78	8.65	3.61
T7 Ag	DSL	Aggregated	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
T7 CAIRP	DSL	Aggregated	0.23%	0.95	116.55	10.30	0.49	6.68	3.03
T7 CAIRP construction	DSL	Aggregated	0.02%	0.07	9.12	0.80	0.04	0.52	0.24
T7 NNOOS	DSL	Aggregated	0.28%	1.09	129.52	11.80	0.59	7.99	3.55
T7 NOOS	DSL	Aggregated	0.09%	0.38	45.88	4.05	0.19	2.63	1.19
T7 POLA	DSL	Aggregated	0.39%	1.71	214.69	18.47	0.90	11.53	5.34
T7 Public	DSL	Aggregated	0.02%	0.11	10.05	0.85	0.06	0.64	0.27
T7 Single	DSL	Aggregated	0.24%	0.89	102.39	9.60	0.60	6.83	2.97
T7 single construction	DSL	Aggregated	0.04%	0.16	18.56	1.74	0.11	1.23	0.54
T7 SWCV	DSL	Aggregated	0.00%	0.00	4.03	0.01	0.01	0.03	0.01
T7 SWCV	NG	Aggregated	0.07%	1.30	9.72	258.70	0.00	1.79	0.68
T7 tractor	DSL	Aggregated	0.33%	1.39	170.28	15.01	0.72	9.72	4.42
T7 tractor construction	DSL	Aggregated	0.04%	0.16	19.57	1.70	0.09	1.07	0.49
T7 utility	DSL	Aggregated	0.00%	0.00	0.50	0.05	0.00	0.04	0.02
T7IS	GAS	Aggregated	0.00%	0.17	1.69	16.63	0.01	0.05	0.02
UBUS	GAS	Aggregated	0.02%	0.13	1.70	2.19	0.10	0.82	0.35
UBUS	DSL	Aggregated	0.00%	0.00	0.00	0.00	0.00	0.00	0.00
UBUS	NG	Aggregated	0.10%	2.27	12.06	1,236.03	0.00	2.53	0.98
			TOTAL	**358.71**	**2,253.72**	**13,271.52**	**60.01**	**1,309.05**	**536.81**

Based on EMFAC2017, Version 1.0.2, emission factors for Orange County - South Coast Air Basin

Year 2020 GHG Emissions: Existing

Based on EMFAC2017, Version 1.0.2., Orange County - South Coast Air Basin

				Days per year[1]	347
	VMT Per Trip Type[2]				
	I-I	I-X	X-I	Total	Annual
City	697,779	5,356,504	5,352,841	11,407,124	3,958,272,028
TOTAL	697,779	5,356,504	5,352,841	11,407,124	3,958,272,028

[1] Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

[2] Based on data provided by IBI Group

				N_2O	CO_2 (Pavley)	CH_4	
	Emission year			AR5 GWP	AR5 GWP	AR5 GWP	
	Year 2020			265	1	28	
Vehicle Type	**Fuel Type**	**Speed**	**Percent of VMT of SpeedBin**	**N_2O**	**CO_2 (Pavley)**	**CH_4**	**CO_2e w/ Pavley + LCFS**
Valley Region							
All Other Buses	DSL	Aggregated	0.03%	0.19	1,228.69	0.01	1,280
LDA	GAS	Aggregated	53.63%	10.47	591,003.93	6.67	593,966
LDA	DSL	Aggregated	0.49%	0.66	4,199.62	0.02	4,375
LDA	ELEC	Aggregated	0.90%	0.00	0.00	0.00	0
LDT1	GAS	Aggregated	5.53%	1.92	70,577.23	1.56	71,131
LDT1	DSL	Aggregated	0.00%	0.00	20.00	0.00	21
LDT1	ELEC	Aggregated	0.02%	0.00	0.00	0.00	0
LDT2	GAS	Aggregated	18.67%	5.28	262,326.86	3.37	263,822
LDT2	DSL	Aggregated	0.12%	0.22	1,404.45	0.00	1,463
LDT2	ELEC	Aggregated	0.09%	0.00	0.00	0.00	0
LHD1	GAS	Aggregated	1.52%	0.78	48,541.26	0.41	48,760
LHD1	DSL	Aggregated	0.99%	2.97	18,896.92	0.14	19,688
LHD2	GAS	Aggregated	0.25%	0.14	9,346.14	0.05	9,386
LHD2	DSL	Aggregated	0.38%	1.25	7,933.36	0.05	8,265
MCY	GAS	Aggregated	0.45%	1.15	3,792.42	6.25	4,273
MDV	GAS	Aggregated	12.51%	4.60	215,744.15	3.22	217,052
MDV	DSL	Aggregated	0.28%	0.68	4,295.85	0.01	4,475
MDV	ELEC	Aggregated	0.03%	0.00	0.00	0.00	0
MH	GAS	Aggregated	0.07%	0.07	4,876.32	0.04	4,897
MH	DSL	Aggregated	0.03%	0.19	1,226.78	0.00	1,278
Motor Coach	DSL	Aggregated	0.02%	0.18	1,149.15	0.01	1,197
OBUS	GAS	Aggregated	0.05%	0.05	3,314.03	0.03	3,328
PTO	DSL	Aggregated	0.03%	0.44	2,818.32	0.02	2,936
SBUS	GAS	Aggregated	0.02%	0.03	785.49	0.02	794
SBUS	DSL	Aggregated	0.05%	0.36	2,292.48	0.01	2,388
T6 Ag	DSL	Aggregated	0.00%	0.00	0.45	0.00	0
T6 CAIRP heavy	DSL	Aggregated	0.02%	0.11	693.80	0.00	723
T6 CAIRP small	DSL	Aggregated	0.00%	0.02	98.88	0.00	103
T6 instate construction heavy	DSL	Aggregated	0.03%	0.19	1,199.66	0.01	1,250
T6 instate construction small	DSL	Aggregated	0.16%	0.98	6,236.53	0.05	6,498
T6 instate heavy	DSL	Aggregated	0.65%	3.84	24,423.22	0.13	25,444
T6 instate small	DSL	Aggregated	1.05%	6.46	41,121.43	0.27	42,842
T6 OOS heavy	DSL	Aggregated	0.01%	0.06	395.32	0.00	412
T6 OOS small	DSL	Aggregated	0.00%	0.01	58.15	0.00	61
T6 Public	DSL	Aggregated	0.01%	0.10	634.89	0.00	661
T6 utility	DSL	Aggregated	0.01%	0.04	237.83	0.00	248
T6TS	GAS	Aggregated	0.46%	0.34	30,635.67	0.18	30,730
T7 Ag	DSL	Aggregated	0.00%	0.00	0.47	0.00	0
T7 CAIRP	DSL	Aggregated	0.19%	1.61	10,240.27	0.02	10,667
T7 CAIRP construction	DSL	Aggregated	0.02%	0.17	1,089.39	0.00	1,135
T7 NNOOS	DSL	Aggregated	0.23%	1.91	12,123.28	0.03	12,629
T7 NOOS	DSL	Aggregated	0.07%	0.73	4,641.11	0.02	4,835
T7 POLA	DSL	Aggregated	0.17%	1.74	11,094.74	0.03	11,558
T7 Public	DSL	Aggregated	0.02%	0.21	1,343.32	0.01	1,399
T7 Single	DSL	Aggregated	0.17%	1.61	10,272.53	0.06	10,702
T7 single construction	DSL	Aggregated	0.05%	1.59	10,145.44	0.00	10,568
T7 SWCV	DSL	Aggregated	0.02%	0.46	2,259.52	3.32	2,475
T7 SWCV	NG	Aggregated	0.04%	0.32	2,032.76	0.01	2,118
T7 tractor	DSL	Aggregated	0.29%	2.74	17,399.94	0.11	18,128
T7 tractor construction	DSL	Aggregated	0.04%	0.43	2,712.82	0.00	2,826
T7 utility	DSL	Aggregated	0.00%	0.01	119.88	0.01	123
T7IS	GAS	Aggregated	0.00%	0.00	95.20	0.00	96
UBUS	GAS	Aggregated	0.02%	0.00	0.00	0.00	0

UBUS	DSL	Aggregated	0.00%	0.00	0.00	0.00	0
UBUS	NG	Aggregated	0.09%	0.00	0.00	0.00	0
				57.33	**1,447,079.91**	**26.17**	**1,463,005.85**

Based on EMFAC2017, Version 1.0.2, emission factors for Orange County - South Coast Air Basin

Year 2045 GHG Emissions: Existing

Based on EMFAC2017, Version 1.0.2., Orange County - South Coast Air Basin

	Days per year[1]	347

	VMT Per Trip Type[2]				
	I-I	I-X	X-I	Total	Annual
City	637,655	5,432,337	5,448,967	11,518,959	3,997,078,773
TOTAL	637,655	5,432,337	5,448,967	11,518,959	3,997,078,773

[1] Adjusted Daily vehicles miles traveled (VMT) multiplied by 347 days/year to account for reduced traffic on weekends and holidays. This assumption is consistent with the California Air Resources Board's (CARB) methodology within the Climate Change Scoping Plan Measure Documentation Supplement.

[2] Based on data provided by IBI Group

				N_2O	CO_2 (Pavley)	CH_4	
	Emission year			AR5 GWP	AR5 GWP	AR5 GWP	
	Year 2045			265	1	28	
Vehicle Type	**Fuel Type**	**Speed**	**Percent of VMT of SpeedBin**	**N_2O**	**CO_2 (Pavley)**	**CH_4**	**CO_2e w/ Pavley + LCFS**
Valley Region							
All Other Buses	DSL	Aggregated	0.04%	0.20	1,277.86	0.00	1,331
LDA	GAS	Aggregated	52.02%	5.92	455,179.15	1.37	456,786
LDA	DSL	Aggregated	0.65%	0.63	4,033.78	0.01	4,202
LDA	ELEC	Aggregated	3.54%	0.00	0.00	0.00	0
LDT1	GAS	Aggregated	6.08%	0.73	61,645.67	0.17	61,845
LDT1	DSL	Aggregated	0.00%	0.00	9.89	0.00	10
LDT1	ELEC	Aggregated	0.25%	0.00	0.00	0.00	0
LDT2	GAS	Aggregated	16.89%	1.93	169,438.33	0.62	169,968
LDT2	DSL	Aggregated	0.17%	0.23	1,444.03	0.01	1,504
LDT2	ELEC	Aggregated	0.56%	0.00	0.00	0.00	0
LHD1	GAS	Aggregated	1.15%	0.35	29,407.21	0.05	29,502
LHD1	DSL	Aggregated	1.33%	3.14	19,959.32	0.09	20,793
LHD2	GAS	Aggregated	0.20%	0.07	5,997.39	0.01	6,016
LHD2	DSL	Aggregated	0.52%	1.37	8,690.54	0.04	9,054
MCY	GAS	Aggregated	0.48%	1.22	4,074.84	6.43	4,579
MDV	GAS	Aggregated	10.52%	1.28	114,304.75	0.42	114,655
MDV	DSL	Aggregated	0.38%	0.64	4,076.95	0.00	4,247
MDV	ELEC	Aggregated	0.41%	0.00	0.00	0.00	0
MH	GAS	Aggregated	0.06%	0.04	3,292.59	0.01	3,304
MH	DSL	Aggregated	0.03%	0.14	900.40	0.00	938
Motor Coach	DSL	Aggregated	0.02%	0.16	1,039.32	0.00	1,083
OBUS	GAS	Aggregated	0.04%	0.04	2,298.20	0.01	2,308
PTO	DSL	Aggregated	0.05%	0.46	2,913.52	0.00	3,035
SBUS	GAS	Aggregated	0.04%	0.02	1,035.38	0.00	1,040
SBUS	DSL	Aggregated	0.04%	0.23	1,442.28	0.00	1,502
T6 CAIRP heavy	DSL	Aggregated	0.02%	0.10	624.73	0.00	651
T6 CAIRP small	DSL	Aggregated	0.00%	0.01	91.04	0.00	95
T6 instate construction heavy	DSL	Aggregated	0.02%	0.12	753.33	0.00	785
T6 instate construction small	DSL	Aggregated	0.13%	0.59	3,760.13	0.00	3,917
T6 instate heavy	DSL	Aggregated	0.95%	4.05	25,753.26	0.01	26,826
T6 instate small	DSL	Aggregated	1.26%	5.72	36,410.17	0.02	37,927
T6 OOS heavy	DSL	Aggregated	0.01%	0.06	353.87	0.00	369
T6 OOS small	DSL	Aggregated	0.00%	0.01	55.22	0.00	58
T6 Public	DSL	Aggregated	0.01%	0.06	364.82	0.00	380
T6 utility	DSL	Aggregated	0.01%	0.03	187.71	0.00	196
T6TS	GAS	Aggregated	0.24%	0.07	12,378.18	0.02	12,398
T7 Ag	DSL	Aggregated	0.00%	0.00	0.24	0.00	0
T7 CAIRP	DSL	Aggregated	0.23%	1.41	8,976.57	0.01	9,351
T7 CAIRP construction	DSL	Aggregated	0.02%	0.10	627.36	0.00	654
T7 NNOOS	DSL	Aggregated	0.28%	1.55	9,875.73	0.01	10,287
T7 NOOS	DSL	Aggregated	0.09%	0.55	3,470.66	0.00	3,615
T7 POLA	DSL	Aggregated	0.39%	2.59	16,451.62	0.01	17,137
T7 Public	DSL	Aggregated	0.02%	0.15	971.08	0.00	1,012
T7 Single	DSL	Aggregated	0.24%	1.58	10,027.42	0.01	10,445
T7 single construction	DSL	Aggregated	0.04%	1.33	8,462.87	0.00	8,815
T7 SWCV	DSL	Aggregated	0.00%	0.02	116.61	0.18	128
T7 SWCV	NG	Aggregated	0.07%	0.40	2,536.02	0.00	2,642
T7 tractor	DSL	Aggregated	0.33%	2.11	13,449.72	0.01	14,010
T7 tractor construction	DSL	Aggregated	0.04%	0.24	1,526.39	0.00	1,590
T7 utility	DSL	Aggregated	0.00%	0.01	95.07	0.00	97
T7IS	GAS	Aggregated	0.00%	0.00	149.51	0.00	150
UBUS	GAS	Aggregated	0.02%	0.00	0.00	0.00	0
UBUS	DSL	Aggregated	0.00%	0.00	0.00	0.00	0

UBUS	NG	Aggregated	0.10%	0.00	0.00	0.00	0
				41.66	**1,049,930.76**	**9.53**	**1,061,237.21**

Based on EMFAC2017, Version 1.0.2, emission factors for Orange County - South Coast Air Basin

2020 Orange (SC)

g/mile

Region	Calendar Year	Vehicle Category	Fuel	Model Year	Speed	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total
Orange (SC)	2020	All Other Buses	DSL	Aggregated	Aggregated	0.1708	3.479646	0.575464	0.009532	0.012	0.13034	0.086688	2.29E-01
Orange (SC)	2020	LDA	GAS	Aggregated	Aggregated	0.012274	0.044663	0.756028	0.002755	0.008	0.03675	0.001727	4.65E-02
Orange (SC)	2020	LDA	DSL	Aggregated	Aggregated	0.019408	0.085117	0.26298	0.002029	0.008	0.03675	0.009067	5.38E-02
Orange (SC)	2020	LDA	ELEC	Aggregated	Aggregated	0	0	0	0	0.008	0.03675	0	4.48E-02
Orange (SC)	2020	LDT1	GAS	Aggregated	Aggregated	0.031442	0.116114	1.410989	0.00319	0.008	0.03675	0.002468	4.72E-02
Orange (SC)	2020	LDT1	DSL	Aggregated	Aggregated	0.232504	1.141449	1.26056	0.003957	0.008	0.03675	0.184682	2.29E-01
Orange (SC)	2020	LDT1	ELEC	Aggregated	Aggregated	0	0	0	0	0.008	0.03675	0	4.48E-02
Orange (SC)	2020	LDT2	GAS	Aggregated	Aggregated	0.018401	0.084978	0.999912	0.003513	0.008	0.03675	0.001696	4.64E-02
Orange (SC)	2020	LDT2	DSL	Aggregated	Aggregated	0.018366	0.043939	0.150892	0.002804	0.008	0.03675	0.005544	5.03E-02
Orange (SC)	2020	LDT2	ELEC	Aggregated	Aggregated	0	0	0	0	0.008	0.03675	0	4.48E-02
Orange (SC)	2020	LHD1	GAS	Aggregated	Aggregated	0.032362	0.208116	0.786037	0.008007	0.008	0.07644	0.001201	8.56E-02
Orange (SC)	2020	LHD1	DSL	Aggregated	Aggregated	0.077624	1.958982	0.4306	0.004548	0.012	0.07644	0.017089	1.06E-01
Orange (SC)	2020	LHD2	GAS	Aggregated	Aggregated	0.022337	0.214141	0.566144	0.009207	0.008	0.08918	0.001044	9.82E-02
Orange (SC)	2020	LHD2	DSL	Aggregated	Aggregated	0.070084	1.617016	0.378304	0.005024	0.012	0.08918	0.0167	1.18E-01
Orange (SC)	2020	MCY	GAS	Aggregated	Aggregated	2.421687	1.122641	19.24904	0.002122	0.004	0.01176	0.002056	1.78E-02
Orange (SC)	2020	MDV	GAS	Aggregated	Aggregated	0.029013	0.119669	1.25764	0.004313	0.008	0.03675	0.001784	4.65E-02
Orange (SC)	2020	MDV	DSL	Aggregated	Aggregated	0.015567	0.062911	0.252914	0.003698	0.008	0.03675	0.00587	5.06E-02
Orange (SC)	2020	MDV	ELEC	Aggregated	Aggregated	0	0	0	0	0.008	0.03675	0	4.48E-02
Orange (SC)	2020	MH	GAS	Aggregated	Aggregated	0.065562	0.414826	1.910336	0.016782	0.012	0.13034	0.001411	1.44E-01
Orange (SC)	2020	MH	DSL	Aggregated	Aggregated	0.074143	4.05621	0.323159	0.009359	0.016	0.13034	0.103815	2.50E-01
Orange (SC)	2020	Motor Coach	DSL	Aggregated	Aggregated	0.221332	4.691405	0.832042	0.014362	0.012	0.13034	0.098993	2.41E-01
Orange (SC)	2020	OBUS	GAS	Aggregated	Aggregated	0.066768	0.510819	1.739975	0.016802	0.012	0.13034	0.000805	1.43E-01
Orange (SC)	2020	PTO	DSL	Aggregated	Aggregated	0.371517	7.049468	1.265025	0.019798	0	0	0.103482	1.03E-01
Orange (SC)	2020	SBUS	GAS	Aggregated	Aggregated	0.10993	0.69617	2.501466	0.008782	0.008	0.7448	0.001501	7.54E-01
Orange (SC)	2020	SBUS	DSL	Aggregated	Aggregated	0.164447	9.682246	0.435399	0.012015	0.012	0.7448	0.070199	8.27E-01
Orange (SC)	2020	T6 Ag	DSL	Aggregated	Aggregated	1.9563	13.841	5.260689	0.011738	0.012	0.13034	1.31741	1.46E+00
Orange (SC)	2020	T6 CAIRP heavy	DSL	Aggregated	Aggregated	0.039196	1.462758	0.166149	0.008553	0.012	0.13034	0.024277	1.67E-01
Orange (SC)	2020	T6 CAIRP small	DSL	Aggregated	Aggregated	0.071524	1.790142	0.269524	0.009012	0.012	0.13034	0.043915	1.86E-01
Orange (SC)	2020	T6 instate construction heavy	DSL	Aggregated	Aggregated	0.179662	4.074153	0.602484	0.0097	0.012	0.13034	0.101016	2.43E-01
Orange (SC)	2020	T6 instate construction small	DSL	Aggregated	Aggregated	0.175144	3.143503	0.603449	0.009511	0.012	0.13034	0.104346	2.47E-01
Orange (SC)	2020	T6 instate heavy	DSL	Aggregated	Aggregated	0.111517	2.616985	0.394685	0.008906	0.012	0.13034	0.06509	2.07E-01
Orange (SC)	2020	T6 instate small	DSL	Aggregated	Aggregated	0.137964	2.649611	0.486453	0.00937	0.012	0.13034	0.08421	2.27E-01
Orange (SC)	2020	T6 OOS heavy	DSL	Aggregated	Aggregated	0.037772	1.411448	0.162532	0.008549	0.012	0.13034	0.024074	1.66E-01
Orange (SC)	2020	T6 OOS small	DSL	Aggregated	Aggregated	0.072982	1.800242	0.274543	0.009009	0.012	0.13034	0.044875	1.87E-01
Orange (SC)	2020	T6 Public	DSL	Aggregated	Aggregated	0.057773	6.491242	0.180596	0.010179	0.012	0.13034	0.03849	1.81E-01

Vehicle Category	Fuel	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+AACC)_RUNEX	CH4_RUNEX	N2O_RUNEX	VMT	%VMT Total
All Other Buses	DSL	0.003	0.05586	0.082938	1.42E-01	1008.93691	0.0079332	0.1585908	28,077	0.0308%
LDA	GAS	0.002	0.01575	0.001588	1.93E-02	278.38997	0.0031426	0.004933	48,945,590	53.6329%
LDA	DSL	0.002	0.01575	0.008674	2.64E-02	214.66387	0.0009015	0.0337422	451,053	0.4942%
LDA	ELEC	0.002	0.01575	0	1.78E-02	0.00000	0	0	824,635	0.9036%
LDT1	GAS	0.002	0.01575	0.00227	2.00E-02	322.39715	0.007138	0.0087871	5,047,196	5.5305%
LDT1	DSL	0.002	0.01575	0.176693	1.94E-01	418.56267	0.0107994	0.0657922	1,102	0.0012%
LDT1	ELEC	0.002	0.01575	0	1.78E-02	0.00000	0	0	18,789	0.0206%
LDT2	GAS	0.002	0.01575	0.00156	1.93E-02	354.95251	0.0045611	0.0071501	17,039,204	18.6710%
LDT2	DSL	0.002	0.01575	0.005305	2.31E-02	296.59116	0.0008531	0.04662	109,175	0.1196%
LDT2	ELEC	0.002	0.01575	0	1.78E-02	0.00000	0	0	86,216	0.0945%
LHD1	GAS	0.002	0.03276	0.001104	3.59E-02	809.14745	0.0068074	0.0130698	1,383,121	1.5156%
LHD1	DSL	0.003	0.03276	0.01635	5.21E-02	481.08876	0.0036055	0.0756205	905,613	0.9923%
LHD2	GAS	0.002	0.03822	0.00096	4.12E-02	930.42419	0.0051621	0.0142893	231,594	0.2538%
LHD2	DSL	0.003	0.03822	0.015978	5.72E-02	531.44159	0.0032552	0.0835352	344,174	0.3771%
MCY	GAS	0.001	0.00504	0.001925	7.96E-03	214.38590	0.3535607	0.06512	407,847	0.4469%
MDV	GAS	0.002	0.01575	0.001642	1.94E-02	435.82039	0.0064949	0.0092862	11,413,222	12.5062%
MDV	DSL	0.002	0.01575	0.005616	2.34E-02	391.17967	0.0007231	0.061488	253,192	0.2774%
MDV	ELEC	0.002	0.01575	0	1.78E-02	0.00000	0	0	26,036	0.0285%
MH	GAS	0.003	0.05586	0.001298	6.02E-02	1695.85384	0.0145629	0.0254689	66,295	0.0726%
MH	DSL	0.004	0.05586	0.099324	1.59E-01	990.00378	0.0034438	0.1556148	28,570	0.0313%
Motor Coach	DSL	0.003	0.05586	0.09471	1.54E-01	1520.17497	0.0102803	0.2389503	17,428	0.0191%
OBUS	GAS	0.003	0.05586	0.00074	5.96E-02	1697.93093	0.0138366	0.0251141	45,000	0.0493%
PTO	DSL	0	0	0.099006	9.90E-02	2095.61455	0.017256	0.3294014	31,007	0.0340%
SBUS	GAS	0.002	0.3192	0.00138	3.23E-01	887.40904	0.0219055	0.0348344	20,408	0.0224%
SBUS	DSL	0.003	0.3192	0.067162	3.89E-01	1271.71205	0.0076382	0.1998954	41,562	0.0455%
T6 Ag	DSL	0.003	0.05586	1.260419	1.32E+00	1242.46046	0.0908651	0.1952975	8	0.0000%
T6 CAIRP heavy	DSL	0.003	0.05586	0.023227	8.21E-02	905.32699	0.0018206	0.1423048	17,669	0.0194%
T6 CAIRP small	DSL	0.003	0.05586	0.042015	1.01E-01	953.89795	0.0033221	0.1499395	2,390	0.0026%
T6 instate construction heavy	DSL	0.003	0.05586	0.096647	1.56E-01	1026.67891	0.0083448	0.1613796	26,940	0.0295%
T6 instate construction small	DSL	0.003	0.05586	0.099832	1.59E-01	1006.71207	0.008135	0.1582411	142,828	0.1565%
T6 instate heavy	DSL	0.003	0.05586	0.062274	1.21E-01	942.68920	0.0051797	0.1481776	597,326	0.6545%
T6 instate small	DSL	0.003	0.05586	0.080567	1.39E-01	991.81438	0.0064081	0.1558994	955,905	1.0474%
T6 OOS heavy	DSL	0.003	0.05586	0.023033	8.19E-02	904.87566	0.0017544	0.1422339	10,072	0.0110%
T6 OOS small	DSL	0.003	0.05586	0.042934	1.02E-01	953.53813	0.0033898	0.1498829	1,406	0.0015%
T6 Public	DSL	0.003	0.05586	0.036825	9.57E-02	1077.45287	0.0026834	0.1693606	13,586	0.0149%

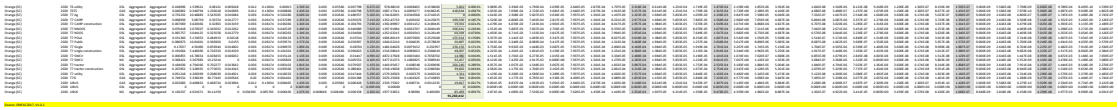
lbs/Mile

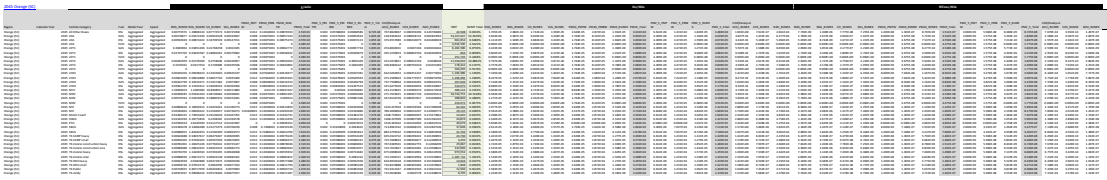
Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+AACC)_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	DSL	3.765E-04	7.671E-03	1.269E-03	2.101E-05	2.646E-05	2.873E-04	1.911E-04	5.049E-04	6.614E-06	1.231E-04	1.828E-04	3.126E-04	2.224E+00	1.749E-05	3.496E-04
LDA	GAS	2.706E-05	9.847E-05	1.667E-03	6.073E-06	1.764E-05	8.102E-05	3.807E-06	1.025E-04	4.409E-06	3.472E-05	3.500E-06	4.263E-05	6.137E-01	6.928E-06	1.088E-05
LDA	DSL	4.279E-05	1.876E-04	5.798E-04	4.474E-06	1.764E-05	8.102E-05	1.999E-05	1.186E-04	4.409E-06	3.472E-05	1.912E-05	5.826E-05	4.732E-01	1.987E-06	7.439E-05
LDA	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	8.102E-05	0.000E+00	9.866E-05	4.409E-06	3.472E-05	0.000E+00	3.913E-05	0.000E+00	0.000E+00	0.000E+00
LDT1	GAS	6.932E-05	2.560E-04	3.111E-03	7.034E-06	1.764E-05	8.102E-05	5.442E-06	1.041E-04	4.409E-06	3.472E-05	5.004E-06	4.414E-05	7.108E-01	1.574E-05	1.937E-05
LDT1	DSL	5.126E-04	2.516E-03	2.779E-03	8.723E-06	1.764E-05	8.102E-05	4.071E-04	5.058E-04	4.409E-06	3.472E-05	3.895E-04	4.287E-04	9.228E-01	2.381E-05	1.450E-04
LDT1	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	8.102E-05	0.000E+00	9.866E-05	4.409E-06	3.472E-05	0.000E+00	3.913E-05	0.000E+00	0.000E+00	0.000E+00
LDT2	GAS	4.057E-05	1.873E-04	2.204E-03	7.744E-06	1.764E-05	8.102E-05	3.740E-06	1.024E-04	4.409E-06	3.472E-05	3.439E-06	4.257E-05	7.825E-01	1.006E-05	1.576E-05
LDT2	DSL	4.049E-05	9.687E-05	3.327E-04	6.181E-06	1.764E-05	8.102E-05	1.222E-05	1.109E-04	4.409E-06	3.472E-05	1.169E-05	5.083E-05	6.539E-01	1.881E-06	1.028E-04
LDT2	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	8.102E-05	0.000E+00	9.866E-05	4.409E-06	3.472E-05	0.000E+00	3.913E-05	0.000E+00	0.000E+00	0.000E+00
LHD1	GAS	7.135E-05	4.588E-04	1.733E-03	1.765E-05	1.764E-05	1.685E-04	2.647E-06	1.888E-04	4.409E-06	7.222E-05	2.435E-06	7.907E-05	1.784E+00	1.501E-05	2.881E-05
LHD1	DSL	1.711E-04	4.319E-03	9.493E-04	1.003E-05	2.646E-05	1.685E-04	3.767E-05	2.326E-04	6.614E-06	7.222E-05	3.604E-05	1.149E-04	1.061E+00	7.949E-06	1.667E-04
LHD2	GAS	4.924E-05	4.721E-04	1.248E-03	2.030E-05	1.764E-05	1.966E-04	2.302E-06	2.165E-04	4.409E-06	8.426E-05	2.116E-06	9.079E-05	2.051E+00	1.138E-05	3.150E-05
LHD2	DSL	1.545E-04	3.565E-03	8.340E-04	1.108E-05	2.646E-05	1.966E-04	3.682E-05	2.599E-04	6.614E-06	8.426E-05	3.522E-05	1.261E-04	1.172E+00	7.177E-06	1.842E-04
MCY	GAS	5.339E-03	2.475E-03	4.244E-02	4.677E-06	8.818E-06	2.593E-05	4.533E-06	3.928E-05	2.205E-06	1.111E-05	4.244E-06	1.756E-05	4.726E-01	7.795E-04	1.436E-04
MDV	GAS	6.396E-05	2.638E-04	2.773E-03	9.508E-06	1.764E-05	8.102E-05	3.934E-06	1.026E-04	4.409E-06	3.472E-05	3.619E-06	4.275E-05	9.608E-01	1.432E-05	2.047E-05
MDV	DSL	3.432E-05	1.387E-04	5.576E-04	8.153E-06	1.764E-05	8.102E-05	1.294E-05	1.116E-04	4.409E-06	3.472E-05	1.238E-05	5.151E-05	8.624E-01	1.594E-06	1.356E-04
MDV	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	1.764E-05	8.102E-05	0.000E+00	9.866E-05	4.409E-06	3.472E-05	0.000E+00	3.913E-05	0.000E+00	0.000E+00	0.000E+00
MH	GAS	1.445E-04	9.145E-04	4.212E-03	3.700E-05	2.646E-05	2.873E-04	3.110E-06	3.169E-04	6.614E-06	1.231E-04	2.862E-06	1.326E-04	3.739E+00	3.211E-05	5.615E-05
MH	DSL	1.635E-04	8.942E-03	7.124E-04	2.063E-05	3.527E-05	2.873E-04	2.289E-04	5.515E-04	8.818E-06	1.231E-04	2.190E-04	3.509E-04	2.183E+00	7.592E-06	3.431E-04
Motor Coach	DSL	4.879E-04	1.034E-02	1.834E-03	3.166E-05	2.646E-05	2.873E-04	2.182E-04	5.320E-04	6.614E-06	1.231E-04	2.088E-04	3.386E-04	3.351E+00	2.266E-05	5.268E-04
OBUS	GAS	1.472E-04	1.126E-03	3.836E-03	3.704E-05	2.646E-05	2.873E-04	1.774E-06	3.156E-04	6.614E-06	1.231E-04	1.631E-06	1.314E-04	3.743E+00	3.050E-05	5.537E-05
PTO	DSL	8.190E-04	1.554E-02	2.789E-03	4.365E-05	0.000E+00	0.000E+00	2.281E-04	2.281E-04	0.000E+00	0.000E+00	2.183E-04	2.183E-04	4.620E+00	3.804E-05	7.262E-04
SBUS	GAS	2.424E-04	1.535E-03	5.515E-03	1.936E-05	1.764E-05	1.642E-03	3.308E-06	1.663E-03	4.409E-06	7.037E-04	3.042E-06	7.112E-04	1.956E+00	4.829E-05	7.680E-05
SBUS	DSL	3.625E-04	2.135E-02	9.599E-04	2.649E-05	2.646E-05	1.642E-03	1.548E-04	1.823E-03	6.614E-06	7.037E-04	1.481E-04	8.584E-04	2.804E+00	1.684E-05	4.407E-04
T6 Ag	DSL	4.313E-03	3.051E-02	1.160E-02	2.588E-05	2.646E-05	2.873E-04	2.904E-03	3.218E-03	6.614E-06	1.231E-04	2.779E-03	2.908E-03	2.739E+00	2.003E-04	4.306E-04
T6 CAIRP heavy	DSL	8.641E-05	3.225E-03	3.663E-04	1.886E-05	2.646E-05	2.873E-04	5.352E-05	3.673E-04	6.614E-06	1.231E-04	5.121E-05	1.810E-04	1.996E+00	4.014E-06	3.137E-04
T6 CAIRP small	DSL	1.577E-04	3.947E-03	5.942E-04	1.987E-05	2.646E-05	2.873E-04	9.682E-05	4.106E-04	6.614E-06	1.231E-04	9.263E-05	2.224E-04	2.103E+00	7.324E-06	3.306E-04
T6 instate construction heavy	DSL	3.961E-04	8.982E-03	1.328E-03	2.138E-05	2.646E-05	2.873E-04	2.227E-04	5.365E-04	6.614E-06	1.231E-04	2.131E-04	3.428E-04	2.263E+00	1.840E-05	3.558E-04
T6 instate construction small	DSL	3.861E-04	6.930E-03	1.330E-03	2.097E-05	2.646E-05	2.873E-04	2.300E-04	5.438E-04	6.614E-06	1.231E-04	2.201E-04	3.499E-04	2.219E+00	1.793E-05	3.489E-04
T6 instate heavy	DSL	2.459E-04	5.769E-03	8.701E-04	1.963E-05	2.646E-05	2.873E-04	1.435E-04	4.573E-04	6.614E-06	1.231E-04	1.373E-04	2.671E-04	2.078E+00	1.142E-05	3.267E-04
T6 instate small	DSL	3.042E-04	5.841E-03	1.072E-03	2.066E-05	2.646E-05	2.873E-04	1.856E-04	4.995E-04	6.614E-06	1.231E-04	1.776E-04	3.074E-04	2.187E+00	1.413E-05	3.437E-04
T6 OOS heavy	DSL	8.327E-05	3.112E-03	3.583E-04	1.885E-05	2.646E-05	2.873E-04	5.307E-05	3.669E-04	6.614E-06	1.231E-04	5.078E-05	1.805E-04	1.995E+00	3.868E-06	3.136E-04
T6 OOS small	DSL	1.609E-04	3.969E-03	6.053E-04	1.986E-05	2.646E-05	2.873E-04	9.893E-05	4.127E-04	6.614E-06	1.231E-04	9.465E-05	2.244E-04	2.102E+00	7.473E-06	3.304E-04
T6 Public	DSL	1.274E-04	1.431E-02	3.981E-04	2.244E-05	2.646E-05	2.873E-04	8.485E-05	3.987E-04	6.614E-06	1.231E-04	8.118E-05	2.109E-04	2.375E+00	5.916E-06	3.734E-04

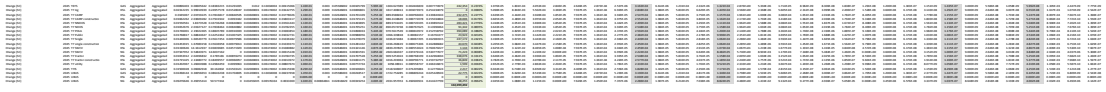
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MTons/Mile

Vehicle Category	Fuel	ROG_RUNEX	NOx_RUNEX	CO_RUNEX	SOx_RUNEX	PM10_PMTW	PM10_PMBW	PM10_RUNEX	PM10_Total	PM2_5_PMTW	PM2_5_PMBW	PM2_5_RUNEX	PM2_5_Total	CO2(Pavley+AACC)_RUNEX	CH4_RUNEX	N2O_RUNEX
All Other Buses	DSL	1.708E-07	3.480E-06	5.755E-07	9.532E-09	1.200E-08	1.303E-07	8.669E-08	2.290E-07	3.000E-09	5.586E-08	8.294E-08	1.418E-07	1.009E-03	7.933E-09	1.586E-07
LDA	GAS	1.227E-08	4.466E-08	7.560E-07	2.755E-09	8.000E-09	3.675E-08	1.727E-09	4.648E-08	2.000E-09	1.575E-08	1.588E-09	1.934E-08	2.784E-04	3.143E-09	4.933E-09
LDA	DSL	1.941E-08	8.512E-08	2.630E-07	2.029E-09	8.000E-09	3.675E-08	9.067E-09	5.382E-08	2.000E-09	1.575E-08	8.674E-09	2.642E-08	2.147E-04	9.015E-10	3.374E-08
LDA	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	3.675E-08	0.000E+00	4.475E-08	2.000E-09	1.575E-08	0.000E+00	1.775E-08	0.000E+00	0.000E+00	0.000E+00
LDT1	GAS	3.144E-08	1.161E-07	1.411E-06	3.190E-09	8.000E-09	3.675E-08	2.468E-09	4.722E-08	2.000E-09	1.575E-08	2.270E-09	2.002E-08	3.224E-04	7.138E-09	8.787E-09
LDT1	DSL	2.325E-07	1.141E-06	1.261E-06	3.957E-09	8.000E-09	3.675E-08	1.847E-07	2.294E-07	2.000E-09	1.575E-08	1.767E-07	1.944E-07	4.186E-04	1.080E-08	6.579E-08
LDT1	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	3.675E-08	0.000E+00	4.475E-08	2.000E-09	1.575E-08	0.000E+00	1.775E-08	0.000E+00	0.000E+00	0.000E+00
LDT2	GAS	1.840E-08	8.498E-08	9.999E-07	3.513E-09	8.000E-09	3.675E-08	1.696E-09	4.645E-08	2.000E-09	1.575E-08	1.560E-09	1.931E-08	3.550E-04	4.561E-09	7.150E-09
LDT2	DSL	1.837E-08	4.394E-08	1.509E-07	2.804E-09	8.000E-09	3.675E-08	5.544E-09	5.029E-08	2.000E-09	1.575E-08	5.305E-09	2.305E-08	2.966E-04	8.531E-10	4.662E-08
LDT2	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	3.675E-08	0.000E+00	4.475E-08	2.000E-09	1.575E-08	0.000E+00	1.775E-08	0.000E+00	0.000E+00	0.000E+00
LHD1	GAS	3.236E-08	2.081E-07	7.860E-07	8.007E-09	8.000E-09	7.644E-08	1.201E-09	8.564E-08	2.000E-09	3.276E-08	1.104E-09	3.586E-08	8.091E-04	6.807E-09	1.307E-08
LHD1	DSL	7.762E-08	1.959E-06	4.306E-07	4.548E-09	1.200E-08	7.644E-08	1.709E-08	1.055E-07	3.000E-09	3.276E-08	1.635E-08	5.211E-08	4.811E-04	3.605E-09	7.562E-08
LHD2	GAS	2.234E-08	2.141E-07	5.661E-07	9.207E-09	8.000E-09	8.918E-08	1.044E-09	9.822E-08	2.000E-09	3.822E-08	9.599E-10	4.118E-08	9.304E-04	5.162E-09	1.429E-08
LHD2	DSL	7.008E-08	1.617E-06	3.783E-07	5.024E-09	1.200E-08	8.918E-08	1.670E-08	1.179E-07	3.000E-09	3.822E-08	1.598E-08	5.720E-08	5.314E-04	3.255E-09	8.354E-08
MCY	GAS	2.422E-06	1.123E-06	1.925E-05	2.122E-09	4.000E-09	1.176E-08	2.056E-09	1.782E-08	1.000E-09	5.040E-09	1.925E-09	7.965E-09	2.144E-04	3.536E-07	6.512E-08
MDV	GAS	2.901E-08	1.197E-07	1.258E-06	4.313E-09	8.000E-09	3.675E-08	1.784E-09	4.653E-08	2.000E-09	1.575E-08	1.642E-09	1.939E-08	4.358E-04	6.495E-09	9.286E-09
MDV	DSL	1.557E-08	6.291E-08	2.529E-07	3.698E-09	8.000E-09	3.675E-08	5.870E-09	5.062E-08	2.000E-09	1.575E-08	5.616E-09	2.337E-08	3.912E-04	7.231E-10	6.149E-08
MDV	ELEC	0.000E+00	0.000E+00	0.000E+00	0.000E+00	8.000E-09	3.675E-08	0.000E+00	4.475E-08	2.000E-09	1.575E-08	0.000E+00	1.775E-08	0.000E+00	0.000E+00	0.000E+00
MH	GAS	6.556E-08	4.148E-07	1.910E-06	1.678E-08	1.200E-08	1.303E-07	1.411E-09	1.438E-07	3.000E-09	5.586E-08	1.298E-09	6.016E-08	1.696E-03	1.456E-08	2.547E-08
MH	DSL	7.414E-08	4.056E-06	3.232E-07	9.359E-09	1.600E-08	1.303E-07	1.038E-07	2.502E-07	4.000E-09	5.586E-08	9.932E-08	1.592E-07	9.900E-04	3.444E-09	1.556E-07
Motor Coach	DSL	2.213E-07	4.691E-06	8.320E-07	1.436E-08	1.200E-08	1.303E-07	9.899E-08	2.413E-07	3.000E-09	5.586E-08	9.471E-08	1.536E-07	1.520E-03	1.028E-08	2.390E-07
OBUS	GAS	6.677E-08	5.108E-07	1.740E-06	1.680E-08	1.200E-08	1.303E-07	8.046E-10	1.431E-07	3.000E-09	5.586E-08	7.400E-10	5.960E-08	1.698E-03	1.384E-08	2.511E-08
PTO	DSL	3.715E-07	7.049E-06	1.265E-06	1.980E-08	0.000E+00	0.000E+00	1.035E-07	1.035E-07	0.000E+00	0.000E+00	9.901E-08	9.901E-08	2.096E-03	1.726E-08	3.294E-07
SBUS	GAS	1.099E-07	6.962E-07	2.501E-06	8.782E-09	8.000E-09	7.448E-07	1.501E-09	7.543E-07	2.000E-09	3.192E-07	1.380E-09	3.226E-07	8.874E-04	2.191E-08	3.483E-08
SBUS	DSL	1.644E-07	9.682E-06	4.354E-07	1.201E-08	1.200E-08	7.448E-07	7.020E-08	8.270E-07	3.000E-09	3.192E-07	6.716E-08	3.894E-07	1.272E-03	7.638E-09	1.999E-07
T6 Ag	DSL	1.956E-06	1.384E-05	5.261E-06	1.174E-08	1.200E-08	1.303E-07	1.317E-06	1.460E-06	3.000E-09	5.586E-08	1.260E-06	1.319E-06	1.242E-03	9.087E-08	1.953E-07
T6 CAIRP heavy	DSL	3.920E-08	1.463E-06	1.661E-07	8.553E-09	1.200E-08	1.303E-07	2.428E-08	1.666E-07	3.000E-09	5.586E-08	2.323E-08	8.209E-08	9.053E-04	1.821E-09	1.423E-07
T6 CAIRP small	DSL	7.152E-08	1.790E-06	2.695E-07	9.012E-09	1.200E-08	1.303E-07	4.392E-08	1.863E-07	3.000E-09	5.586E-08	4.202E-08	1.009E-07	9.539E-04	3.322E-09	1.499E-07
T6 instate construction heavy	DSL	1.797E-07	4.074E-06	6.025E-07	9.700E-09	1.200E-08	1.303E-07	1.010E-07	2.434E-07	3.000E-09	5.586E-08	9.665E-08	1.555E-07	1.027E-03	8.345E-09	1.614E-07
T6 instate construction small	DSL	1.751E-07	3.144E-06	6.034E-07	9.511E-09	1.200E-08	1.303E-07	1.043E-07	2.467E-07	3.000E-09	5.586E-08	9.983E-08	1.587E-07	1.007E-03	8.135E-09	1.582E-07
T6 instate heavy	DSL	1.115E-07	2.617E-06	3.947E-07	8.906E-09	1.200E-08	1.303E-07	6.509E-08	2.074E-07	3.000E-09	5.586E-08	6.227E-08	1.211E-07	9.427E-04	5.180E-09	1.482E-07
T6 instate small	DSL	1.380E-07	2.650E-06	4.865E-07	9.370E-09	1.200E-08	1.303E-07	8.421E-08	2.265E-07	3.000E-09	5.586E-08	8.057E-08	1.394E-07	9.918E-04	6.408E-09	1.559E-07
T6 OOS heavy	DSL	3.777E-08	1.411E-06	1.625E-07	8.549E-09	1.200E-08	1.303E-07	2.407E-08	1.664E-07	3.000E-09	5.586E-08	2.303E-08	8.189E-08	9.049E-04	1.754E-09	1.422E-07
T6 OOS small	DSL	7.298E-08	1.800E-06	2.745E-07	9.009E-09	1.200E-08	1.303E-07	4.488E-08	1.872E-07	3.000E-09	5.586E-08	4.293E-08	1.018E-07	9.535E-04	3.390E-09	1.499E-07
T6 Public	DSL	5.777E-08	6.491E-06	1.806E-07	1.018E-08	1.200E-08	1.303E-07	3.849E-08	1.808E-07	3.000E-09	5.586E-08	3.682E-08	9.568E-08	1.077E-03	2.683E-09	1.694E-07







Appendix D Biological and Natural Resource Inventory and Assessment

Appendices

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May 26, 2020

Dina El Chammas
Placeworks
3 MacArthur Place, Suite 1100
Santa Ana, CA 92707

Subject: Biological and Natural Resource Inventory and Assessment for the City of Santa Ana General Plan update

Dear Ms. El Chammas,

This letter describes the methods and results of the Biological and Natural Resource Inventory and Assessment for the City of Santa Ana (City), in support of the City's General Plan update and corresponding Environmental Impact Report (EIR). The City of Santa Ana is a built, urban community. As a result, readily-apparent resources, such as natural habitat and wildlife, are limited. Carlson Strategic Land Solutions (CSLS) conducted an aerial review and inventory of all open space, recreational (parks), and vacant land within the City limits, as well as within the Sphere of Influence (SOI). Following the aerial overview, CSLS conducted field surveys to spot check the results of the aerial survey. The purpose of this letter is to describe the biological and natural resource inventory within the City limits and SOI. The report provides a summary of natural resources for the entire City as well as for the following five Focus Areas in support of any required future environmental documents.

- 55 Freeway/Dyer Road
- South Bristol Street
- Grand Avenue/17th Street
- South Main Street
- West Santa Ana Boulevard

1.0 Project Location

The City of Santa Ana is located approximately 30 miles southeast of downtown Los Angeles and 10 miles northeast of Newport Beach. The City is located in the western central section of Orange County. The City is bordered by the City of Orange to the north; the City of Tustin to the east; the cities of Irvine and Costa Mesa to the south; and the cities of Fountain Valley and Garden Grove to the west (Figures 1 and 2).

Freeway access to the City is provided by the Garden Grove Freeway (SR-22) and State Route-57 (SR-57) to the north, Interstate-5 (I-5) on the northeast, State Route (SR-55) on the east, and Interstate-405 (I-405) on the south.

1.1 Environmental Setting

The City is largely urbanized with open space and vacant land scattered in various locations throughout the City. The majority of the City is developed with a mix of residential, commercial, and industrial land uses.

2.0 Methodology

2.1 Biological Survey

The Biological and Natural Resource inventory began with a thorough investigation of available literature and databases regarding existing and known open space through the City's current General Plan mapping, sensitive habitats, special status plants, and wildlife species within the City boundary and SOI.

Following the database and literature investigation, a visual aerial survey of the City was completed utilizing Google Earth aerials and existing City of Santa Ana General Plan Open Space land use designations. CSLS started with parcels currently designated Open Space on the existing City's General Plan Map. Those parcels were inventoried to determine current use and current habitat classifications on each parcel. CSLS then searched aerial photographs and identified remaining vacant parcels. For those vacant parcels, CSLS identified the APN, current land use designation, and current habitat classifications on each parcel. All parcels, open space and non-open space, are also linked to the City's GIS identification number and the size of each parcel is also provided. Following the aerial inventory of parcels, both appearing as vacant and designated as Open Space, CSLS spot-checked the parcels in the field to confirm the vegetation community onsite.

3.0 Results

Please refer to Figure 3 for City-wide inventory of vacant parcels and parcels designated open space. The inventory is also provided in tabular form in Attached A.

3.1 Vegetation Communities

Based on the aerial inventory and the field spot-check, a total of seven vegetation communities were identified within the open space and vacant parcels within the City boundary and SOI. A list of each of the vegetation communities observed is provided below.

3.1.1 Riparian

This community consists of willow spices (*Salix sp.*), mulefat (*Baccharis salicifolia*), Fremont's cottonwood, elderberry (*Sambucus nigra*), and western sycamore (*Platanus racemosa*). Portions of the riparian community consists of white alder (*Alnus rhombifolia*), tree tobacco (*Nicotiana glauca*), castor bean (*Rincinus communis*), and eucalyptus trees (*Eucalyptus sp.*). This community is associated with the Santiago Creek.

3.1.2 Unvegetated Streambed

This community is associated with the natural bottom portion of the Santa Ana River. This community contains minimal amounts of vegetation or is void of vegetation completely.

3.1.3 Oak Woodland

This community consists of primarily coast live oak trees (*Quercus agrifolia*). The understory consists of minimal non-native grasses and bare ground. This community is found adjacent to Santiago Creek in the north eastern portion of the City and appeared to be associated with conserved land.

3.1.4 Ornamental

This community includes maintained landscaped areas. The ornamental vegetation is non-native, and some of it is considered invasive. The ornamental habitat type includes shade trees, such as Peruvian pepper tree (*Schinus molle*), Brazilian pepper (*Schinus terebinthifolius*), and grass associated with the City parks, primarily Kentucky bluegrass (*Poa pratensis*). This vegetation community includes River View Golf Course, Willowick Golf Course, and other various community parks found within the City boundary.

3.1.5 Ruderal

This community is associated with areas that are heavily disturbed by human activities, such as demolition of existing structures, annual mowing, and dominance of non-native and/or invasive species. The parcels mapped as ruderal include Russian thistle (*Salsola tragus*), mustard (*Brassica sp.*), cheeseweed (*Malva parviflora*), and large areas which are bare and void of vegetation.

3.1.6 Disturbed

This community is void of any vegetation and completely bare.

3.1.7 Developed

This community consists of General Plan designated Open Space parcels that are developed with structures. This community includes the Fairhaven Memorial Park and Mortuary, the Santa Ana Zoo, and the concrete lined channels found within Santa Ana River and Santiago Creek. These areas consist of primarily built materials and are frequently maintained.

3.2 Overall City Biological Inventory

CSLS identified a total of 499 parcels designated as Open Space land use within the City boundary. An additional 135 parcels were identified as vacant, or contain natural resources, and not designated Open Space. See Figure 3 for City-wide inventory of vacant parcels and parcels designated open space.

In additional to those parcels identified within the City boundary, an additional 4 parcels, consisting of 83.37 acres, were identified as vacant parcels located outside of the City boundary but within the SOI boundary. The SOI parcels include vacant parcels found portions of the concrete lined Santa Ana River located on the southwestern portion of the SOI boundary (Figure 4). Table 1 below provides the physical land use, vegetation community, acreage, and Assessor's Parcel Number (APN) for the vacant parcels and concrete lined portions of the Santa Ana River. Attachment A contains a complete list of the open space and natural resources parcels found within the City and SOI.

Table 1. Sphere of Influence Open Space Inventory

Sphere of Influence Location	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
Santa Ana River	Concrete Channel	Developed	3.53	portion of 144-261-41	No change	No
Santa Ana River	Concrete Channel	Developed	33.00	000	No change	No
Santa Ana River	Concrete Channel	Developed	5.34	000	No change	No
Santa Ana River	Concrete Channel	Developed	41.50	000	No change	No
		Total	**83.37**			
Source: City of Santa Ana GIS, 2019; Carlson SLS, 2019.						

3.2.1 Existing Plans

Figure 3 identifies areas referred to as Existing Plans. The Existing Plans pertain to three approved Specific Plans, an Adaptive Reuse Ordinance, and two areas with Zoning Overlays (Metro East Mixed Use Overlay Zone and Transit Zoning Area). The boundaries of the Existing Plans are shown on Figure 3 for reference and the results of the inventory tabulated in Attachment A. The Existing Plan areas have not been separately tabulated as has been done for the Focus Areas.

3.3 Focus Areas

Five Focus Areas have been identified as part of the City's General Plan Update. The Natural Resources Inventory provided in this report has been summarized by Focus Area. Summary tables provided for the five Focus Areas inventory Open Space designated land use or vacant lots and identify the existing General Plan Land Use Designation, the physical land use, vegetation community, acreage, and APN. It should be noted that some APNs, primarily the railroad right-of-way, do not provide an APN but rather are given the designation 000.

3.3.1 South Main Street

The South Main Street Focus Area does not contain any Open Space designated parcels or vacant lots (Figure 5). The parcels found within this Focus Area consists all of developed land. Furthermore, due to the built nature of this Focus Area, no impacts will occur with the proposed changes in General Plan Designations.

3.3.2 Grand Avenue/17th Street

The Grand Avenue/17th Street Focus Area consist of 2 parcels of Open Space designated parcels and 9 non-open space designated vacant parcels (Figure 6). The parcels total 3.15 acres. Table 2 below summarizes the open space designated lots found within the Focus Area Boundary and the associated vegetation community.

Table 2. Grand Avenue/17th Street Focus Area Open Space Inventory

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
74684	GC	General Commercial	Vacant	Disturbed	0.20	398-384-01	Urban Neighborhood	No; Disturbed vegetation community
74685	GC	General Commercial	Vacant	Disturbed	0.14	398-384-02	Urban Neighborhood	No; Disturbed vegetation community
74686	POA	Professional and Administrative Office	Vacant	Disturbed	0.14	398-384-03	Urban Neighborhood	No; Disturbed vegetation community
74692	GC	General Commercial	Vacant	Disturbed	0.26	398-384-09	Urban Neighborhood	No; Disturbed vegetation community
74693	GC	General Commercial	Vacant	Disturbed	0.29	398-384-15	Urban Neighborhood	No; Disturbed vegetation community

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
74694	LR-7	Low Density Residential	Vacant	Disturbed	0.14	398-384-11	Urban Neighborhood	No; Disturbed vegetation community
74695	LR-7	Low Density Residential	Vacant	Disturbed	0.14	398-384-12	Urban Neighborhood	No; Disturbed vegetation community
74696	LR-7	Low Density Residential	Vacant	Disturbed	0.21	398-384-17	Urban Neighborhood	No; Disturbed vegetation community
74697	LR-7	Low Density Residential	Vacant	Disturbed	0.16	398-384-17	Urban Neighborhood	No; Disturbed vegetation community
84970	OS	Open Space	Railroad	Developed	1.07	398-071-65	Open Space	No
84907	OS	Open Space	Railroad	Developed	0.40	000	Open Space	No
				Total	**3.15**			
Source: City of Santa Ana GIS, 2019; Carlson SLS, 2019.								

3.3.3 West Santa Ana Boulevard

The West Santa Ana Boulevard Focus Area consist of 28 parcels of Open Space designated parcels and no non-open space designated vacant parcels (Figure 7). The parcels total 148.11 acres. The focus area includes the Willowick Golf Course, Angels Community Park, and a portion of the Santa Ana River (SAR). Table 3 below summarizes the open space parcels found within the Focus Area Boundary.

Table 3. West Santa Ana Boulevard Focus Area Open Space Inventory

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
47033	OS	Open Space	Vacant	Disturbed	2.05	198-091-56	Open Space	No
47231	OS	Open Space	Vacant	Disturbed	3.55	198-211-03	Open Space	No
47286	OS	Open Space	Willowick Golf Course	Ornamental	1.23	198-233-11	Open Space	No

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
47295	OS	Open Space	Willowick Golf Course	Ornamental	0.52	198-281-09	Open Space	No
47296	OS	Open Space	Willowick Golf Course	Ornamental	0.74	198-281-10	Open Space	No
47297	OS	Open Space	Willowick Golf Course	Ornamental	1.02	198-281-11	Open Space	No
47298	OS	Open Space	Willowick Golf Course	Ornamental	1.01	198-281-12	Open Space	No
47299	OS	Open Space	Willowick Golf Course	Ornamental	2.02	198-281-13	Open Space	No
47300	OS	Open Space	Willowick Golf Course	Ornamental	1.01	198-281-14	Open Space	No
47301	OS	Open Space	Willowick Golf Course	Ornamental	0.96	198-281-15	Open Space	No
47302	OS	Open Space	Willowick Golf Course	Ornamental	1.58	198-281-16	Open Space	No
47317	OS	Open Space	Willowick Golf Course	Ornamental	0.19	198-282-01	Open Space	No
47318	OS	Open Space	Willowick Golf Course	Ornamental	0.60	198-282-02	Open Space	No
47319	OS	Open Space	Willowick Golf Course	Ornamental	0.56	198-291-01	Open Space	No
47320	OS	Open Space	Vacant	Disturbed	5.65	198-291-02	Open Space	No
47321	OS	Open Space	Willowick Golf Course	Ornamental	0.02	198-291-03	Open Space	No
47322	OS	Open Space	Willowick Golf Course	Ornamental	3.78	198-291-04	Open Space	No

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
47323	OS	Open Space	Willowick Golf Course	Ornamental	0.20	198-291-05	Open Space	No
47324	OS	Open Space	Willowick Golf Course	Ornamental	0.45	198-291-06	Open Space	No
47325	OS	Open Space	Willowick Golf Course	Ornamental	0.63	198-291-07	Open Space	No
47326	OS	Open Space	Willowick Golf Course	Ornamental	94.44	198-291-08	Open Space	No
65826	OS	Open Space	Vacant	Disturbed	1.45	007-022-26	Open Space	No
66037	OS	Open Space	Concrete SAR	Developed	14.51	198-151-35	Open Space	No
66085	OS	Open Space	Vacant	Disturbed	2.18	402-221-05	Open Space	No
66094	OS	Open Space	Vacant	Disturbed	1.09	405-241-02	Open Space	No
66102	OS	Open Space	Vacant	Disturbed	1.92	007-100-08	Open Space	No
66170	OS	Open Space	Vacant	Disturbed	3.02	007-120-48	Open Space	No
77919	OS	Open Space	Angels Community Park	Ornamental	1.72	405-164-01	Open Space	No
				Total	**148.11**			

Source: City of Santa Ana GIS, 2019; Carlson SLS, 2019.

3.3.4 55 Freeway/Dyer Road

The 55 Freeway/Dyer Road Focus Area consist of 7 parcels of Open Space designated and 3 parcels of Non-Open Space designated parcels (Figure 8). The parcels total 6.22 acres. Table 4 below provides the open space and vacant non-open space designated parcels found within the Focus Area Boundary.

Table 4. 55 Freeway/Dyer Road Focus Area Open Space Inventory

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
78591	OS	Open Space	Railroad	Developed	0.70	000	Open Space	No
78706	PAO	Professional and Administrative Office	Vacant	Ruderal	1.75	016-221-27	Industrial	No; Ruderal vegetation community
78707	PAO	Professional and Administrative Office	Vacant	Ruderal	0.81	016-221-28	Industrial	No; Ruderal vegetation community
78708	PAO	Professional and Administrative Office	Vacant	Ruderal	0.27	016-221-29	Industrial	No; Ruderal vegetation community
78904	OS	Open Space	Concrete Channel	Developed	0.04	411-141-05	Open Space	No
78905	OS	Open Space	Vacant	Ruderal	0.07	411-141-06	Open Space	No
79053	OS	Open Space	Railroad	Developed	0.98	411-131-20	Open Space	No
84986	OS	Open Space	Railroad	Developed	0.01	000	Open Space	No
85358	OS	Open Space	Railroad	Developed	0.56	000	Open Space	No
85519	OS	Open Space	Concrete channel/ Freeway	Developed	1.04	000	Open Space	No
				Total	**6.22**			

Source: City of Santa Ana GIS, 2019; Carlson SLS, 2019.

3.3.5 South Bristol Street

The South Bristol Street Focus Area consist of 10 parcels of Open Space designated land use (Figure 9) and no vacant non-open space designated parcels. The parcels total 6.94 acres. Table 5 below provides the open space designated parcels found within the Focus Area Boundary.

Table 5. South Bristol Street Focus Area Open Space Inventory

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
54311	OS	Open Space	Concrete Channel	Developed	1.05	412-141-05	Open Space	No

City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Vegetation Community	Acreage (acres)	APN	Proposed General Plan Designation	Impact
71079	OS	Open Space	Concrete Channel	Developed	2.57	000	Open Space	No
72061	OS	Open Space	Concrete Channel - Parking lot	Developed	0.27	410-301-09	Open Space	No
72537	OS	Open Space	Linear Park	Ornamental	0.18	410-223-07	Open Space	No
84946	OS	Open Space	Railroad	Developed	0.67	Portion of 000	Open Space	No
84953	OS	Open Space	Railroad	Developed	0.60	Portion of 000	Open Space	No
84954	OS	Open Space	Concrete Channel	Developed	1.30	000	Open Space	No
84955	OS	Open Space	Underground Channel - Turf	Developed	0.18	412-131-27	Open Space	No
85349	OS	Open Space	Railroad	Developed	0.11	Portion of 000	Open Space	No
85350	OS	Open Space	Linear Park	Ornamental	0.01	Portion of 410-223-07	Open Space	No
				Total	**6.94**			

Source: City of Santa Ana GIS, 2019; Carlson SLS, 2019.

4.0 Impact Analysis

Following the Biological and Natural Resource inventory an impact analysis was conducted for each Focus Area. For each parcel analyzed, a determination was made whether the proposed change in land use from existing land use to proposed land use would cause a biological impact. The results of that analysis, summarized on the preceding tables and in the discussion below, determined that the proposed change in land uses would not cause a significant biological impact. The parcels outside of the Focus Areas are summarized in Appendix A. None of the parcels outside of the Focus Areas with a non-open space land use designation have sensitive habitat or any indication that a biological impact would occur if developed.

The inventory of existing conditions determined that no parcels with a proposed land use designation that allows for development (i.e. not an open space designation) currently has sensitive vegetation. All parcels currently have ruderal vegetation and little to no biological value. Therefore, there is no current indication that future development in accordance with the

proposed General Plan Update would have significant unavoidable biological impacts. However, a complete biological analysis of each parcel has not been conducted. Therefore, there is a potential that site-specific analysis would reveal biological resources not identified in this report. Additionally, biological resources change over time. Therefore, there is a potential for biological impacts associated with implementation of the General Plan Update that could require mitigation.

4.1 Overall City Biological Inventory

The parcels identified as open space or vacant parcels within the SOI area propose no change in General Plan Land Use Designations; therefore, no impacts would occur from the proposed General Plan Update. The remaining balance of parcels identified as open space or vacant parcels within the City limits propose no change in General Plan Land Use Designation.

The parcels outside of the Focus Areas are summarized in Appendix A. Since none of the parcels outside of the Focus Areas have a proposed land use change as part of this General Plan Update, they are not included in the following discussion. However, it is important to note that none of the parcels outside of the Focus Areas with a non-open space land use designation have sensitive habitat, native habitat, or any indication at this time that a biological impact would occur if developed.

No sensitive or native habitat occur within the non-open space land use designated parcels within the SOI and City limits; however, a complete site-specific biological analysis was not conducted. Therefore, there may be potential for biological impacts, such as to nesting birds.

4.2 Focus Areas Impacts

4.2.1 South Main Street

The South Main Street Focus Area does not contain any Open Space designated parcels or vacant lots. Furthermore, due to the built nature of this Focus Area, no impacts will occur with the proposed changes in General Plan Designations.

4.2.2 Grand Avenue/17th Street

Of the total eleven parcels identified within the Grand Avenue/17th Street Focus Area, nine parcels are changed as part of the General Plan Update. The nine parcels would change the land use designation to Urban Neighborhood. Since the changes proposed are developable uses (Professional and Administration Office, General Commercial and Low Density Residential) to Industrial, both which are developable land uses, no impact would occur from the proposed land use change. Further, the vegetation community observed within these parcels is disturbed, which is not native or considered a sensitive vegetation community. Since the nine parcels for the

proposed General Plan Update changes occur to non-native communities, these impacts are not considered significant. The remaining two parcels are designated Open Space and the proposed General Plan Update does not propose any revisions to the existing land use designation; therefore, no impacts will occur.

4.2.3 West Santa Ana Boulevard

All parcels identified within the West Santa Ana Boulevard Focus Area are designated Open Space. The proposed General Plan Update does not propose any revisions to the existing land use designations; therefore, no impact would occur.

4.2.4 55 Freeway/Dyer Road

The parcels identified within 55 Freeway/Dyer Road Focus Area contain three parcels that have General Plan Land Use Designation changes. These three parcels, City identification numbers 78706, 78707, and 7808, are currently designated as Professional and Administrative Office. The proposed General Plan Update would change the land use designation for these parcels to Industrial. Since the proposed change in land use designation from Professional and Administration Office to Industrial are both developable land uses, no impact would occur from the proposed land use change. Furthermore, the vegetation community observed within these parcels is ruderal, which is not native or considered a sensitive vegetation community. Since the three parcels for the proposed General Plan Update changes occur to non-native communities, these impacts are not considered significant. The remaining parcels identified within the 55 Freeway/Dyer Road Focus Area do not have a change to General Plan land use designation and therefore, no impacts will occur.

4.2.5 South Bristol Street

All parcels identified within South Bristol Street Focus Area are designated Open Space. The proposed General Plan Update does not propose any revisions to the existing land use designations; therefore, no impacts would occur.

While the inventory of existing conditions determined that no parcels with a proposed land use designation that allows for development (i.e. not an open space designation) currently has sensitive vegetation. These parcels currently have ruderal vegetation and little to no biological value. Therefore, there is no current indication that future development in accordance with the General Plan Update would have significant unavoidable biological impacts. However, a complete biological analysis of each parcel has not been conducted and there is a potential for biological impacts, such as to nesting birds, that could require mitigation.

4.3 Regulatory Requirements and Mitigation Measures

Regulatory requirements that would protect biological resources include:

- The Federal Endangered Species Act (FESA): THE FESA protects and conserves any species of plant or animal that is endangered or threatened with extinction, as well as the habitats where these species are found. Take of endangered species is prohibited under Section 9 of the FESA.
- Clean Water Act (CWA): The United States Army Corps of Engineers (Corps) regulates discharge of dredged or fill material into "waters of the United States." Any filling or dredging within waters of the United States requires a permit pursuant to the CWA, which entails assessment of potential adverse impacts to Corps wetlands and jurisdictional waters.
- California Fish and Game Code: Section 1600 of the California Fish and Game Code requires a project proponent to notify the California Department of Fish and Wildlife (CDFW) of any proposed alteration of streambeds, rivers, and lakes. Additionally, migratory nongame native bird species are protected by the California Fish and Game Code, Sections 3503, 3503.5, and 3513, which prohibit the take of all birds and their active nests. Compliance with the California Fish and Game Code ensures that if construction occurs during the avian breeding season, appropriate measures would be taken to avoid impacts to nesting birds. The Code requires preconstruction surveys. The surveys would be conducted no more than three days prior to construction activities. If an active bird nest is observed, the surveyor/biologist determines the appropriate buffer around the nest. Buffers are determined on species-specific requirements and nest location. No construction activity would occur within the buffer zone until the nest is vacated, juveniles have fledged, and there is no evidence of a second attempt at nesting.
- The California Endangered Species Act (CESA): The CESA generally parallels the main provisions of the FESA. Its intent is to prohibit take and protect state-listed endangered and threatened species of fish, wildlife, and plants.
- Santa Ana Municipal Code: Chapter 33, Article VII, *Regulation of the Planting, Maintenance, and Removal of Trees*, of the City's municipal code establishes regulations and standards necessary to protect publicly owned trees.

While regulatory requirements would protect potential biological resources the following mitigation measure is required to reduce the impacts to less than significant:

Mitigation Measure 1: For development or redevelopment projects that would disturb vegetated land and is subject to CEQA, a qualified biologist shall conduct an initial screening to determine whether a site-specific biological resource report is warranted. If needed, a qualified biologist shall conduct a field survey for the site and prepare a biological resource assessment for the project, including an assessment of potential impacts to sensitive species, habitat and jurisdictional waters. The report shall recommend mitigation measures as appropriate, to avoid or limit potential biological resource impacts to less than significant.

5.0 Summary

CSLS identified a total of 499 parcels designated as Open Space land use within the City boundary. An additional 135 parcels were identified as vacant, or contain natural resources, and not designated Open Space.

In additional to those parcels identified within the City boundary, an additional 4 parcels, consisting of 83.37 acres, were identified as vacant parcels located outside of the City boundary but within the SOI boundary. The SOI parcels include vacant parcels found within the concrete lined Santa Ana River.

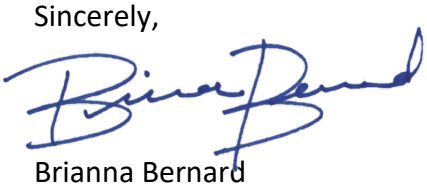
Of the total parcels identified, the CSLS inventory identified a total of 59 parcels, either vacant or designated open space, within the five specified focus areas. The 59 parcels within the five focused areas total 164.42 acres of open space and vacant parcels. Of those 59 parcels, 47 parcels are designated Open Space by the existing General Plan Land Use Map. With the proposed General Plan Update all 47 parcels remain designated Open Space. Therefore, no designated open space would change to developable land uses and no impacts would occur. The remaining twelve parcels currently have developable land use designations (Professional and Administrative Office, General Commercial, or Low Density Residential) and are proposed to change to other developable land use designations (Industrial and Urban Neighborhood). Since both the existing and proposed land use designations permit developable land uses, no impacts would occur.

While the inventory of existing conditions determined that no parcels with a proposed land use designation that allows for development (i.e. not an open space designation) currently has sensitive vegetation. All parcels currently have ruderal vegetation and little to no biological value. Therefore, there is no current indication that future development of the vacant parcels would have significant unavoidable biological impacts. However, a complete biological analysis of each parcel has not been conducted and there is a potential for biological impacts, such as to nesting

birds, that could require mitigation. Regulatory requirements and Mitigation Measure 1 would reduce impacts to less than significant.

If you have any questions, please feel free to contact me at bbernard@carlsonsls.com or at (916) 218-2644.

Sincerely,



Brianna Bernard
Project Manager

Enclosures

Figures

- Figure 1: Site Location Map
- Figure 2: Study Area Map
- Figure 3: General Plan Designated Open Space Parcels and Vacant Parcels
- Figure 4: Santa Ana River Sphere of Influence Open Space Inventory
- Figure 5: South Main Street Focus Area Open Space Inventory
- Figure 6: Grand Avenue/ 17th Street Focus Area Open Space Inventory
- Figure 7: West Santa Ana Boulevard Focus Area Open Space Inventory
- Figure 8: 55 Freeway/Dyer Road Focus Area Open Space Inventory
- Figure 9: South Bristol Street Focus Area Open Space Inventory

Attachments

- Attachment A: Citywide Biological Inventory Excel Sheet

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Figures

City of Garden Grove

City of Orange

City of Santa Ana

City of Fountain Valley

City of Costa Mesa

City of Irvine

City of Tustin

Legend

- City of Santa
- Sphere of Influence

Surrounding Cities

- Costa Mesa
- Fountain Valley
- Garden Grove
- Irvine
- Orange
- Tustin
- Unincorporated County of Orange

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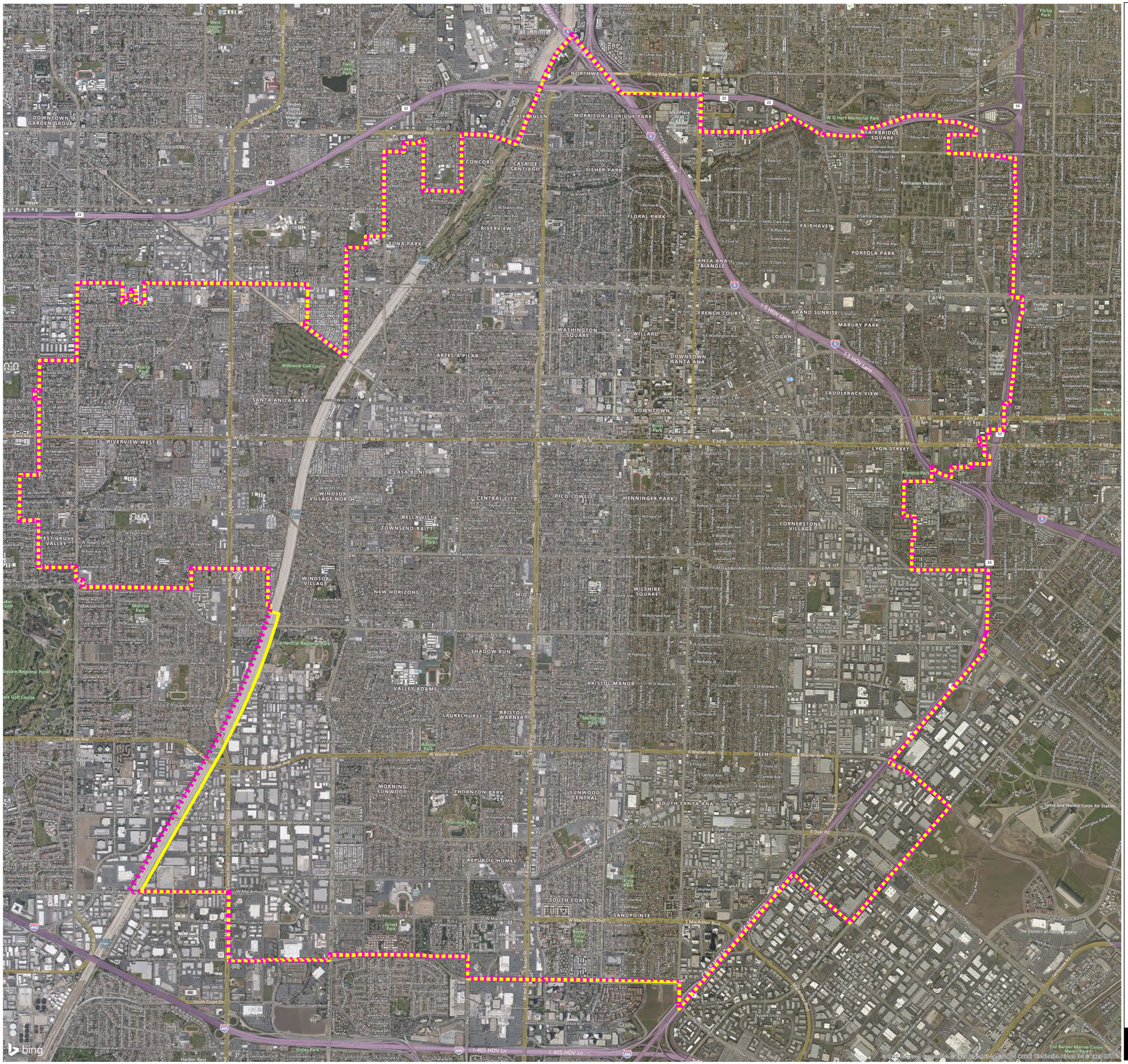
Miles

Created: June 24, 2019

Location Map

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Figure 1



Legend

City of Santa Ana Boundary

Sphere of Influence

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Created: June 24, 2019

Study Area Map

Figure 2

General Plan Designated Open Space Parcels and Vacant Parcels

- Sphere of Influence
- Santa Ana City Boundary
- Existing Plans

Working Focus Areas

- 55 Freeway/Dyer Road
- Grand Avenue/17th Street
- South Main Street
- West Santa Ana Boulevard
- South Bristol Street

Habitat Classification

- Riparian
- Unvegetated Streambed
- Oak Woodland
- Ornamental
- Ruderal
- Disturbed
- Developed

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Created: April 2, 2020

Open Space Inventory

Figure 3

General Plan Open Space Inventory

Sphere of Influence

Santa Ana City Boundary

Existing Plans

Sphere of Influence

Santa Ana River

General Plan Designated Open Space Habitat Classification

Riparian

Unvegetated Streambed

Oak Woodland

Ornamental

Ruderal

Disturbed

Developed

Vacant Parcels Non-Open Space Designated Habitat Classification

Ornamental

Ruderal

Disturbed

Developed

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Feet

Created: June 20, 2019

Santa Ana River
Sphere of Influence
Open Space Inventory

Figure 4

General Plan Open Space Inventory

- Sphere of Influence
- Santa Ana City
- Existing Plans

Working Focus Area

- South Main Street

General Plan Designated Open Space Habitat Classification

- Riparian
- Unvegetated Streambed
- Oak Woodland
- Ornamental
- Ruderal
- Disturbed
- Developed

Vacant Parcels Non-Open Space Designated Habitat Classification

- Ornamental
- Ruderal
- Disturbed
- Developed

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Feet

Created: April 1, 2020

South Main Street
Focus Area
Open Space Inventory

Figure 5

General Plan Open Space Inventory

Santa Ana City Boundary

Sphere of Influence

Existing Plans

Working Focus Area

Grand Avenue/17th Street

General Plan Designated Open Space Habitat Classification

Riparian

Unvegetated Streambed

Oak Woodland

Ornamental

Ruderal

Disturbed

Developed

Vacant Parcels Non-Open Space Designated Habitat Classification

Ornamental

Ruderal

Disturbed

Developed

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Feet

Created: April 1, 2020

Grand Avenue/17th Street
Focus Area
Open Space Inventory

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Figure 6

General Plan Open Space Inventory

Sphere of Influence

Santa Ana City Boundary

Existing Plans

Working Focus Area

West Santa Ana Boulevard

General Plan Designated Open Space Habitat Classification

Riparian

Unvegetated Streambed

Oak Woodland

Ornamental

Ruderal

Disturbed

Developed

Vacant Parcels Non-Open Space Designated Habitat Classification

Ornamental

Ruderal

Disturbed

Developed

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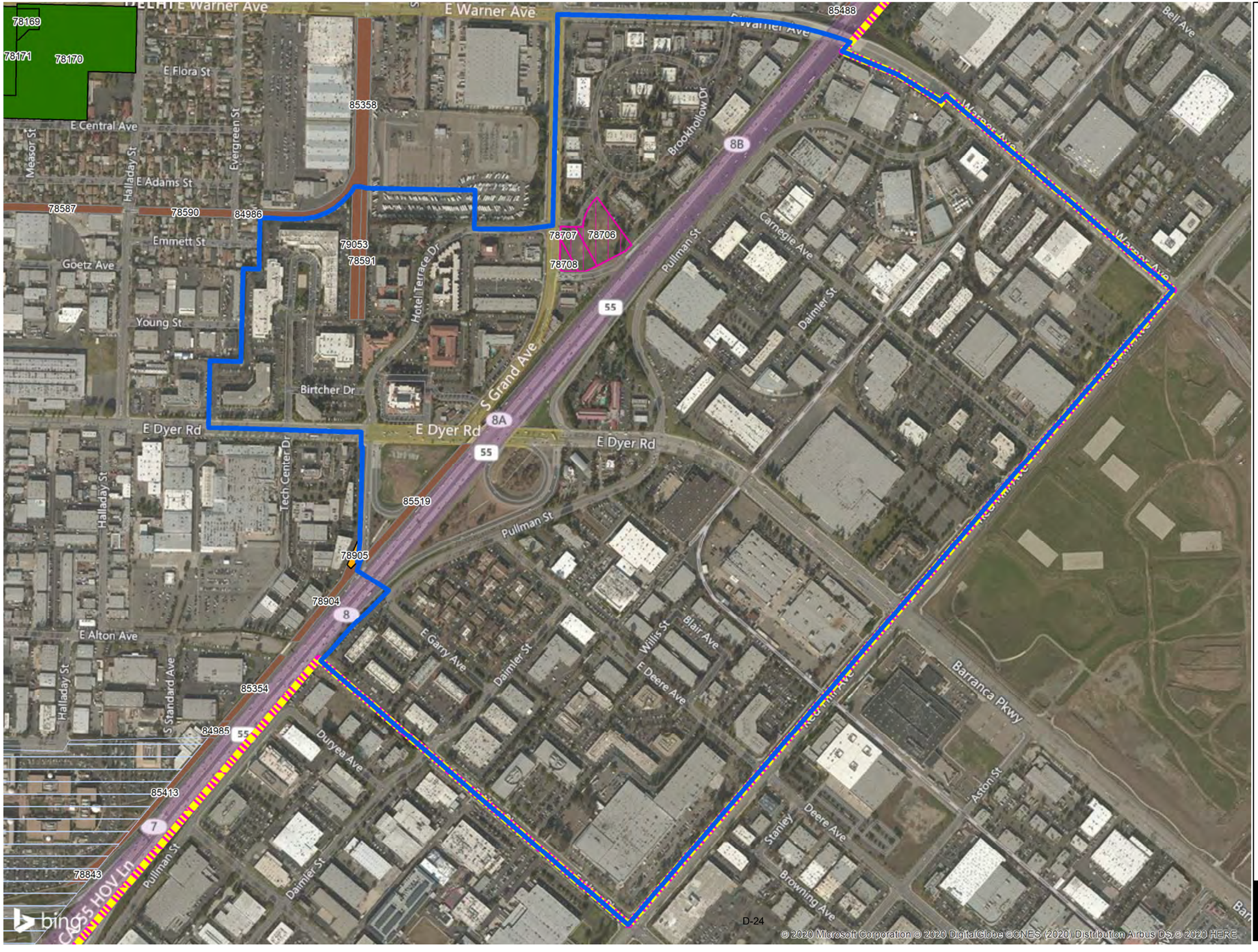
0 550 1,100 2,200

Feet

Created: April 1, 2020

West Santa Ana Boulevard
Focus Area
Open Space Inventory

Figure 7



General Plan Open Space Inventory

Sphere of Influence

Santa Ana City Boundary

Existing Plans

Working Focus Area

55 Freeway/Dyer Road

General Plan Designated Open Space Habitat Classification

Riparian

Unvegetated Streambed

Oak Woodland

Ornamental

Ruderal

Disturbed

Developed

Vacant Parcels Non-Open Space Designated Habitat Classification

Ornamental

Ruderal

Disturbed

Developed

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Feet

Created: April 1, 2020

55 Freeway/Dyer Road
Focus Area
Open Space Inventory

Figure 8

General Plan Open Space Inventory

Sphere of Influence

Santa Ana City Boundary

Existing Plans

Working Focus Area

South Bristol Street

General Plan Designated Open Space Habitat Classification

Riparian

Unvegetated Streambed

Oak Woodland

Ornamental

Ruderal

Disturbed

Developed

Vacant Parcels Non-Open Space Designated Habitat Classification

Ornamental

Ruderal

Disturbed

Developed

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Created: April 1, 2020

South Bristol Street
Focus Area
Open Space Inventory

Figure 9

Attachment A: Citywide Inventory

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
1	43089	OS	Open Space	Park/Trail adjacent to Santiago Creek	Oak Woodland	3.79	
2	43948	OS	Open Space	Concrete lined Channel	Developed	0.45	
3	43971	OS	Open Space	River View Golf Course	Ornamental	0.00	
4	44055	OS	Open Space	Neighborhood Park	Ornamental	0.15	
5	44056	OS	Open Space	Neighborhood Park	Ornamental	0.15	
6	44057	OS	Open Space	Neighborhood Park	Ornamental	0.15	
7	44058	OS	Open Space	Neighborhood Park	Ornamental	0.15	
8	44060	OS	Open Space	Neighborhood Park	Ornamental	0.17	
9	44061	OS	Open Space	Neighborhood Park	Ornamental	0.15	
10	44062	OS	Open Space	Neighborhood Park	Ornamental	0.16	
11	44063	OS	Open Space	Neighborhood Park	Ornamental	0.19	
12	44094	OS	Open Space	River View Golf Course	Ornamental	0.26	
13	44110	OS	Open Space	Morrison Park - Tennis Courts	Developed	1.08	
14	44258	OS	Open Space	Morrison Park - Ornamental	Ornamental	4.79	
15	44262	OS	Open Space	Santiago Creek Trail	Oak Woodland	0.55	
16	44421	OS	Open Space	Cemetery	Developed	10.32	
17	44422	OS	Open Space	Cemetery	Developed	0.36	
18	44500	OS	Open Space	Santiago Creek Trail	Ornamental	4.60	
19	44501	OS	Open Space	Santiago Creek	Riparian	1.75	
20	44502	OS	Open Space	Santiago Creek Trail	Oak Woodland	1.99	
21	44503	OS	Open Space	Santiago Creek Trail	Oak Woodland	0.37	
22	44504	OS	Open Space	Santiago Creek Trail	Oak Woodland	0.16	
23	44505	OS	Open Space	Santiago Creek Trail	Oak Woodland	0.47	
24	45365	OS	Open Space	Rosita Park	Ornamental	3.86	
25	45918	OS	Open Space	River View Golf Course	Ornamental	1.96	
26	47033	OS	Open Space	Vacant	Disturbed	2.05	West Santa Ana Boulevard Focus Area
27	47231	OS	Open Space	Vacant	Disturbed	3.55	West Santa Ana Boulevard Focus Area
28	47286	OS	Open Space	Willowick Golf Course	Ornamental	1.23	West Santa Ana Boulevard Focus Area
29	47295	OS	Open Space	Willowick Golf Course	Ornamental	0.52	West Santa Ana Boulevard Focus Area
30	47296	OS	Open Space	Willowick Golf Course	Ornamental	0.74	West Santa Ana Boulevard Focus Area
31	47297	OS	Open Space	Willowick Golf Course	Ornamental	1.02	West Santa Ana Boulevard Focus Area
32	47298	OS	Open Space	Willowick Golf Course	Ornamental	1.01	West Santa Ana Boulevard Focus Area
33	47299	OS	Open Space	Willowick Golf Course	Ornamental	2.02	West Santa Ana Boulevard Focus Area
34	47300	OS	Open Space	Willowick Golf Course	Ornamental	1.01	West Santa Ana Boulevard Focus Area
35	47301	OS	Open Space	Willowick Golf Course	Ornamental	0.96	West Santa Ana Boulevard Focus Area
36	47302	OS	Open Space	Willowick Golf Course	Ornamental	1.58	West Santa Ana Boulevard Focus Area
37	47317	OS	Open Space	Willowick Golf Course	Ornamental	0.19	West Santa Ana Boulevard Focus Area
38	47318	OS	Open Space	Willowick Golf Course	Ornamental	0.60	West Santa Ana Boulevard Focus Area
39	47319	OS	Open Space	Willowick Golf Course	Ornamental	0.56	West Santa Ana Boulevard Focus Area
40	47320	OS	Open Space	Vacant	Disturbed	5.65	West Santa Ana Boulevard Focus Area
41	47321	OS	Open Space	Willowick Golf Course	Ornamental	0.02	West Santa Ana Boulevard Focus Area
42	47322	OS	Open Space	Willowick Golf Course	Ornamental	3.78	West Santa Ana Boulevard Focus Area
43	47323	OS	Open Space	Willowick Golf Course	Ornamental	0.20	West Santa Ana Boulevard Focus Area

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
44	47324	OS	Open Space	Willowick Golf Course	Ornamental	0.45	West Santa Ana Boulevard Focus Area
45	47325	OS	Open Space	Willowick Golf Course	Ornamental	0.63	West Santa Ana Boulevard Focus Area
46	47326	OS	Open Space	Willowick Golf Course	Ornamental	94.44	West Santa Ana Boulevard Focus Area
47	47527	OS	Open Space	Concrete Channel	Developed	1.16	
48	48973	OS	Open Space	RipRap Lined Channel	Developed	1.64	
49	49597	OS	Open Space	Heritage Park	Ornamental	4.70	
50	49739	OS	Open Space	Heritage Park	Ornamental	1.82	
51	49817	OS	Open Space	Concrete Channel	Developed	0.16	
52	50832	OS	Open Space	Santa Anita Park	Ornamental	4.47	
53	51784	OS	Open Space	Mabury Park	Ornamental	5.46	
54	51875	OS	Open Space	Cabrillo Park	Ornamental	3.61	
55	51876	OS	Open Space	Cabrillo Park	Ornamental	7.60	
56	53663	OS	Open Space	Water District Buidlings	Developed	1.30	
57	54194	OS	Open Space	Water District Buildings	Developed	5.00	
58	54284	OS	Open Space	Thornton Park	Ornamental	0.01	
59	54285	OS	Open Space	Thornton Park	Ornamental	21.31	
60	54286	OS	Open Space	Thornton Park	Ornamental	0.03	
61	54297	OS	Open Space	Thornton Park	Ornamental	0.01	
62	54298	OS	Open Space	Thornton Park	Ornamental	0.01	
63	54299	OS	Open Space	Thornton Park	Ornamental	11.34	
64	54311	OS	Open Space	Concrete Channel	Developed	1.05	South Bristol Street Focus Area
65	54342	OS	Open Space	Grislet Park	Ornamental	2.00	
66	54343	OS	Open Space	Grislet Park	Ornamental	4.79	
67	54562	OS	Open Space	Centennial Regional Park	Ornamental	9.39	
68	54564	OS	Open Space	Centennial Regional Park	Ornamental	1.81	
69	54565	OS	Open Space	Centennial Regional Park	Ornamental	8.60	
70	54566	OS	Open Space	Centennial Regional Park	Ornamental	3.51	
71	54567	OS	Open Space	Centennial Regional Park	Ornamental	8.83	
72	55926	OS	Open Space	Adams Park	Ornamental	5.68	
73	56118	OS	Open Space	Channel R/W	Disturbed	0.09	
74	56205	OS	Open Space	Concrete Channel	Developed	0.36	
75	56231	OS	Open Space	Channel R/W	Disturbed	0.47	
76	56232	OS	Open Space	Channel R/W	Disturbed	0.84	
77	56290	OS	Open Space	Concrete Channel	Developed	0.10	
78	56300	OS	Open Space	Concrete/Riprap Lined Channel	Developed	0.50	
79	56312	OS	Open Space	Concrete/Riprap Lined Channel	Developed	0.33	
80	56488	OS	Open Space	Concrete/Riprap Lined Channel	Developed	0.04	
81	56611	OS	Open Space	Vacant	Disturbed	0.19	
82	56628	OS	Open Space	Vacant	Disturbed	0.19	
83	56629	OS	Open Space	Vacant	Disturbed	0.19	
84	56646	OS	Open Space	Vacant	Disturbed	0.19	
85	56647	OS	Open Space	Vacant	Disturbed	0.17	
86	56664	OS	Open Space	Vacant	Disturbed	0.16	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
87	56665	OS	Open Space	Vacant	Disturbed	0.16	
88	56682	OS	Open Space	Vacant	Disturbed	0.16	
89	56683	OS	Open Space	Vacant	Disturbed	0.16	
90	56970	OS	Open Space	Riprap Lined Channel	Developed	0.46	
91	57069	OS	Open Space	Riprap Lined Channel	Developed	0.74	
92	59311	OS	Open Space	Memorial Park	Ornamental	15.49	
93	59403	OS	Open Space	Vacant	Disturbed	0.15	
94	59483	OS	Open Space	Vacant	Disturbed	0.12	
95	59484	OS	Open Space	Vacant	Disturbed	0.14	
96	59485	OS	Open Space	Vacant	Disturbed	0.14	
97	59486	OS	Open Space	Vacant	Disturbed	0.15	
98	59487	OS	Open Space	Developed	Developed	0.15	
99	59488	OS	Open Space	Developed	Developed	0.15	
100	59489	OS	Open Space	Vacant	Disturbed	0.13	
101	59497	OS	Open Space	Developed	Developed	0.26	
102	59641	OS	Open Space	Vacant	Disturbed	0.15	
103	60380	OS	Open Space	Park	Ornamental	0.15	
104	60422	OS	Open Space	Concrete Channel	Developed	0.46	
105	60423	OS	Open Space	Jerome Park	Ornamental	9.37	
106	60590	OS	Open Space	Vacant	Disturbed	0.11	
107	60591	OS	Open Space	Vacant	Disturbed	0.10	
108	60592	OS	Open Space	Vacant	Disturbed	0.10	
109	60593	OS	Open Space	Vacant	Disturbed	0.10	
110	60594	OS	Open Space	Vacant	Disturbed	0.10	
111	60595	OS	Open Space	Vacant	Disturbed	0.10	
112	60596	OS	Open Space	Vacant	Disturbed	0.10	
113	60597	OS	Open Space	Vacant	Disturbed	0.10	
114	60598	OS	Open Space	Vacant	Disturbed	0.10	
115	60599	OS	Open Space	Vacant	Disturbed	0.10	
116	60864	OS	Open Space	Concrete Channel	Developed	0.31	
117	60865	OS	Open Space	Concrete Channel	Developed	0.27	
118	60954	OS	Open Space	Jerome Park	Ornamental	2.73	
119	60955	OS	Open Space	Jerome Park	Ornamental	1.49	
120	60956	OS	Open Space	Jerome Park	Ornamental	0.62	
121	60957	OS	Open Space	Jerome Park	Ornamental	3.72	
122	60994	OS	Open Space	Riprap Channel	Developed	0.69	
123	61372	OS	Open Space	Channel R/W	Disturbed	0.28	
124	61720	OS	Open Space	Riprap Channel	Developed	0.64	
125	61721	OS	Open Space	Riprap Channel	Developed	0.48	
126	62004	OS	Open Space	Channel R/W	Disturbed	0.03	
127	62005	OS	Open Space	Channel R/W	Disturbed	0.10	
128	62180	OS	Open Space	Riprap Channel	Developed	0.64	
129	62817	OS	Open Space	Park	Ornamental	10.48	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
130	63029	OS	Open Space	Concrete Channel	Developed	0.66	
131	63412	OS	Open Space	Concrete Channel	Developed	0.70	
132	63619	OS	Open Space	Concrete Channel	Developed	0.11	
133	64158	OS	Open Space	Vacant	Disturbed	0.10	
134	64159	OS	Open Space	Vacant	Disturbed	0.10	
135	64160	OS	Open Space	Vacant	Disturbed	0.10	
136	64161	OS	Open Space	Vacant	Disturbed	0.10	
137	64162	OS	Open Space	Vacant	Disturbed	0.10	
138	64163	OS	Open Space	Vacant	Disturbed	0.10	
139	64164	OS	Open Space	Vacant	Disturbed	0.10	
140	64165	OS	Open Space	Vacant	Disturbed	0.10	
141	64166	OS	Open Space	Vacant	Disturbed	0.10	
142	64167	OS	Open Space	Vacant	Disturbed	0.10	
143	64168	OS	Open Space	Vacant	Disturbed	0.10	
144	64231	OS	Open Space	Concrete Channel	Developed	0.11	
145	64264	OS	Open Space	Concrete Channel	Developed	0.87	
146	64265	OS	Open Space	Concrete Channel	Developed	0.57	
147	64266	OS	Open Space	Linear Park	Ornamental	0.09	
148	64462	OS	Open Space	Linear Park	Ornamental	0.14	
149	64802	OS	Open Space	Linear Park	Ornamental	0.07	
150	65826	OS	Open Space	Vacant	Disturbed	1.45	West Santa Ana Boulevard Focus Area
151	65997	OS	Open Space	Concrete SAR	Developed	10.54	
152	66037	OS	Open Space	Concrete SAR	Developed	31.92	West Santa Ana Boulevard Focus Area (14.51 ac)
153	66085	OS	Open Space	Vacant	Disturbed	2.18	West Santa Ana Boulevard Focus Area
154	66094	OS	Open Space	Vacant	Disturbed	1.09	West Santa Ana Boulevard Focus Area
155	66102	OS	Open Space	Vacant	Disturbed	1.92	West Santa Ana Boulevard Focus Area
156	66170	OS	Open Space	Vacant	Disturbed	3.02	West Santa Ana Boulevard Focus Area
157	66469	OS	Open Space	Vacant	Disturbed	0.44	
158	66470	OS	Open Space	Vacant	Disturbed	0.57	
159	66487	OS	Open Space	Concrete Channel	Developed	0.89	
160	67201	OS	Open Space	El Salvador Park	Ornamental	4.56	
161	67474	OS	Open Space	Developed	Developed	0.16	
162	67507	OS	Open Space	Vacant	Disturbed	0.15	
163	67508	OS	Open Space	Vacant	Disturbed	0.16	
164	67553	OS	Open Space	Vacant	Disturbed	0.11	
165	70026	OS	Open Space	Cemetery	Developed	0.07	
166	70027	OS	Open Space	Cemetery	Developed	1.66	
167	70028	OS	Open Space	Cemetery	Developed	0.27	
168	70029	OS	Open Space	Cemetery	Developed	2.02	
169	70030	OS	Open Space	Cemetery	Developed	0.77	
170	70031	OS	Open Space	Cemetery	Developed	1.43	
171	70032	OS	Open Space	Cemetery	Developed	1.43	
172	70043	OS	Open Space	Cemetery	Developed	1.64	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
173	70044	OS	Open Space	Cemetery	Developed	2.82	
174	70045	OS	Open Space	Cemetery	Developed	16.67	
175	70046	OS	Open Space	Cemetery	Developed	5.55	
176	70047	OS	Open Space	Cemetery	Developed	2.74	
177	70048	OS	Open Space	Cemetery	Developed	50.94	
178	70049	OS	Open Space	Cemetery	Developed	5.20	
179	70246	OS	Open Space	Portola Park	Ornamental	9.07	
180	71079	OS	Open Space	Concrete Channel	Developed	2.57	South Bristol Street Focus Area
181	71080	OS	Open Space	Riprap Channel	Developed	3.51	
182	71407	OS	Open Space	Little King Park	Ornamental	8.64	
183	71832	OS	Open Space	Sandpointe Park	Ornamental	0.68	
184	71833	OS	Open Space	Sandpointe Park	Ornamental	5.95	
185	72058	OS	Open Space	Bomo Coral Park	Ornamental	11.01	
186	72061	OS	Open Space	Concrete Channel - Parking lot	Developed	0.27	South Bristol Street Focus Area
187	72368	OS	Open Space	Bike Trail	Ornamental	0.09	
188	72465	OS	Open Space	Bike Trail	Ornamental	0.75	
189	72537	OS	Open Space	Linear Park	Ornamental	0.18	South Bristol Street Focus Area
190	72916	OS	Open Space	Concrete Channel	Developed	0.28	
191	73215	OS	Open Space	Park	Ornamental	0.17	
192	73635	OS	Open Space	Logan Park	Ornamental	0.41	
193	74079	OS	Open Space	Neighborhood Park	Ornamental	0.14	
194	74080	OS	Open Space	Neighborhood Park	Ornamental	0.14	
195	74094	OS	Open Space	Neighborhood Park	Ornamental	0.14	
196	74099	OS	Open Space	Neighborhood Park	Ornamental	0.14	
197	74265	OS	Open Space	Parking Lot	Developed	0.81	
198	74893	OS	Open Space	Railroad	Developed	1.27	
199	74896	OS	Open Space	Railroad	Developed	1.45	
200	74898	OS	Open Space	Railroad	Developed	0.07	
201	74899	OS	Open Space	Railroad	Developed	0.34	
202	74900	OS	Open Space	Railroad	Developed	0.53	
203	76616	OS	Open Space	Birch Park	Ornamental	2.66	
204	76934	OS	Open Space	Park	Ornamental	0.32	
205	76935	OS	Open Space	Park	Ornamental	0.60	
206	77245	OS	Open Space	Tennis Courts	Developed	3.54	
207	77681	OS	Open Space	Linear Park	Ornamental	0.06	
208	77682	OS	Open Space	Linear Park	Ornamental	0.04	
209	77688	OS	Open Space	Linear Park	Ornamental	0.23	
210	77818	OS	Open Space	Linear Park	Ornamental	0.08	
211	77919	OS	Open Space	Angels Community Park	Ornamental	1.72	West Santa Ana Boulevard Focus Area
212	78015	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.28	
213	78053	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.81	
214	78067	OS	Open Space	Turf	Ornamental	0.12	
215	78169	OS	Open Space	Delhi Park	Ornamental	0.49	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
216	78170	OS	Open Space	Delhi Park	Ornamental	10.44	
217	78171	OS	Open Space	Delhi Park	Ornamental	2.14	
218	78172	OS	Open Space	Delhi Park	Ornamental	0.64	
219	78282	OS	Open Space	Sidewalk	Developed	0.01	
220	78586	OS	Open Space	Railroad	Developed	1.28	
221	78587	OS	Open Space	Railroad	Developed	2.15	
222	78588	OS	Open Space	Railroad	Developed	1.73	
223	78589	OS	Open Space	Railroad	Developed	1.43	
224	78590	OS	Open Space	Railroad	Developed	0.68	
225	78591	OS	Open Space	Railroad	Developed	0.77	55 Freeway/Dyer Road Focus Area (0.70 ac)
226	78843	OS	Open Space	Concrete Channel	Developed	0.43	
227	78904	OS	Open Space	Concrete Channel	Developed	0.66	55 Freeway/Dyer Road Focus Area (0.04 ac)
228	78905	OS	Open Space	Vacant	Disturbed	0.15	55 Freeway/Dyer Road Focus Area (0.07 ac)
229	79053	OS	Open Space	Railroad	Developed	1.08	55 Freeway/Dyer Road Focus Area (0.98 ac)
230	79072	OS	Open Space	River View Golf Course	Ornamental	0.35	
231	79073	OS	Open Space	Natural Bottom SAR	Unvegetated with areas of Riparian	2.50	
232	79074	OS	Open Space	River View Golf Course	Ornamental	27.88	
233	79075	OS	Open Space	River View Golf Course	Ornamental	0.64	
234	79076	OS	Open Space	River View Golf Course	Ornamental	6.60	
235	79077	OS	Open Space	Park - adjacent SAR	Ornamental	0.01	
236	79078	OS	Open Space	Natural Bottom SAR	Unvegetated with areas of Riparian	30.88	
237	79079	OS	Open Space	Natural/Concrete SAR	Unvegetated and Developed	14.27	
238	79081	OS	Open Space	River View Golf Course	Ornamental	3.64	
239	79084	OS	Open Space	River View Golf Course	Ornamental	7.80	
240	79085	OS	Open Space	Riprap Channel	Developed	5.68	
241	79217	OS	Open Space	Linear Park	Ornamental	0.17	
242	79218	OS	Open Space	Linear Park	Ornamental	0.16	
243	79219	OS	Open Space	Linear Park	Ornamental	0.16	
244	79220	OS	Open Space	Linear Park	Ornamental	0.18	
245	79284	OS	Open Space	Developed	Developed	0.14	
246	79285	OS	Open Space	Developed	Developed	0.14	
247	79286	OS	Open Space	Developed	Developed	0.14	
248	79288	OS	Open Space	Developed	Developed	0.16	
249	79452	OS	Open Space	Developed	Developed	0.14	
250	79453	OS	Open Space	Developed	Developed	0.14	
251	79454	OS	Open Space	Developed	Developed	0.14	
252	79455	OS	Open Space	Developed	Developed	0.14	
253	79456	OS	Open Space	Developed	Developed	0.14	
254	79457	OS	Open Space	Developed	Developed	0.14	
255	79458	OS	Open Space	Developed	Developed	0.14	
256	79459	OS	Open Space	Developed	Developed	0.14	
257	79460	OS	Open Space	Developed	Developed	0.14	
258	79461	OS	Open Space	Developed	Developed	0.14	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
259	79462	OS	Open Space	Developed	Developed	0.14	
260	79642	OS	Open Space	Developed	Developed	0.14	
261	79725	OS	Open Space	Developed	Developed	0.14	
262	79726	OS	Open Space	Developed	Developed	0.14	
263	79727	OS	Open Space	Developed	Developed	0.14	
264	79728	OS	Open Space	Developed	Developed	0.14	
265	79729	OS	Open Space	Developed	Developed	0.14	
266	79730	OS	Open Space	Developed	Developed	0.14	
267	79731	OS	Open Space	Developed	Developed	0.14	
268	79732	OS	Open Space	Developed	Developed	0.14	
269	79733	OS	Open Space	Developed	Developed	0.20	
270	79745	OS	Open Space	River View Golf Course	Ornamental	0.26	
271	79854	OS	Open Space	River View Golf Course	Ornamental	0.69	
272	79990	OS	Open Space	Developed	Developed	0.17	
273	79991	OS	Open Space	Developed	Developed	0.17	
274	79992	OS	Open Space	Developed	Developed	0.17	
275	80829	OS	Open Space	Developed	Developed	0.16	
276	80830	OS	Open Space	Developed	Developed	0.17	
277	80831	OS	Open Space	Developed	Developed	0.17	
278	80832	OS	Open Space	Developed	Developed	0.17	
279	80833	OS	Open Space	Developed	Developed	0.17	
280	80839	OS	Open Space	Developed	Developed	0.16	
281	80840	OS	Open Space	Developed	Developed	0.17	
282	80856	OS	Open Space	Vacant	Disturbed	0.17	
283	82722	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.63	
284	82807	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.29	
285	82808	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.28	
286	82886	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.84	
287	83008	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.56	
288	83088	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.55	
289	83188	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.25	
290	83206	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.84	
291	83288	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.52	
292	83346	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.11	
293	83391	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.52	
294	84201	OS	Open Space	Madison Park	Ornamental	6.06	
295	84905	OS	Open Space	Channel	Developed	2.74	
296	84907	OS	Open Space	Railroad	Developed	0.99	Grand Avenue/17th Street Focus Area (0.40 ac)
297	84908	OS	Open Space	Railroad	Developed	0.84	
298	84914	OS	Open Space	Santiago Creek	Riparian	1.20	
299	84917	OS	Open Space	Railroad	Developed	2.26	
300	84918	OS	Open Space	Concrete Channel	Developed	5.19	
301	84921	OS	Open Space	Santiago Creek Park	Oak Woodland	0.38	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
302	84924	OS	Open Space	Riprap Channel	Developed	4.30	
303	84925	OS	Open Space	Concrete Channel	Developed	0.23	
304	84926	OS	Open Space	Concrete Channel	Developed	1.09	
305	84929	OS	Open Space	Concrete Channel	Developed	1.49	
306	84937	OS	Open Space	Railroad	Developed	1.88	
307	84938	OS	Open Space	Railroad	Developed	1.35	
308	84939	OS	Open Space	Railroad	Developed	0.95	
309	84940	OS	Open Space	Railroad	Developed	0.60	
310	84944	OS	Open Space	Riprap Channel	Developed	0.43	
311	84945	OS	Open Space	Riprap Channel	Developed	0.46	
312	84946	OS	Open Space	Railroad	Developed	0.67	South Bristol Street Focus Area
313	84949	OS	Open Space	Riprap Channel	Developed	3.29	
314	84950	OS	Open Space	Railroad	Developed	3.48	
315	84952	OS	Open Space	Railroad	Developed	2.62	
316	84953	OS	Open Space	Railroad	Developed	3.45	South Bristol Street Focus Area (0.60 ac)
317	84954	OS	Open Space	Concrete Channel	Developed	1.30	South Bristol Street Focus Area
318	84955	OS	Open Space	Underground Channel - Turf	Developed	0.18	South Bristol Street Focus Area
319	84958	OS	Open Space	Railroad	Developed	0.64	
320	84962	OS	Open Space	Railroad	Developed	1.11	
321	84963	OS	Open Space	Railroad	Developed	1.84	
322	84967	OS	Open Space	Santiago Creek	Riparian	3.80	
323	84968	OS	Open Space	Railroad	Developed	0.26	
324	84969	OS	Open Space	Railroad	Developed	0.18	
325	84970	OS	Open Space	Railroad	Developed	1.16	Grand Avenue/17th Street Focus Area (1.07 ac)
326	84972	OS	Open Space	Railroad	Developed	0.85	
327	84975	OS	Open Space	Railroad	Developed	2.90	
328	84978	OS	Open Space	Riprap Channel	Developed	1.19	
329	84979	OS	Open Space	Railroad	Developed	1.76	
330	84981	OS	Open Space	Railroad	Developed	3.49	
331	84983	OS	Open Space	Railroad	Developed	1.24	
332	84985	OS	Open Space	Concrete Channel	Developed	0.14	
333	84986	OS	Open Space	Railroad	Developed	0.16	55 Freeway/Dyer Road Focus Area (0.01 ac)
334	84991	OS	Open Space	Santiago Creek	Riparian	0.83	
335	84993	OS	Open Space	Concrete SAR	Developed	12.62	
336	84994	OS	Open Space	Centennial Regional Park	Ornamental	30.97	
337	84995	OS	Open Space	Centennial Regional Park	Ornamental	8.07	
338	84996	OS	Open Space	Centennial Regional Park	Ornamental	1.89	
339	84997	OS	Open Space	Centennial Regional Park	Ornamental	0.87	
340	84998	OS	Open Space	Centennial Regional Park	Ornamental	12.90	
341	84999	OS	Open Space	Centennial Regional Park	Ornamental	1.10	
342	85000	OS	Open Space	Riprap Channel	Developed	3.35	
343	85002	OS	Open Space	Centennial Regional Park	Ornamental	0.65	
344	85062	OS	Open Space	Railroad	Developed	1.32	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
345	85269	OS	Open Space	Riprap Channel	Developed	1.00	
346	85270	OS	Open Space	Concrete/Riprap Lined Channel	Developed	1.05	
347	85279	OS	Open Space	River View Golf Course	Ornamental	4.54	
348	85345	OS	Open Space	Vacant	Disturbed	0.17	
349	85346	OS	Open Space	Thorton Park- School	Ornamental	12.18	
350	85348	OS	Open Space	Concrete Channel	Developed	2.25	
351	85349	OS	Open Space	Railroad	Developed	4.61	South Bristol Street Focus Area (0.11 ac)
352	85350	OS	Open Space	Linear Park	Ornamental	0.01	South Bristol Street Focus Area
353	85354	OS	Open Space	Concrete Channel	Developed	0.54	
354	85358	OS	Open Space	Railroad	Developed	2.98	55 Freeway/Dyer Road Focus Area (0.56 ac)
355	85376	OS	Open Space	Cemetery	Developed	1.11	
356	85413	OS	Open Space	Concrete Channel	Developed	0.86	
357	85415	OS	Open Space	Concrete Channel	Developed	3.33	
358	85417	OS	Open Space	Santiago Creek Park	Oak Woodland	1.77	
359	85421	OS	Open Space	Developed	Developed	0.07	
360	85426	OS	Open Space	Santiago Creek Park	Oak Woodland	0.54	
361	85428	OS	Open Space	Railroad	Developed	1.37	
362	85429	OS	Open Space	Railroad	Developed	0.79	
363	85430	OS	Open Space	Railroad	Developed	0.42	
364	85437	OS	Open Space	River View Golf Course	Ornamental	10.09	
365	85442	OS	Open Space	Developed	Developed	0.16	
366	85444	OS	Open Space	Developed	Developed	0.16	
367	85448	OS	Open Space	Vacant	Disturbed	0.80	
368	85450	OS	Open Space	Vacant	Disturbed	0.26	
369	85452	OS	Open Space	Vacant	Disturbed	0.03	
370	85454	OS	Open Space	Santiago Creek Park	Oak Woodland	0.20	
371	85485	OS	Open Space	Concrete Channel	Developed	0.86	
372	85486	OS	Open Space	Concrete Channel	Developed	0.57	
373	85487	OS	Open Space	Concrete Channel	Developed	0.47	
374	85488	OS	Open Space	Concrete Channel	Developed	0.18	
375	85489	OS	Open Space	Railroad	Developed	0.35	
376	85490	OS	Open Space	Railroad	Developed	0.68	
377	85491	OS	Open Space	Railroad	Developed	0.57	
378	85492	OS	Open Space	Railroad	Developed	0.73	
379	85493	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.18	
380	85494	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.14	
381	85495	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.14	
382	85496	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.15	
383	85497	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.15	
384	85498	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.16	
385	85499	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.21	
386	85500	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.20	
387	85501	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.22	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
388	85502	OS	Open Space	Pacific Electric Bike Trail	Ornamental	0.20	
389	85503	OS	Open Space	Riprap Channel	Developed	2.38	
390	85504	OS	Open Space	Riprap Channel	Developed	2.57	
391	85505	OS	Open Space	Channel R/W	Disturbed	0.04	
392	85506	OS	Open Space	Concrete Channel	Developed	0.04	
393	85507	OS	Open Space	Concrete Channel	Developed	0.09	
394	85509	OS	Open Space	Riprap Channel	Developed	0.63	
395	85510	OS	Open Space	Linear Park	Ornamental	0.83	
396	85511	OS	Open Space	Riprap Lined Channel	Developed	1.39	
397	85513	OS	Open Space	Concrete Channel	Developed	3.53	
398	85514	OS	Open Space	Concrete Channel	Developed	0.40	
399	85515	OS	Open Space	Concrete Channel	Developed	0.90	
400	85516	OS	Open Space	Concrete Channel	Developed	0.89	
401	85517	OS	Open Space	Concrete Channel	Developed	0.64	
402	85518	OS	Open Space	Concrete Channel	Developed	0.96	
403	85519	OS	Open Space	Concrete channel/ Freeway	Developed	1.04	55 Freeway/Dyer Road Focus Area
404	85522	OS	Open Space	Concrete Lined SAR	Developed	26.82	
405	85523	OS	Open Space	Concrete Lined SAR	Developed	27.50	
406	85726	OS	Open Space	Santiago Creek Trail	Ornamental	8.69	
407	85727	OS	Open Space	Vacant	Disturbed	0.05	
408	85729	OS	Open Space	Santiago Creek	Riparian	0.14	
409	85730	OS	Open Space	Santiago Creek	Riparian	0.11	
410	85731	OS	Open Space	Santiago Creek	Riparian	1.90	
411	85745	OS	Open Space	Santiago Creek Trail	Oak Woodland	1.23	
412	85746	OS	Open Space	Santiago Creek	Riparian	3.78	
413	85763	OS	Open Space	Santa Ana Zoo and Parking	Developed	3.45	
414	85764	OS	Open Space	Santa Ana Zoo and Parking	Developed	9.14	
415	85765	OS	Open Space	Santa Ana Zoo and Parking	Developed	6.20	
416	85784	OS	Open Space	Santa Ana Zoo and Parking	Developed	1.04	
417	85785	OS	Open Space	Santa Ana Zoo and Parking	Developed	0.19	
418	85991	OS	Open Space	Santa Ana Zoo and Parking	Developed	0.13	
419	85993	OS	Open Space	Santa Ana Zoo and Parking	Developed	1.28	
420	86000	OS	Open Space	Vacant Lot	Disturbed	0.54	
421	86037	OS	Open Space	Linear Park	Ornamental	0.03	
422	86046	OS	Open Space	Linear Park	Ornamental	0.09	
423	86051	OS	Open Space	Linear Park	Ornamental	0.07	
424	86052	OS	Open Space	Linear Park	Ornamental	0.07	
425	86053	OS	Open Space	Linear Park	Ornamental	0.08	
426	86059	OS	Open Space	Parking Lot	Developed	0.15	
427	86060	OS	Open Space	Parking Lot	Developed	0.10	
428	86061	OS	Open Space	Parking Lot	Developed	0.18	
429	86062	OS	Open Space	Parking Lot	Developed	0.09	
430	86063	OS	Open Space	Parking Lot	Developed	0.09	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
431	86064	OS	Open Space	Parking Lot	Developed	0.09	
432	86065	OS	Open Space	Parking Lot	Developed	0.09	
433	86066	OS	Open Space	Parking Lot	Developed	0.09	
434	86067	OS	Open Space	Parking Lot	Developed	0.09	
435	86068	OS	Open Space	Parking Lot	Developed	0.09	
436	86069	OS	Open Space	Parking Lot	Developed	0.09	
437	86070	OS	Open Space	Parking Lot	Developed	0.09	
438	86071	OS	Open Space	Parking Lot	Developed	0.09	
439	86072	OS	Open Space	Parking Lot	Developed	0.09	
440	86073	OS	Open Space	Parking Lot	Developed	0.09	
441	86074	OS	Open Space	Parking Lot	Developed	0.09	
442	86075	OS	Open Space	Parking Lot	Developed	0.09	
443	86076	OS	Open Space	Parking Lot	Developed	0.09	
444	86077	OS	Open Space	Parking Lot	Developed	0.10	
445	86078	OS	Open Space	Linear Park	Ornamental	0.09	
446	86079	OS	Open Space	Linear Park	Ornamental	0.08	
447	86080	OS	Open Space	Linear Park	Ornamental	0.08	
448	86081	OS	Open Space	Linear Park	Ornamental	0.09	
449	86082	OS	Open Space	Linear Park	Ornamental	0.09	
450	86083	OS	Open Space	Linear Park	Ornamental	0.09	
451	86084	OS	Open Space	Linear Park	Ornamental	0.09	
452	86085	OS	Open Space	Linear Park	Ornamental	0.09	
453	86086	OS	Open Space	Linear Park	Ornamental	0.09	
454	86087	OS	Open Space	Linear Park	Ornamental	0.09	
455	86088	OS	Open Space	Linear Park	Ornamental	0.09	
456	86089	OS	Open Space	Linear Park	Ornamental	0.09	
457	86092	OS	Open Space	Linear Park	Ornamental	0.09	
458	86093	OS	Open Space	Linear Park	Ornamental	0.09	
459	86094	OS	Open Space	Linear Park	Ornamental	0.10	
460	86095	OS	Open Space	Linear Park	Ornamental	0.10	
461	86096	OS	Open Space	Linear Park	Ornamental	0.10	
462	86097	OS	Open Space	Linear Park	Ornamental	0.10	
463	86098	OS	Open Space	Linear Park	Ornamental	0.10	
464	86099	OS	Open Space	Linear Park	Ornamental	0.10	
465	86132	OS	Open Space	Linear Park	Ornamental	0.11	
466	86133	OS	Open Space	Linear Park	Ornamental	0.02	
467	86134	OS	Open Space	Linear Park	Ornamental	0.02	
468	86135	OS	Open Space	Linear Park	Ornamental	0.02	
469	86136	OS	Open Space	Linear Park	Ornamental	0.01	
470	86137	OS	Open Space	Linear Park	Ornamental	0.02	
471	86146	OS	Open Space	Linear Park	Ornamental	0.05	
472	86147	OS	Open Space	Linear Park	Ornamental	0.14	
473	86148	OS	Open Space	Linear Park	Ornamental	0.03	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
474	86149	OS	Open Space	Linear Park	Ornamental	0.03	
475	86150	OS	Open Space	Linear Park	Ornamental	0.03	
476	86151	OS	Open Space	Linear Park	Ornamental	0.03	
477	86152	OS	Open Space	Linear Park	Ornamental	0.07	
478	86153	OS	Open Space	Linear Park	Ornamental	0.07	
479	86154	OS	Open Space	Linear Park	Ornamental	0.02	
480	86155	OS	Open Space	Linear Park	Ornamental	0.06	
481	86156	OS	Open Space	Linear Park	Ornamental	0.05	
482	86157	OS	Open Space	Linear Park	Ornamental	0.06	
483	86158	OS	Open Space	Linear Park	Ornamental	0.07	
484	86159	OS	Open Space	Linear Park	Ornamental	0.02	
485	86160	OS	Open Space	Linear Park	Ornamental	0.07	
486	86161	OS	Open Space	Linear Park	Ornamental	0.07	
487	86162	OS	Open Space	Linear Park	Ornamental	0.03	
488	86163	OS	Open Space	Linear Park	Ornamental	0.06	
489	86164	OS	Open Space	Linear Park	Ornamental	0.02	
490	86165	OS	Open Space	Linear Park	Ornamental	0.04	
491	86166	OS	Open Space	Linear Park	Ornamental	0.02	
492	86167	OS	Open Space	Linear Park	Ornamental	0.04	
493	86168	OS	Open Space	Linear Park	Ornamental	0.01	
494	86169	OS	Open Space	Linear Park	Ornamental	0.02	
495	86170	OS	Open Space	Linear Park	Ornamental	0.01	
496	86171	OS	Open Space	Linear Park	Ornamental	0.02	
497	86172	OS	Open Space	Linear Park	Ornamental	0.05	
498	86173	OS	Open Space	Vacant	Disturbed	0.03	
499	86174	OS	Open Space	Developed	Developed	0.15	
500	43181	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.26	
501	43182	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.27	
502	43183	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.55	
503	43184	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.46	
504	43185	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.30	
505	43186	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.52	
506	43189	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.70	
507	44344	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	1.09	
508	44512	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.96	
509	44513	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	0.03	
510	45364	INS	Institution	Ornamental	Rosita Park	3.52	
511	47805	UN	Urban Neighborhood	Disturbed	Vacant	0.07	
512	47806	UN	Urban Neighborhood	Disturbed	Vacant	0.10	
513	47807	UN	Urban Neighborhood	Disturbed	Vacant	0.06	
514	47839	UN	Urban Neighborhood	Disturbed	Vacant	0.81	
515	47840	UN	Urban Neighborhood	Disturbed	Vacant	0.29	
516	51782	DC	District Center	Ruderal	Vacant - Ruderal	1.32	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
517	56699	LR-7	Low Density Residential	Disturbed	Vacant	0.16	
518	59491	GC	General Commercial	Disturbed	Vacant	0.14	
519	59492	GC	General Commercial	Disturbed	Vacant	0.14	
520	59493	GC	General Commercial	Disturbed	Vacant	0.27	
521	59494	GC	General Commercial	Disturbed	Vacant	0.13	
522	59495	GC	General Commercial	Disturbed	Vacant	0.13	
523	59496	GC	General Commercial	Disturbed	Vacant	0.24	
524	66528	PAO	Professional and Administrative Office	Disturbed	Vacant	0.05	
525	66529	PAO	Professional and Administrative Office	Disturbed	Vacant	0.12	
526	66530	PAO	Professional and Administrative Office	Disturbed	Vacant	0.12	
527	66531	PAO	Professional and Administrative Office	Disturbed	Vacant	0.12	
528	66532	PAO	Professional and Administrative Office	Disturbed	Vacant	0.12	
529	66533	PAO	Professional and Administrative Office	Disturbed	Vacant	0.12	
530	66534	PAO	Professional and Administrative Office	Disturbed	Vacant	0.12	
531	67585	LR-7	Low Density Residential	Disturbed	Vacant	0.14	
532	67615	GC	General Commercial	Disturbed	Vacant	0.33	
533	67617	GC	General Commercial	Disturbed	Vacant	0.04	
534	67618	GC	General Commercial	Disturbed	Vacant	0.19	
535	67999	LR-7	Low Density Residential	Disturbed	Vacant	0.13	
536	68000	LR-7	Low Density Residential	Disturbed	Vacant	0.08	
537	68001	LR-7	Low Density Residential	Disturbed	Vacant	0.08	
538	74019	UN	Urban Neighborhood	Disturbed	Vacant	0.43	
539	74020	UN	Urban Neighborhood	Disturbed	Vacant	0.57	
540	74059	UN	Urban Neighborhood	Disturbed	Vacant	0.12	
541	74060	UN	Urban Neighborhood	Disturbed	Vacant	1.24	
542	74061	UN	Urban Neighborhood	Disturbed	Vacant	0.99	
543	74064	UN	Urban Neighborhood	Disturbed	Vacant	0.74	
544	74066	UN	Urban Neighborhood	Disturbed	Vacant	0.99	
545	74067	UN	Urban Neighborhood	Disturbed	Vacant	0.56	
546	74068	UN	Urban Neighborhood	Disturbed	Vacant	0.84	
547	74069	UN	Urban Neighborhood	Disturbed	Vacant	0.28	
548	74070	UN	Urban Neighborhood	Disturbed	Vacant	0.52	
549	74130	UN	Urban Neighborhood	Disturbed	Vacant	0.14	
550	74477	DC	District Center	Disturbed	Vacant	0.86	
551	74478, 85554	DC	District Center	Disturbed	Vacant	1.46	
552	74684	GC	General Commercial	Disturbed	Vacant	0.20	Grand Avenue/17th Street Focus Area
553	74685	GC	General Commercial	Disturbed	Vacant	0.14	Grand Avenue/17th Street Focus Area
554	74686	PAO	Professional and Administrative Office	Disturbed	Vacant	0.14	Grand Avenue/17th Street Focus Area
555	74692	LR-7	Low Density Residential	Disturbed	Vacant	0.26	Grand Avenue/17th Street Focus Area
556	74693	LR-7	Low Density Residential	Disturbed	Vacant	0.29	Grand Avenue/17th Street Focus Area
557	74694	LR-7	Low Density Residential	Disturbed	Vacant	0.14	Grand Avenue/17th Street Focus Area
558	74695	LR-7	Low Density Residential	Disturbed	Vacant	0.14	Grand Avenue/17th Street Focus Area
559	74696	LR-7	Low Density Residential	Disturbed	Vacant	0.21	Grand Avenue/17th Street Focus Area

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
560	74697	LR-7	Low Density Residential	Disturbed	Vacant	0.16	Grand Avenue/17th Street Focus Area
561	75516	GC	General Commercial	Disturbed	Vacant	0.17	
562	75530	GC	General Commercial	Disturbed	Vacant	0.15	
563	75531	GC	General Commercial	Disturbed	Vacant	0.25	
564	75534	GC	General Commercial	Disturbed	Vacant	0.38	
565	75566	GC	General Commercial	Disturbed	Vacant	0.15	
566	75567	GC	General Commercial	Disturbed	Vacant	0.14	
567	75568	GC	General Commercial	Disturbed	Vacant	0.15	
568	75569	GC	General Commercial	Disturbed	Vacant	0.14	
569	75570	GC	General Commercial	Disturbed	Vacant	0.15	
570	75571	GC	General Commercial	Disturbed	Vacant	0.14	
571	75572	GC	General Commercial	Disturbed	Vacant	0.15	
572	75573	GC	General Commercial	Disturbed	Vacant	0.15	
573	75574	GC	General Commercial	Disturbed	Vacant	0.28	
574	75597	GC	General Commercial	Disturbed	Vacant	0.12	
575	75598	GC	General Commercial	Disturbed	Vacant	0.22	
576	75599	GC	General Commercial	Disturbed	Vacant	0.16	
577	75600	GC	General Commercial	Disturbed	Vacant	0.79	
578	75658	GC	General Commercial	Disturbed	Vacant	0.16	
579	75659	GC	General Commercial	Disturbed	Vacant	0.17	
580	75660	GC	General Commercial	Disturbed	Vacant	0.15	
581	75661	GC	General Commercial	Disturbed	Vacant	0.23	
582	75662	GC	General Commercial	Disturbed	Vacant	0.15	
583	75663	GC	General Commercial	Disturbed	Vacant	0.13	
584	75664	GC	General Commercial	Disturbed	Vacant	0.17	
585	75665	GC	General Commercial	Disturbed	Vacant	0.17	
586	75666	GC	General Commercial	Disturbed	Vacant	0.17	
587	75667	GC	General Commercial	Disturbed	Vacant	0.17	
588	75668	GC	General Commercial	Disturbed	Vacant	0.17	
589	75671	GC	General Commercial	Disturbed	Vacant	0.20	
590	75672	GC	General Commercial	Disturbed	Vacant	0.17	
591	75861	GC	General Commercial	Disturbed	Vacant	0.33	
592	78706	PAO	Professional and Administrative Office	Ruderal	Vacant Ruderal	1.75	55 Freeway/Dyer Road Focus Area
593	78707	PAO	Professional and Administrative Office	Ruderal	Vacant Ruderal	0.81	55 Freeway/Dyer Road Focus Area
594	78708	PAO	Professional and Administrative Office	Ruderal	Vacant Ruderal	0.27	55 Freeway/Dyer Road Focus Area
595	78842	DC	District Center	Disturbed	Vacant	3.11	
596	82277	DC	District Center	Ruderal	Vacant - Ruderal	2.43	
597	84942	IND	Industrial	Developed	Concrete Channel	2.59	
598	84959	IND	Industrial	Developed	Concrete Channel	2.00	
599	84960	IND	Industrial	Developed	Concrete Channel	3.17	
600	84961	IND	Industrial	Developed	Concrete Channel	3.84	
601	84990	IND	Industrial	Developed	Concrete Channel	2.59	
602	85006	DC	District Center	Disturbed	Vacant	2.79	

	City Identification Number	Existing General Plan Land Use Designation	General Plan Land Use	Land Use	Habitat Classification	Acreage	Focus Area Location
603	85146	IND	Industrial	Ornamental	Vacant - Turf	2.78	
604	85331	INS	Institution	Ornamental	El Salvador Park	3.82	
605	85425	LR-7	Low Density Residential	Ornamental	Santiago Creek Trail	1.13	
606	85607	LR-7	Low Density Residential	Ornamental	Neighborhood Park	0.25	
607	85608	LR-7	Low Density Residential	Ornamental	Neighborhood Park	0.17	
608	85610	LR-7	Low Density Residential	Ornamental	Neighborhood Park	0.18	
609	85612	LR-7	Low Density Residential	Ornamental	Neighborhood Park	0.29	
610	85614	LR-7	Low Density Residential	Ornamental	Neighborhood Park	0.19	
611	85616	LR-7	Low Density Residential	Ornamental	Neighborhood Park	0.32	
612	85751	DC	District Center	Ruderal	Vacant - Ruderal	6.25	
613	85752	DC	District Center	Ruderal	Vacant - Ruderal	1.05	
614	86034	LR-7	Low Density Residential	Disturbed	Vacant	0.05	
615	86116	GC	General Commercial	Disturbed	Vacant	0.10	
616	86117	GC	General Commercial	Disturbed	Vacant	0.46	
617	86118	GC	General Commercial	Disturbed	Vacant	0.44	
618	86138	GC	General Commercial	Disturbed	Vacant	0.06	
619	86139	GC	General Commercial	Disturbed	Vacant	0.06	
620	86140	LR-7	Low Density Residential	Disturbed	Vacant	0.08	
621	86141	LR-7	Low Density Residential	Disturbed	Vacant	0.06	
622	86142	LR-7	Low Density Residential	Disturbed	Vacant	0.07	
623	86143	LR-7	Low Density Residential	Disturbed	Vacant	0.07	
624	86144	LR-7	Low Density Residential	Disturbed	Vacant	0.07	
625	86145	LR-7	Low Density Residential	Disturbed	Vacant	0.12	
626	-	GC	General Commercial	Vacant	Ruderal	0.54	
627	-	GC	General Commercial	Vacant	Ruderal	0.45	
628	-	GC	General Commercial	Vacant	Ruderal	0.19	
629	-	GC	General Commercial	Vacant	Ruderal	0.23	
630	-	GC	General Commercial	Vacant	Ruderal	0.15	
631	-	GC	General Commercial	Vacant	Ruderal	0.85	
632	-	GC	General Commercial	Vacant	Ruderal	0.19	
633	-	GC	General Commercial	Vacant	Ruderal	0.19	
634	-	GC	General Commercial	Vacant	Ruderal	0.52	
635	-	-	Santa Ana River	Concrete Channel	Developed	3.53	Santa Ana River - SOI
636	-	-	Santa Ana River	Concrete Channel	Developed	33.00	Santa Ana River - SOI
637	-	-	Santa Ana River	Concrete Channel	Developed	5.34	Santa Ana River - SOI
638	-	-	Santa Ana River	Concrete Channel	Developed	41.50	Santa Ana River - SOI

Appendix E-a Historical Resources Technical Report

Appendices

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CITY OF SANTA ANA GENERAL PLAN UPDATE
PROGRAM ENVIRONMENTAL IMPACT REPORT

HISTORICAL RESOURCES
TECHNICAL REPORT



Prepared for:
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May 4, 2020

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Figure 1: Proposed General Plan Land Use Map
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Existing Conditions Database

SECTION 1 INTRODUCTION

1.1 PURPOSE

This Historical Resources Technical Report (report) has been prepared in support of the proposed City of Santa Ana (City) General Plan Update (the project) to facilitate compliance with the California Environmental Quality Act (CEQA). CEQA requires that the City, as Lead Agency, consider the effects of projects under its jurisdiction on the environment, including the historical environment. The report will inform the analysis of cultural resources to be included in a Program Environmental Impact Report (PEIR) that will be prepared for the project for the City in conjunction with the project. For the purposes of this report, "historical resources" are specifically defined as built environment historical resources, including buildings, structures, objects, districts, and sites. Other cultural resources, including archaeological and Native American resources and human remains, are addressed in a separate report. Built environment historical resources are further defined as those that satisfy the criteria for listing in the National Register of Historic Places (National Register or NRHP), California Register of Historical Resources (California Register or CRHR), Santa Ana Register of Historical Properties (Santa Ana Register or SARHP), or other statutory designation programs administered by Federal, state, regional, or local government agencies.

The report consists of an introduction, including statements of the project location, project description, methods used for the analysis, and qualifications of the preparer; discussions of the environmental setting, including the regulatory setting, historic context, and identification of historical resources; an assessment of potential environmental impacts; and recommended mitigation to address those potential impacts.

1.2 PROJECT LOCATION

The project encompasses the City of Santa Ana, an incorporated city occupying approximately 27 square miles in central Orange County. The cities of Orange and Costa Mesa border Santa Ana to the north and south, respectively. Santa Ana's western border connects with the cities of Garden Grove, Westminster, and Fountain Valley, while Santa Ana's eastern border touches the cities of Irvine and Tustin. Regional connectivity to the City of Santa Ana is provided by interstates 5 and 405 and by State Routes 22 and 55.

1.3 PROJECT DESCRIPTION

The City of Santa Ana is in the process of preparing a comprehensive update to its existing General Plan, adopted in 1982. Santa Ana's "Golden City Beyond: A Shared Vision" General Plan is expected to be completed in 2020 and will guide the City's development and conservation for the next 25 years through 2045. The update will provide long-term policy direction and communicate the vision, values, and goals for the City's physical development, fiscal and environmental sustainability, and overall quality of life. The new Santa Ana General Plan will serve to identify areas of opportunity and provide options to enhance development potential in key areas of the city while bringing the City into compliance with recent state laws and reflect updates to current conditions and input from the general public, city staff, and other stakeholders. The updated plan will include eight elements mandated by state law, as well as five optional elements, including a Historic Preservation Element. The City's vision statement specifically notes "We celebrate our past …" and, with respect to culture, the Core Values underlying the General Plan Update states:

- Our community values efforts that celebrate our differences as a source of strength, preserve and build upon existing cultural resources, and nurture a citywide culture of empowered residents.[1]

The City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.

There are seven other planning areas that represent specific plans and other special zoning areas that were previously adopted: Adaptive Reuse Overlay (2014), Bristol Street Corridor Specific Plan (1991/2018), Harbor Mixed Use Corridor Specific Plan (2014), MainPlace Specific Plan (2019), Metro East Overlay Zone (2007/2018), Midtown Specific Plan (1996), and Transit Zoning Code Specific Development (2010). The potential for new development in these areas is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between their adoption date and 2019. The most recent adoption/amendment date for each zoning document is noted in parentheses.

Growth outside of the focus areas and special planning areas is expected to be incremental and limited. Some growth was projected for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan. Some growth was also projected for the commercial and retail area south of the West Santa Ana Boulevard focus area. Finally, some additional residential development is expected to occur on a small portion (five percent) of single-family and multi-family lots through the construction of second units.

Table 1 provides a statistical summary of the buildout potential associated with the General Plan compared to existing conditions. Figure 1 (see Appendix) displays the draft General Plan Land Use Map while Figure 2 (see Appendix) illustrates the boundaries of the five focus areas and special planning areas.

[1] City of Santa Ana. Notice of Preparation and Scoping Meeting for the City of Santa Ana General Plan Program Environmental Impact Report. February 26, 2020.

Table 1 Existing Conditions, Potential Growth, and Buildout Conditions in Santa Ana, 2020 to 2045

	EXISTING [1]			GROWTH [2]			BUILDOUT		
PLANNING AREA	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs
FOCUS AREAS	6,380	13,421,155	28,428	17,575	2,263,130	6,616	23,955	15,684,285	35,044
55 Freeway/Dyer Road	1,221	5,666,453	8,898	8,731	475,830	4,404	9,952	6,142,283	13,302
Grand Avenue/17th Street	561	1,400,741	3,568	1,722	-696,847	-1,946	2,283	703,894	1,622
South Bristol Street	220	1,577,511	3,337	5,272	3,505,130	7,855	5,492	5,082,641	11,192
South Main Street	1,720	1,685,978	3,455	588	-739,316	-1,304	2,308	946,662	2,151
West Santa Ana Boulevard	2,658	3,090,472	9,170	1,262	-281,667	-2,393	3,920	2,808,805	6,777
SPECIFIC PLAN / SPECIAL ZONING	4,685	13,924,891	38,548	15,839	3,033,554	1,154	20,524	16,958,445	39,702
Adaptive Reuse Overlay Zone [4]	260	976,935	3,043	1,000	0	-476	1,260	976,935	2,567
Bristol Street Corridor Specific Plan	136	140,348	294	-1	2,791	-12	135	143,139	282
Harbor Corridor Specific Plan	1,324	1,767,937	3,286	3,298	200,045	-1,708	4,622	1,967,982	1,578
Main Place Specific Plan	0	1,108,080	2,216	1,900	1,318,843	3,164	1,900	2,426,923	5,380
Metro East Overlay Zone	844	2,516,056	7,524	4,707	2,169,891	4,734	5,551	4,685,947	12,258
Midtown Specific Plan	607	1,885,065	4,824	0	-66,812	-209	607	1,818,253	4,615
Transit Zoning Code	1,514	5,530,470	17,361	4,935	-591,204	-4,339	6,449	4,939,266	13,022
ALL OTHER AREAS OF THE CITY [5]	67,727	39,772,550	92,004	2,847	552,536	3,666	70,574	40,325,086	95,670
CITYWIDE TOTAL	78,792	67,118,596	158,980	36,261	5,849,220	11,436	115,053	72,967,816	170,416

Source: City of Santa Ana, 2020.

1. Existing represents conditions as of December 2019 as derived from the City of Santa Ana Planning Information Network and projects already under construction per the January 2020 monthly development project report.
2. The potential growth for new development in specific plan / special zoning area is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between its adoption date and 2019.
3. Only includes nonresidential building square footage.
4. The figures shown on the row for the Adaptive Reuse Overlay represents parcels that are exclusively in the Adaptive Reuse Overlay boundary. Figures for parcels that are within the boundaries of both the Adaptive Reuse Overlay Zone and a specific plan, other special zoning, or focus area boundary are accounted for in the respective specific plan, other special zoning, or focus area.
5. The City has included an assumption for growth on a small portion (five percent) of residential parcels through the construction of second units, which is distributed throughout the City and is not concentrated in a subset of neighborhoods. Additional growth includes known projects in the pipeline and an increase of 10 percent in building square footage and employment for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan, as well as the commercial and retail along 1st Street south of the West Santa Ana Boulevard focus area.

Source: PlaceWorks, 2020

1.4 METHODS USED

Historical resources and contexts were identified from examination of relevant Federal, state, and local documents, including laws and regulations, plans, databases maintained by the U.S. Department of the Interior (National Park Service) and the California Office of Historic Preservation, the Santa Ana Register of Historical Properties and other City programs, consultation with City Planning and California Office of Historic Preservation staff, and other resources available both online and in archival collections. Specific sources of relevant information are cited in footnotes and compiled in the Sources section of this report. No field work was performed nor was a records search conducted at the South Central Coastal Information Center (SCCIC) at California State University, Fullerton in support of this report. However, the most recent tabulation of historic properties in Orange County, obtained from the SCCIC, was utilized. More information about how historical resources in Santa Ana were identified is provided in Section 4.1 of this report. Potential impacts to historical resources were determined in accordance with the thresholds established by CEQA (Public Resources Code § 21084.1), the California CEQA Regulations (California Code of Regulations § 15064.5), and the City.

1.5 QUALIFICATIONS OF PREPARERS

Chattel, Inc. (Chattel) is a full-service historic preservation consulting firm with practice throughout the western United States. The firm represents governmental agencies and private ventures, successfully balancing project goals with a myriad of historic preservation regulations without sacrificing principles on either side. Comprised of professionals meeting the Secretary of the Interior's Professional Qualifications Standards in history, architecture, architectural history, and historic architecture, the firm offers professional services including historical resources evaluation and project impacts analysis, in addition to consultation on federal, state, and local historic preservation statutes and regulations.

Chattel staff engage in a collaborative process and work together as a team on individual projects. This report was prepared by Principal Associate Leslie Heumann, Associate II Aleli Balaguer, and Associate I Alvin-Christian Nuval, with oversight from President Robert Chattel.

SECTION 2 REGULATORY SETTING

Historical resources in the City of Santa Ana are subject to laws, regulations, policies, and plans at the Federal, state, and local levels. This discussion examines the regulatory setting that applies not only to the adoption of the General Plan Update but also to projects that may occur in the future under the aegis of the General Plan.

2.1 FEDERAL

2.1.1 National Environmental Policy Act

The National Environmental Policy Act of 1969 (NEPA) requires that Federal agencies include in their decision-making processes appropriate and careful consideration of all environmental effects and actions. Specifically, Federal agencies must analyze potential environmental effects of proposed actions and their alternatives for public understanding and scrutiny, avoid or minimize adverse effects of proposed actions, and restore and enhance environmental quality as much as possible.

Regarding cultural resources, NEPA states, "It is the continuing responsibility of the Federal Government to use all practicable means . . . to preserve important historic, cultural, and natural aspects of our national heritage" (42 USC 4331). The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed in or eligible for listing in the National Register of Historic Places (National Register), or may cause loss or destruction of significant scientific, cultural, or historical resources must be considered (40 CFR 1508.27(b)8).

Applicability: NEPA does not apply to the adoption of the General Plan. NEPA would apply to a future City project undertaken by or in partnership with the Federal government, where the relevant Federal agency is the Lead Agency.

2.1.2 National Historic Preservation Act of 1966

The National Historic Preservation Act (NHPA) of 1966, as amended, was established to preserve archaeological and historical sites across the United States at the federal, state, and local levels, by declaring a national policy of historic preservation and instituting a multifaceted program administered by the Secretary of the Interior. Its passage and subsequent amendments created the National Register of Historic Places (National Register), National Historic Landmarks, State Historic Preservation Officers (SHPOs), and Tribal Preservation Officers. It set up a process to certify local governments to carry out the purposes of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

2.1.2.1 Section 106

Section 106 of the NHPA states that federal agencies with direct or indirect jurisdiction over federally funded, assisted, or licensed undertakings must take into account the effect of the undertaking on any historic property that is included in or eligible for inclusion in the National Register and that the ACHP must be afforded an opportunity to comment such undertakings. The Section 106 process, (36 CFR 800) involves identification of significant historic resources within an "area of potential effect," determination if the undertaking will cause an adverse effect on historic resources, and resolution of those adverse effects through execution of a Memorandum of Agreement. Interested members of the public—including individuals, organizations, and agencies, such as the California Office of Historic Preservation (OHP)—are provided with opportunities to participate in the process.

Applicability: Section 106 does not apply to the adoption of the General Plan. Section 106 would apply to a future City project undertaken, funded, permitted, or licensed by or in partnership with the Federal government, as specified above.

2.1.2.2 National Register of Historic Places

The National Register of Historic Places is the nation's official list of historic and cultural resources worthy of preservation. Properties listed in the National Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archaeology, engineering, and culture. The National Register is administered by the National Park Service (NPS), which is part of the United States Department of the Interior. Resources are eligible for National Register listing if they:

A) are associated with events that have made a significant contribution to the broad patterns of our history; or
B) are associated with the lives of significant persons in our past; or
C) embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
D) have yielded or may be likely to yield, information important in history or prehistory.[2]

Ordinarily cemeteries, birthplaces, or graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature are not considered eligible for the National Register, unless they satisfy certain conditions. In general, a resource must be 50 years old to be considered for the National Register, unless it satisfies a standard of exceptional importance.

In addition to satisfying at least one of the criteria of significance, a resource must also possess integrity. Integrity refers to the ability of a property to convey its significance, and the degree to which the property retains the identity, including physical and visual attributes, for which it is significant. The National Register recognizes seven aspects or qualities of integrity: location, design, setting, materials, workmanship, feeling, and association. To retain its historic integrity, a property must possess several, and usually most, of these aspects. While integrity is important in evaluating and determining significance, a property's physical condition, whether it is in a deteriorated or pristine state, has relatively little influence on its significance. A property that is in good condition may lack the requisite level of integrity to convey its significance due to alterations or other factors. Likewise, a property in extremely poor condition may still retain substantial integrity from its period of significance and clearly convey its significance.

Applicability: National Register-listed and -eligible properties in Santa Ana are considered to be historical resources for purposes of establishing baseline conditions for adoption of the General Plan, as well as for any future developments enabled by the General Plan.

2.1.3 National Historic Landmarks

Originally authorized by the Historic Sites Act of 1935 (Public Law 74-292), National Historic Landmarks (NHLs) are cultural properties designated by the Secretary of the Interior as being nationally significant. These buildings, sites, districts, structures, and objects possess exceptional value or quality in illustrating or interpreting the heritage of the United States in history,

[2] National Register Bulletin #15, *How to Apply the National Register Criteria for Evaluation* (National Park Service, 1990, revised 2002).

architecture, archeology, engineering, and culture. The National Historic Landmarks criteria (36 CFR 65.4[a and b]) set a stringent test for national significance, including high historical integrity

Applicability: There are currently no designated National Historic Landmarks in Santa Ana. Any future designations would be historical resources, as defined at the Federal, state, and local levels.

2.1.4 Secretary of the Interior's Standards for the Treatment of Historic Properties

Under the NHPA, the Secretary of the Interior was made responsible for establishing professional standards and for providing guidance on the preservation of the nation's historic properties. Developed in several iterations between 1973 and 2017, The Secretary of the Interior's Standards for the Treatment of Historic Properties (Secretary's Standards) (36 CFR Part 68, 1995) consists of four sets of treatment standards—Preservation, Rehabilitation, Restoration and Reconstruction—and are regulatory for grants-in-aid projects assisted through the Historic Preservation Fund (authorized by the NHPA). The Secretary of the Interior's Standards for Rehabilitation (36 CFR Part 67, 1990), which are included in the treatment standards, are regulatory for the Federal Historic Preservation Tax Incentives program and used as the criteria to determine if a project qualifies as "a certified rehabilitation." "Preservation" focuses on the stabilization, maintenance, and repair of existing historic materials and retention of a property's form as it has evolved over time. "Rehabilitation" not only incorporates the retention of features that convey historic character but also accommodates alterations and additions to facilitate continuing or new uses. "Restoration" involves the retention and replacement of features from a specific period of significance and elimination of features not from that period. "Reconstruction," the least used treatment, provides a basis for recreating a missing resource. The Secretary of the Interior's Standards for the Treatment of Historic Properties, in particular the Standards for Rehabilitation, are intended as general guidance for work on all historic properties, are widely used, and have been adopted at the Federal, State and local levels. The Standards and their associated guidelines are intended to be applied to a wide variety of resource types, including buildings, sites, structures, objects, and districts.

Applicability: The Secretary's Standards are not directly relevant to adoption of the General Plan. However, with respect to future development, conformance to the Secretary's Standards is accepted in California as one way to lessen potential impacts to historical resources to a less-than-significant level (see Section 2.2.1, below). To that end, the Secretary's Standards are used by the City of Santa Ana for project reviews involving historical resources.

2.2 STATE OF CALIFORNIA

2.2.1 California Environmental Quality Act

According to the California Environmental Quality Act (CEQA),

> an historical resource is a resource listed in, or determined eligible for listing in, the California Register of Historical Resources. Historical resources included in a local register of historical resources ... or deemed significant pursuant to criteria set forth in subdivision (g) of § 5024.1 [i.e., the California Register of Historical Resources criteria, see below], are presumed to be historically or culturally significant for purposes of this section, unless the preponderance of the evidence demonstrates that the resource is not historically or culturally significant (Public Resources Code (PRC) §21084.1).

If a proposed project were expected to cause substantial adverse change in an historical resource, environmental clearance for the project would require mitigation measures to reduce impacts. "Substantial adverse change in the significance of an historical resource means the physical demolition, destruction, relocation, or alteration of the resource or its immediate

surroundings such that the significance of an historical resource would be materially impaired" (CEQA Guidelines[3] §15064.5 (b)(1)). The CEQA Guidelines (§15064.5 (b)(2)) describe material impairment taking place when a project:

A) 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… or
B) Demolishes or materially alters in an adverse manner those physical characteristics that account for its inclusion in a local register... or its identification in an historical resources survey... 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
C) Demolishes or materially alters 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... as determined by a lead agency for the purposes of CEQA.

According to the CEQA Guidelines (§15064.5 (b)(3)), "Generally, a project that follows the *Secretary of the Interior 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, shall be considered as mitigated to a level of less than a significant impact on the historical resource." The *Secretary of the Interior Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring, and Reconstructing Historic Buildings* (*Secretary's Standards*) is published by the National Park Service (NPS), and was updated and reissued in July 2017.[4]

Applicability: The adoption of the General Plan is a project under CEQA and therefore potential impacts to historical resources are evaluated in this Technical Report and in the PEIR it supports.

2.2.2 California Register of Historical Resources

The California Register of Historical Resources (California Register) was established to serve as an authoritative guide to the state's significant historical and archaeological resources (PRC §5024.1). State law provides that in order for a property to be considered eligible for listing in the California Register, it must be found by the State Historical Resources Commission to be significant under any of the following four criteria:

1) Associated with events that have made a significant contribution to the broad patterns of local or regional history or the cultural heritage of California or the United States; or
2) Associated with the lives of persons important to local, California or national history; or
3) Embodies the distinctive characteristics of a type, period, region or method of construction or represents the work of a master or possesses high artistic values; or
4) Has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California or the nation.

The primary difference between eligibility for listing in the National and California Registers is integrity. Properties eligible for listing in the National Register generally have a higher degree of integrity than those only eligible for listing in the California Register. There is, however, no difference with regard to significance. A property that meets the significance criteria for California

[3] 14 California Code of Regulations (CCR) §15000 et seq.
[4] Anne E. Grimmer. "The Secretary of the Interior's Standards for the Treatment of Historic Properties with Guidelines for Preserving, Rehabilitating, Restoring & Reconstruction Historic Buildings." Rev. National Park Service, U.S. Department of the Interior, 2017.

Register eligibility would also be eligible for listing in the National Register unless there are issues of integrity that decrease the ability of the property to convey its significance.

The California Register also includes properties which: have been formally *determined eligible for listing in*, or are *listed in* the National Register; are registered State Historical Landmark Number 770, and all consecutively numbered landmarks above Number 770; points of historical interest, which have been reviewed and recommended to the State Historical Resources Commission for listing; and city and county-designated landmarks or districts (if criteria for designation are determined by the OHP to be consistent with California Register criteria). PRC §5024.1(g) also states:

> g) A resource identified as significant in an historical resource survey may be listed in the California Register if the survey meets all of the following criteria:
>
> 1) The survey has been or will be included in the State Historical Resources Inventory.
> 2) The survey and the survey documentation were prepared in accordance with [OHP]… procedures and requirements.
> 3) The resource is evaluated and determined by the office to have a significance rating of category 1-5 on DPR [Department of Parks and Recreation] form 523.
> 4) If the survey is five or more years old at the time of its nomination for inclusion in the California Register, the survey is updated to identify historical resources which have become eligible or ineligible due to changed circumstances or further documentation and those which have been demolished or altered in a manner that substantially diminishes the significance of the resource.

Resources are eligible as a California Register historic districts if they meet National Register historic district criteria.

Applicability: Eligibility for listing in the California Register is a primary means of identifying historical resources under CEQA.

2.2.3 California Historical Landmarks

California Historical Landmarks (CHLs) are buildings, structures, sites, or places that have been determined to have statewide historical significance by meeting at least one of the criteria listed below:

- The first, last, only, or most significant of its type in the state or within a large geographic region (Northern, Central, or Southern California).
- Associated with an individual or group having a profound influence on the history of California.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in a region of a pioneer architect, designer or master builder.

The resource also must have written consent of the property owner; be recommended by the State Historical Resources Commission; and be officially designated by the Director of California State Parks. CHLs #770 and above are automatically listed in the California Register of Historical Resources.[5]

[5] http://ohp.parks.ca.gov/?page_id=21387

Applicability: California Historical Landmarks generally are historical resources for purposes of CEQA.

2.2.4 California Points of Historical Interest

California Points of Historical Interest are sites, buildings, features, or events that are of local (city or county) significance and have anthropological, cultural, military, political, architectural, economic, scientific or technical, religious, experimental, or other value. Points of Historical Interest designated after December 1997 and recommended by the State Historical Resources Commission are also listed in the California Register. To be eligible for designation as a Point of Historical Interest, a resource must meet at least one of the following criteria:

- The first, last, only, or most significant of its type within the local geographic region (City or County).
- Associated with an individual or group having a profound influence on the history of the local area.
- A prototype of, or an outstanding example of, a period, style, architectural movement or construction or is one of the more notable works or the best surviving work in the local region of a pioneer architect, designer or master builder.

Designation requires owner consent and approval of the State Historical Resources Commission.

Applicability: California Points of Historical Interest may be historical resources for purposes of CEQA.

2.2.5 California Historical Building Code[6]

Defined in Sections 18950 to 18961 of Division 13, Part 2.7 of California's Health and Safety Code, the California Historical Building Code (CHBC) exists to preserve the state's architectural heritage by recognizing unique construction issues inherent in maintaining and rehabilitating historical resources. The CHBC provides alternative building regulations for permitting repairs, alterations, and additions necessary for preservation, rehabilitation, relocation, related construction, change of use, or continued use of a "qualified historical building or structure."

Section 18955 of the CHBC defines such a "qualified historical building or structure" as follows:

> Any structure or property, collection of structures, and their associated sites deemed of importance to the history, architecture, or culture of an area by an appropriate local or state governmental jurisdiction. This shall include structures on existing or future national, state or local historical registers or official inventories, such as the National Register of Historic Places, State Historical Landmarks, State Points of Historical Interest, and city or county registers or inventories of historical or architecturally significant sites, places, historic districts, or landmarks. This shall also include places, locations, or sites identified on these historical registers or official inventories and deemed of importance to the history, architecture, or culture of an area by an appropriate local or state governmental jurisdiction.

Rather than being prescriptive, the CHBC constitutes a set of performance criteria. The CHBC is designed to help facilitate restoration or change of occupancy in such a way as to preserve original or restored elements and features of a resource; to encourage energy conservation and a cost-effective approach to preservation; and to provide for reasonable safety from earthquake,

[6] California State Historical Building Safety Board, Division of the State Architect. "California's State Historical Building Code and State Historical Building Safety Board." Sacramento, CA. http://www.dgs.ca.gov/dsa/AboutUs/shbsb.aspx

fire, or other hazards for occupants and users of such buildings, structures, and properties." The CHBC also serves as a guide for providing reasonable availability, access, and usability by the physically disabled.

Applicability: The California Historical Building Code is not relevant to adoption of the General Plan. However, use of the CHBC may enable future developments to conform to the Secretary's Standards and thus result in a less-than-significant impact to historical resources.

2.2.6 State Historic Preservation Officer

The State Historic Preservation Officer (SHPO) is responsible for the operation and management of the California State Office of Historic Preservation (OHP), as well as long range preservation planning in California. The Governor appoints the SHPO, in consultation with the State Historical Resources Commission and the Director of the Department of Parks and Recreation. The SHPO assists the State Historical Resources Commission in accomplishing its goals and duties by developing and administering a program of public information, education, training, and technical assistance. The SHPO also oversees implementation of preservation laws regarding historic resources, and oversees the California Historic Resources Inventory, which serves as a listing of historic resources identified using national, state, and local criteria. Under the supervision of the SHPO, OHP administers the Certified Local Government program (see below); reviews nominations for the National Register and the state designation programs; assists with local surveys of historical resources; comments on the use of the Secretary's Standards to achieve certified rehabilitation as required for federal historic preservation tax credits; and evaluates applications for grants funded by the Historic Preservation Fund.

Applicability: SHPO will be asked to comment on the PEIR and on future project EIRs. Comments usually concern the identification of historical resources, assessment of project impacts on historical resources, and proposed avoidance and mitigation measures.

2.2.7 Certified Local Government Program[7]

Established by the 1980 amendments to the NHPA of 1966, as amended, the Certified Local Government (CLG) program encourages the direct participation of local governments in the identification, evaluation, registration, and preservation of historic properties within their jurisdictions, and promotes the integration of local preservation interests and concerns into local planning and decision-making processes. The CLG program is a partnership among local governments, the OHP, and the NPS, which is responsible for administering the National Historic Preservation Program. Through the CLG program, local governments may apply for federal grants annually to assist with local historic preservation programs. In order to become a CLG and to maintain that status, a local government commits to fulfill certain responsibilities, including enforcement of state and/or local historic resource designation programs, maintenance of a qualified historic review body or commission, performance of local historic resources surveys to identify historic properties, management of requests to demolish or alter historic resources, and encouragement of public participation in its historic preservation program. The City of Santa Ana became a CLG in 2002.

Applicability: Avoidance of potential impacts to historical resources from General Plan policies and future developments would be consistent with the City's status and responsibilities as a CLG.

[7] California Office of Historic Preservation. "Certified Local Government Program (CLG)." State of California. http://ohp.parks.ca.gov/?page_id=21239

2.2.8 California Historical Resources Information System[8]

The California Historical Resources Information System (CHRIS) consists of the OHP, a series of Information Centers (ICs) statewide, and the State Historical Resources Commission. CHRIS is administered and coordinated by the OHP. The CHRIS Inventory includes the State Historic Resources Inventory through the Historic Property Data File maintained by the OHP and the ICs, as defined by PRC §5020.1(p), as well as the larger number of resource records and research reports managed under contract by the ICs. Properties listed in the Historic Property Data File have been assigned a California Historical Resource status code of 1 through 7, indicating level of eligibility, designation or evaluation and whether the property is an individual resource, part of a historic district, or both. Several hundred properties in Santa Ana are included in the Historic Property Data File as a result of historic resources surveys, National Register designations, Federal evaluations in fulfillment of Section 106 responsibilities, and other studies. Properties in the Historic Property Data File assigned a California Historical Resource status code of 1 through 5 are assumed to be historical resources for purposes of CEQA, unless a preponderance of evidence proves otherwise. *Technical Assistance Bulletin 8*[9] published by the OHP provides a key and guidance on use of the status codes. Status codes were revised in August 2003, and assigned the following definitions:[10]

1 Properties listed in the National Register or the California Register
2 Properties determined eligible for listing in the National Register or California Register
3 Properties that appear eligible for National Register or California Register through survey evaluation
4 Properties that appear eligible for National Register or California Register through other evaluation
5 Properties recognized as historically significant by local government or appearing eligible such recognition
6 Properties determined to be not eligible for listing or designation
7 Properties either not evaluated for National Register or California Register eligibility or needing reevaluation

Assigned status codes reflect *opinions* or *actions* taken at a *specific point in time*, and therefore may not accurately reflect the historical resource's eligibility for Federal, state, or local listing or designation at some later time. In particular, OHP guidance directs that survey evaluations that are more than five years old be updated for use in satisfying CEQA requirements.

Applicability: CHRIS is a primary source utilized to identify historical resources in Santa Ana and to establish baseline conditions for assessment of any potential impacts to historical resources resulting from adoption of the General Plan.

[8] California Office of Historic Preservation. "California Historical Resources Information System." State of California. http://ohp.parks.ca.gov/?page_id=1068

[9] California Office of Historic Preservation. "Technical Assistance Bulletin #8: User's Guide to the California Historical Resource Status Codes & Historic Resources Inventory Directory." State of California. November 2004. http://ohp.parks.ca.gov/pages/1069/files/tab8.pdf

[10] Classifications 1 through 7 are further broken down into subclassifications. See: http://www.ohp.parks.ca.gov/pages/1069/files/chrstatus%20codes.pdf

2.3 REGIONAL

2.3.1 Southern California Association of Governments

The Southern California Association of Governments Growth Management Chapter (SCAGGMC) has instituted policies regarding the protection of cultural resources. SCAGGMC Policy No. 3.21 "encourages the implementation of measures aimed at the preservation and protection of recorded and unrecorded cultural resources and archaeological sites."[11]

Applicability: This Technical Report is consistent with the County's cultural resources policy.

2.3.2 Orange County Historical Commission[12]

Established by the County of Orange Board of Supervisors in 1973, the Orange County Historical Commission (Historical Commission) is a citizen advisory group that advises the Board of Supervisors' and County agencies regarding matters related to historic places, archeological and paleontological sites, archives/historic records, publications, special events, etc. The Historical Commission consists of fifteen members and meets monthly to review related items. Included in the duties and objectives of the Historical Commission is the identification and promotion of the preservation and use of buildings, sites, structures, objects, and districts of importance in Orange County, as well as the development and maintenance of a central file of Orange County historical resources for public use. The Historical Commission established and administered the Orange County Historical Site Plaque Program, which has placed plaques to commemorate approximately 49 historical sites throughout Orange County.[13]

Applicability: The Orange County Historical Commission may choose to comment on the PEIR and/or on future developments as an interested party. Properties awarded a plaque by the County are included in the Existing Conditions Database (see Section 4).

2.4 LOCAL

2.4.1 Santa Ana General Plan (1982)[14] and Conservation Element[15]

Adopted in 1982, the Santa Ana General Plan is the City's existing principal long-range policy and planning document guiding the development, conservation, and enhancement of Santa Ana. It is a document that contains a comprehensive collection of goals and policies related to the physical development of the City. State law requires every city and county to adopt a general plan to represent the jurisdiction's view of its future. Various updates to the Land Use Element, Circulation Element, Urban Design Element and Economic Development Element were completed in 1998.

The Santa Ana General Plan (1982) contains the following 16 elements:

- Airport Environs Element
- Circulation Element
- Conservation Element
- Economic Development Element

[11] Southern California Association of Governments. 2001. *SCAG Growth Management Chapter (GMC) Policy No. 3.21*. Los Angeles, CA.

[12] Orange County Parks. "Orange County Historical Commission." County of Orange. Accessed March 27, 2019. http://www.ocparks.com/about/historical/

[13] Ibid.

[14] City of Santa Ana. "About the General Plan." City of Santa Ana. https://www.santa-ana.org/general-plan/new-general-plan

[15] City of Santa Ana. "City of Santa Ana General Plan: Conservation Element." City of Santa Ana. https://www.santa-ana.org/sites/default/files/Documents/Conservation.pdf

- Education Element
- Energy Element
- Growth Management Element
- Housing Element
- Land Use Element
- Noise Element
- Open Space, Parks and Recreation Element
- Public Facilities Element
- Public Safety Element
- Scenic Corridors Element
- Seismic Safety Element
- Urban Design Element

The Conservation Element of the Santa Ana General Plan is concerned with the protection, utilization and development of natural and cultural resources. It emphasizes scarce resources and those needing special attention or management, and aims to prevent their exploitation, neglect or destruction. Major features of the Conservation Element include protection of the public health, safety and welfare through effective management of natural resources; preservation of those natural and cultural resources existing today; and enhancement of the City's aesthetic and visual amenities through increased use of vegetation and restoration of historic and cultural resources. Cultural resources include waterways, natural habitats, open spaces, historic buildings, and pre-historic remains.

Applicability: The 1982 General Plan and Conservation Element are being updated; the potential for those updates to affect historical resources is the purpose of this Technical Report.

2.4.2 Santa Ana Municipal Code Chapter 30 – Historic Preservation Ordinance

Chapter 30 of the Santa Ana Municipal Code (SAMC),[16] adopted by City Council in 1998 and amended at various points since that time, established Santa Ana's Historic Preservation program, created the Historic Resources Commission (HRC) to oversee the program, and instituted the Santa Ana Register of Historical Properties (Santa Ana Register) to list local historically significant properties. Designation of any building, structure, object or site that is fifty or more years old must satisfy criteria for inclusion on the Santa Ana Register. A building, structure, object or site less than fifty years old may be nominated provided that it can be proven to be of exceptional significance. To be designated, one or more of the following criteria must be met:

(1) Buildings, structures or objects with distinguishing characteristics of an architectural style or period, that exemplify a particular architectural style or design features;
(2) Works of notable architects, builders, or designers whose style influenced architectural development;
(3) Rare buildings, structures, or objects or original designs;
(4) Buildings, structures, objects or sites of historical significance which include places:
    a. Where important events occurred;
    b. Associated with famous people, original settlers, renowned organizations and businesses;
    c. Which were originally present when the city was founded; or
    d. That served as important centers for political, social, economic, or cultural activity.
(5) Sites of archaeological importance;
(6) Buildings or structures that were connected with a business or use which was once common, but is now rare.

[16] Santa Ana Municipal Code (SAMC) § 30.

Religious buildings, i.e., properties used for religious purposes or owned by religious organizations, are not designated by the City of Santa Ana even if the property demonstrably satisfies one or more of the criteria of significance, if the institution objects to such designation.

Every property listed in the Santa Ana Register is categorized based upon the following criteria for each category:

- Landmark category.
    a. The building, structure, object or site is on the National Register or appears eligible for listing on the National Register; or
    b. The building, structure, object or site is on the California Register or appears eligible for listing on the California Register; or
    c. The building, structure, object or site has historical/cultural significance to the city; or
    d. The building, structure, object or site has a unique architectural significance.

- Key category.
    a. The building, structure, object or site has a distinctive architectural style and quality; or
    b. The building, structure, object or site is characteristic of a significant period in the history of the City; or
    c. The building, structure, object or site is associated with a significant person or event in the City.

- Contributive category. The building, structure, object or site contributes to the overall character and history of a neighborhood or district and is a good example of period architecture.

The City has instituted a Certificate of Appropriateness process for exterior modifications, major alterations, relocations, and/or demolitions of historic properties. Staff and the HRC review and approve applications for Certificates of Appropriateness with respect to conformance with the Secretary's Standards.

Applicability: Ordinance 30 is the City's mechanism for managing its historical resources. Ideally, the General Plan Update would be consistent with purpose of Ordinance 30. Future developments may be subject to review by the Historical Resources Commission under Ordinance 30. Properties listed in the Santa Ana Register are historical resources under CEQA.

2.4.3 Santa Ana Historic Property Preservation Agreements (Mills Act)[17]

Property owners whose properties are listed on the Santa Ana Register are eligible to enter into a historic property preservation agreement (Mills Act Agreement) with the City, as recommended by the Commission and approved by City Council. Pursuant to California Government Code Section 50281 et seq., a Mills Act Agreement provides a property tax relief incentive for owners of qualified historic properties to maintain and preserve the historic and architectural character of their property. Mills Act Agreements are held in perpetuity, renewable in ten-year increments, and are transferred to the new owner should a historic property be sold. Qualified historic properties include those listed on the Santa Ana Register, are owner-occupied, single family residences, or income-producing commercial properties. The types of preservation conditions established by a Mills Act Agreements differ for each property's specific needs. As of 2019, Santa Ana has awarded 293 recorded and 2 pending Mills Act Agreements.

[17] SAMC § 30-25 through § 30-30.

Applicability: The properties awarded Mills Act Agreements are historical resources under CEQA.

2.4.4 Santa Ana Historic Districts

As defined by Chapter 30 of the SAMC, a local historic district refers to a collection or group of historic properties within a defined area. According to Chapter 30, a local historic district shall be designated only if it meets one or more of the following standards:

(1) The area constitutes a distinct section of the city and has special character, historical, architectural, or aesthetic interest and value.
(2) The area provides significant examples of architectural values of the past or landmarks in the history of architecture.
(3) The area serves as a reminder of past eras, events, or persons important in the history of the city, the county, the state or the United States of America or illustrates past living styles for future generations to observe, study, or inhabit.
(4) The area is the site of a historically or culturally significant ground, garden, or object.

Under Chapter 30, local historic districts are designated by resolution from the City Council after receiving the recommendation from the HRC. At the time of the creation of the local historic district, the City Council may adopt design guidelines for the historic district. To date (2019), the City has not designated any local historic districts utilizing this provision.

However, the City of Santa Ana has two listed National Register historic districts: Downtown Santa Ana (listed in 1984) and French Park (listed in 1999). In addition to National Register listing status, the French Park Neighborhood also maintains zoning protection for its historical resources through Specific Development 19 (SD-19). While not National Register-listed, a third district, the Heninger Park neighborhood, also has zoning protection for its historic buildings through Specific Development 40 (SD-40). A specific Neighborhood Review[18] process must be followed for all exterior improvements and new construction within the boundaries of the Historic French Park (SD-19) and Heninger Park (SD-40) districts.

Applicability: The National Register-listed and -eligible districts and Specific Development districts are historical resources under CEQA.

2.4.4.1 French Park Historic District Specific Development No. 19 (SD-19) Development Standards and Architectural Design Guidelines

In 1984, the City Council created the French Park Historic District Specific Development No. 19 (SD-19) (French Park Historic District) through adoption of a Zoning Ordinance which delineated the SD-19 boundary, implemented the City's first historic overlay zone, and set standards for all exterior rehabilitation and new infill development projects of properties within the French Park Historic District. The ordinance stipulates that all exterior rehabilitation and conversion projects be subject to design review by the Planning Department and all new infill development projects be subject to site plan review by the Planning Commission. All rehabilitation projects must conform to the Secretary of the Interior's Standards for Rehabilitation (Secretary's Standards), and all exterior projects must conform to any City Council-adopted Development Standards and Guidelines.

In 1995, the Historic French Park Association created the French Park Historic District Architectural Design Guidelines (guidelines)[19] which clarify the Secretary's Standards

[18] City of Santa Ana Planning Division. 2014. Neighborhood Review Application Process. Santa Ana, CA. https://www.santa-ana.org/sites/default/files/Documents/Neighborhood_Review_Application2014.pdf

[19] Diann Marsh and the Historic French Park Association. 1995. Historic French Park: Its Architectural Legacy and Design Guidelines. Santa Ana, CA. https://www.santa-

requirements and assists residents and property owners in the design of new infill development and exterior improvements, including but not limited to rehabilitation and/or additions. A Neighborhood Review[20] process requires all exterior improvements and new construction within the boundaries of Historic French Park (SD-19) to be reviewed by City Planning staff for zoning and development standards, and the Neighborhood Architectural Review Committee. Based on the scope of the improvement project, approval by the HRC and/or the City of Santa Ana Planning Commission may also be required.

2.4.4.2 Heninger Park Specific Development No. 40 (SD-40) Development Standards and Architectural Design Guidelines

In 1996, the City Council created the Heninger Park Specific Development No. 40 (SD-40) through adoption of a Zoning Ordinance, amended in 2006, which delineated the SD-40 boundary, implemented the City's second historic overlay zone, identified SD-40 "project areas," and detailed General and Specific Development Standards specifying strict zoning provisions over the designated SD-40 area. These General and Specific Development Standards prescribe permitted uses, allowable minimum gross floor areas, allowable minimum lot sizes, allowable building heights, required yards, general provisions, demolition permits, etc.

Completed in 2006, the Heninger Park Specific Development (SD-40) Architectural Design Guidelines (Guidelines)[21] established architectural standards and processes the City staff follows in developing recommendations for the Heninger Park district. The purposes of the Guidelines are to provide an official direction to the future development, rehabilitation, and preservation of the Heninger Park district and promote the preservation and enhancement of its historical character and culturally significant structures within the district. The Guidelines are not intended to be strict development standards, and therefore, they may be interpreted by the City with some flexibility when applied to specific projects.

The guidelines apply to all new infill development projects and all properties within Heninger Park that have been determined to be eligible for, or are listed in, the City of Santa Ana Register of Historical Properties. These Guidelines are intended to assist residents and property owners in the design of new infill development and exterior improvements, including but not limited to rehabilitation and/or additions. A Neighborhood Review[22] process requires all exterior improvements and new infill development projects within the boundaries of Heninger Park (SD-40) to be reviewed by City Planning staff for zoning and development standards, and the Neighborhood Architectural Review Committee. Based on the scope of the improvement project, approval by the HRC and/or the City of Santa Ana Planning Commission may also be required. Properties within the Heninger Park district that are not listed in Appendix A of the Guidelines are subject to the Citywide Design Guidelines.

2.4.5 Citywide Design Guidelines

The Citywide Design Guidelines[23] provide design guidance on repairs and alterations to historical resources, as well as new infill construction in local historic districts. Two chapters of the Citywide Design Guidelines apply to historical resources—Chapter 8, "Downtown Development Guidelines," and Chapter 13, "Historic Structures Guidelines"—and both are based on the Secretary's Standards. The "Downtown Development Guidelines" apply to the National Register-

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ana.org/sites/default/files/Documents/FrenchParkDesignGuidelines.pdf

[20] City of Santa Ana Planning Division. 2014. Neighborhood Review Application Process. Santa Ana, CA.

[21] City of Santa Ana Planning Division and Heninger Park Architectural Review Committee. 2006. Heninger Park Architectural Design Guidelines. Santa Ana, CA. https://www.santa-ana.org/sites/default/files/Documents/HPDGFinalMaster-10.04.06final.pdf

[22] City of Santa Ana Planning Division. 2014. Neighborhood Review Application Process. Santa Ana, CA.

[23] City of Santa Ana. 2006. Santa Ana Citywide Design Guidelines. Santa Ana, CA. https://www.santa-ana.org/sites/default/files/Documents/SantaAnaCitywideDesignGuidelines_rev060706_0.pdf

listed Downtown Santa Ana Historic District, and provide design guidelines for historically significant buildings as well as for additions and new infill development projects. Section 8.4 provides both general guidelines and recommendations for the treatment of various components of a historic building, and, based on the Secretary's Standards, focus on rehabilitation, adaptive reuse, and preservation. Section 8.4 also includes a section on seismic retrofit of historic structures and architectural guidelines, and focuses on building form and mass, rhythm and proportion, wall and roof articulation, and materials and colors. Chapter 13 applies to all properties listed in the Santa Ana Register, and emphasizes preservation, rehabilitation, and adaptive reuse. It covers exterior repairs and alterations, with recommendations for the treatment of historic building materials and components, additions and new accessory buildings, landscaping, and residential lighting. Preservation incentives are also included.

Applicability: Future projects that affect historical resources would be subject to the Citywide Design Guidelines.

2.4.6 Adaptive Reuse Ordinance

The City has adopted an Adaptive Reuse Ordinance to encourage reuse of historic buildings while maintaining a reasonable level of safety and habitability in conformance with the provisions of the California Health and Safety Code (HSC) §17958.11.[24] The Adaptive Reuse Ordinance provides eligibility criteria for adaptive reuse projects, as well as minimum development standards including residential unit size, commercial/retail space street frontage, common area space, and open space. The Adaptive Reuse Ordinance may be applied to a building or structure located in a "project incentive area." These areas include the midtown specific plan zoning district (SP-3); the transit zoning code district (SD-84); the North Main Street Corridor on both sides of Main Street from Seventeenth Street to the northern end of Main Place Drive; and, the East First Street Corridor on both sides of First Street from Grand Avenue to Elk Lane. Adaptive reuse projects that comply with the development standards are eligible for certain project incentives that include modification of underlying zoning requirements.[25]

Applicability: Future projects in incentive areas that affect historical resources may be subject to CEQA.

2.4.7 Midtown Specific Plan

In 1996, the City Council adopted the Midtown Specific Plan (SP-3) (specific plan) through adoption of a Zoning Ordinance[26] which changed the existing zoning of the Midtown planning area to SP-3, and included design guidelines and development standards for all properties within the Midtown planning area. The specific plan encourages the adaptive reuse of historically or architecturally significant buildings and districts throughout the Midtown planning area. The Midtown planning area identifies five districts: the Civic/Professional District, Financial District, Community and Specialty Retail District, Broadway Corridor District, and Bush Street Professional District.

Chapter 4 "Civic/Professional District" identifies historic buildings clustered along Civic Center Drive as 'site attributes,' as well as the Christian Science Church as a development opportunity. Chapter 6 "Community and Specialty Retail District" encourages relocation of historic structures on Main Street, identifying Specialty Row as a development opportunity. Chapter 7 "Broadway Corridor District" and Chapter 8 "Bush Street Professional District" encourage the preservation of scale and character attributed by the historic and architecturally significant structures within both respective districts.

[24] Santa Ana Municipal Code, Chapter 41, Article XVI.II, Sec. 41-1650.
[25] Santa Ana Municipal Code, Chapter 41, Article XVI.II, Sec. 41-1652.
[26] City of Santa Ana Ordinance No. NS-2308

Applicability: Future projects in the specific plan areas that affect historical resources may be subject to CEQA.

2.4.8 Community Arts and Cultural Master Plan

The Community Arts and Culture Master Plan[27] was published in 2016 and produced goals and recommended strategies informed by eight themes to guide the future of arts and culture within the City. Goal 7 is to "preserve Santa Ana's unique heritage while creating arts and cultural opportunities through new placemaking initiatives". Under the *Placemaking and Placekeeping* theme, Recommendation 7.2 is to develop a comprehensive plan for the cultural preservation of the legacy and history of the city, inclusive of historic mural preservation and distinctive architecture identified several initiatives:

> **Initiative 7.2.1**: Identify opportunities within the City for Santa Ana Cultural Trails and work with the Historic Commission to install high-quality, artistic plaques and historical markers throughout the city to note local history.
>
> **Initiative 7.2.2**: Create policies and regulations protecting historic landmarks against developers and provide incentives and tax abatements for historic preservation and restoration. Review the Mills Act processes to ensure more equitable outcomes balancing historic preservation with planned development.
>
> **Initiative 7.2.3**: Conduct a citywide historic survey, updating the results of the 1980s Heritage OC survey.
>
> **Initiative 7.2.4**: Identify key buildings in need of seismic retrofitting. Work to pass bond measures that finance building owners to rehabilitate seismically unstable buildings.
>
> **Initiative 7.2.5**: Identify key Mid-Century architecture and other missing buildings to be added to the City Historical Register that are currently outside of its scope.

The Community Arts and Cultural Master Plan assigns the Department of Planning and Building and the Historic Resources Commission as responsible to lead the implementation of Recommendation 7.2 and associated initiatives.

Applicability: Ideally, the General Plan Update and future development projects will be consistent with the Community Arts and Cultural Master Plan.

[27] City of Santa Ana. 2016. Santa Ana Arts and Culture Master Plan. Santa Ana, CA. http://www.santa-ana.org/cda/artsmasterplan.asp

SECTION 3 HISTORIC CONTEXT

3.1 OVERVIEW OF SANTA ANA HISTORY

Originally inhabited by indigenous Tongva[28] tribes,[29] the land that is now within the boundaries of the City of Santa Ana fell under jurisdiction of Mission San Juan Capistrano during the era of Spanish rule (1769-1821, Mission Period). The first European exploration of the area that would become Orange County began in 1769 when the Gaspar de Portola expedition passed through on its way from Mexico to Monterey, Alta California (now California).[30] In 1776, Mission San Juan Capistrano was founded, bringing Spanish colonization to present-day Orange County. From 1784 to 1821, Spain granted several large land concessions in an effort to promote Spanish settlement of Alta California. Spain, however, retained title to the land and individual land ownership was not granted. On July 1, 1810, permission for ranch settlement and cattle grazing of Rancho Santiago de Santa Ana was granted to Antonio Yorba and his nephew, Juan Pablo Peralta, by Jose Joaquin de Arrillago, Spanish Governor of Alta California. The total land concession comprised 17 leagues (62,516 acres), extending along the southeast bank of the Santa Ana River from the mountains to the coastline,[31] and would later become present-day Santa Ana.

In 1821, Mexico gained independence from Spain, ending the Mission Period and transferring rule of Spain's North American territories to Mexico.[32] In 1848, the Treaty of Guadalupe Hidalgo was signed, ceding the southwestern territories of present-day Arizona, California, Colorado, Nevada, New Mexico, Utah, and Wyoming from Mexican rule to the United States. In 1850, California was officially admitted as a state, with the region of present-day Orange County originally part of Los Angeles County. American pioneers gradually migrated west during this transitional period, and in 1868, Illinois-based American pioneer Jacob Ross Sr. and his family[33] purchased 650 acres of the Yorba family's Rancho Santiago de Santa Ana.

In 1869, William H. Spurgeon purchased from Jacob Ross Sr. 74.25 acres of land for 594 dollars, to establish what would become the original town of Santa Ana.[34] Laid out by George Wright of Los Angeles, the original town consisted of 24 square-blocks[35] with ten lots each on 43 acres. The boundaries were First Street to the south, West Street (now Broadway) to the west, Seventh Street to the north, and Spurgeon Street to the east. The town's first building was the Spurgeon Store, which also served as the post office. The first institutions founded in the new settlement were the Spring School District in 1869 and the Methodist Episcopal Church South in 1870.[36] At the time of the town's conception, the region was transforming from a ranch economy into a more established agriculturally based society, with the town serving as a central trade center and post office with supportive infrastructure for surrounding agricultural areas. By 1880, Santa Ana was becoming a major commercial center for southern Los Angeles County with a variety of stores and businesses including blacksmiths, harness makers, saloons and billiard parlors, a gunsmith, and several grocery and dry goods stores.[37] The arrival of the Southern Pacific Railroad in 1878

[28] Indigenous Tongva people were referred to as *Juaneños* and *Gabrieleños* by Spanish settlers.
[29] Diann Marsh, *Santa Ana…An Illustrated History*, Encinitas: Heritage Publishing Company, 1994, 17.
[30] Diann Marsh. "Rancho Santiago de Santa Ana: The Grijalva, Yorba, Peralta, and Sepulveda Families." Santa Ana Historical Preservation Society. Revised September 21, 2008. Accessed March 19, 2019. https://www.santaanahistory.com/articles/ranchos.html
[31] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 25.
[32] Ibid., 24.
[33] Ibid., 39.
[34] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 39-40.
[35] Diann Marsh. "William Spurgeon and the Beginning of Santa Ana." Santa Ana Historical Preservation Society. 1994. Accessed March 19, 2019. https://www.santaanahistory.com/articles/spurgeon.html
[36] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 41.
[37] Ibid., 59-60.

and the Santa Fe Railroad in 1886 gave way for Santa Ana's first building and subsequent population boom, encouraging the development of Santa Ana's first residential subdivisions. Santa Ana's first historic district, French Park (see Appendix Figure 3 for a city map illustrating neighborhoods referenced in this report), originated at this time when a 160-acre tract called Santa Ana East was plotted parallel to the Southern Pacific Railroad tracks.[38] Once known as the "Nob Hill of Orange County"[39], the French Park Historic District, is a 20-square block residential district northeast of Santa Ana's historic core, and includes Victorian and Craftsman residences, including some extant from this 1880s community.[40]

On June 12, 1886, the City of Santa Ana incorporated into Los Angeles County with a population of 2,000.[41] A few years later, in 1889, Santa Ana won the County Seat as Orange County separated from Los Angeles County, further stimulating the development of businesses, stores, financial institutions and hotels to accommodate and serve the booming population. Citrus and walnut farms were still plentiful and buying and selling land became the number one enterprise. In the 1890s, Santa Ana held a "mixed population of farmers, skilled and unskilled workers, professionals, merchants, bankers, and industrialists."[42] At this time, Santa Ana's Eastside neighborhood began to develop southeast of the City's historic core, with house-sized lots and large parcel subdivisions expanding south in 1898 through 1913, resulting in Victorian era Queen Anne and Eastlake style residences, as well as Colonial Revival and later Craftsman bungalow styles to follow southwest.

Development in the early 1900s and 1920s reflected the needs of this mixed demographic, as many buildings in the downtown area and surrounding bungalows were constructed at this time, and the boardinghouse became a typical property type for working class citizens seeking housing above commercial shops and office spaces.[43] By 1906, the arrival of the Pacific Electric Railway's Red Car provided a suburban line from Santa Ana to Los Angeles,[44] and by 1910, Santa Ana steadily grew in population of up to 8,429 persons, marking Santa Ana as the largest city in Orange County at the time. The expansion of an interurban trade network and the growth of agricultural citrus industry, brought in both permanent and temporary immigrants as a valuable labor force in Orange County,[45] including the arrival of Chinese and Japanese immigrants by the 1900s, leading to the development of local 'Chinatowns' in both Santa Ana[46] and Anaheim.

Residential development particularly surrounding Santa Ana's downtown historic core established many of Santa Ana's oldest neighborhoods today, attributing much of their growth to their proximity to the original civic and commercial center as well as the expansion of Pacific Electric railway lines. This included the Flower Park residential neighborhood west of downtown; the Lacy neighborhood inclusive of residential, commercial, institutional, and industrial uses east of downtown; and the Heninger Park residential neighborhood south of downtown. In addition, competitive city annexations in Orange County at the turn of the early twentieth century further

[38] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 54, 57.

[39] The nickname references the construction of large Neo-classical and Colonial Revival residences by prominent Santa Ana citizens in the 1890s, similar to the Nob Hill neighborhood in San Francisco, California. National Register Nomination Application for the French Park Historic District. Historic French Park Association. 1999. 5.

[40] Diann Marsh. "The French Park Historic District and Neighborhood." Santa Ana Historical Preservation Society. 1994. Accessed March 19, 2019. https://www.santaanahistory.com/articles/frenchpark.html

[41] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 63.

[42] Lisbeth Haas, *Conquests and Historical Identities in California: 1769-1936*, Berkeley: University of California Press, 1995, 174.

[43] Ibid, 175.

[44] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 93.

[45] Phil Brigandi, *Orange County Chronicles*, Charleston, SC: The History Press, 2013.

[46] Originally located downtown at Third and Bush, Santa Ana's Chinatown is no longer extant due to displacement pressures caused by anti-Chinese sentiment increasing since the 1870s through 1906.

enabled the development of residential subdivisions, including the French Court and Santa Ana Triangle neighborhoods north of French Park. Areas not immediately adjacent to the historic core remained primarily agricultural and undeveloped well into the twentieth century.

During the 1910s and 1920s, residential subdivisions of neighborhoods not immediately adjacent to the historic core steadily increased, including the building of small- to medium-sized Craftsman bungalows and Colonial Revival style residences. By 1912, more than half of the Pico-Lowell neighborhood southwest of downtown was subdivided with residential lots. The 1910s also exhibited increased manufacturing and industry as a sign of Santa Ana's economic strength.[47]

By 1916, Santa Ana had three *barrios*, or neighborhoods which emerged under the City's politics of spatial segregation as a result of racial prejudice at the time.[48] A vibrant and cultural community of *Californios*,[49] California Indians, and Mexicans from the pre-American statehood period, and new Mexican immigrants alike formed Santa Ana's three barrios: the Artesia, Delhi, and Logan neighborhoods. The *barrios* were relatively small, "situated near fields, factories, and railroads,"[50] and were linked to and populated by informal migration networks. The Artesia Pilar neighborhood (originally the Artesia barrio) was built on Santa Ana's western city limits on swampland drained for the construction of the Pacific Electric railway. Historically notable, this barrio was one of approximately 45 neighborhoods, or *colonia*s, in Orange County in which Mexican-Americans were able to purchase property, live, attend school, and worship. The Delhi barrio (originally known as Glorietta) was similarly built on Santa Ana's southern city limits on farm and swampland. Like the Artesia and Delhi barrios, the Logan barrio was built on Santa Ana's eastern city limits near railway tracks.[51] All three barrios were constituted by working-class residents, with the growth of the barrios enabled by the then-low cost of land and facilitated by nearby industrial sugar factories.

By the 1920s, Santa Ana had established a strong economy based on its agriculture, industry, and retail. This coincided with explosive population growth throughout Orange County, with the majority of that growth concentrated in Santa Ana as the City sought to annex much of the area west of Orange,[52] and Santa Ana became the commercial center for all of Orange County.[53] Santa Ana grew from a population of 16,000 in 1920 to a population of 30,000 by 1929,[54] in part due to the expansion of interurban rail networks, and the popularity of the automobile in the 1920s.[55] Through to the 1930s, Santa Ana's downtown commercial center experienced prosperity and growth, as many of its brick structures along Fourth Street were improved with classical and modern facades between 1919 and 1930, and new multi-story commercial and professional buildings were constructed, making Downtown Santa Ana "truly cosmopolitan."[56] The mid- to late-1920s marked the founding of Santa Ana's first radio station and the formation of the Metropolitan Water District. Prosperity and growth at this time was also reflected in the increase in patrons of religious institutions and social, community organizations like the Ebell Club and the Young Mens' Christian Association (YMCA).[57] By 1923, Downtown Santa Ana's building boom was evident in

[47] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 113.
[48] Lisbeth Haas, *Conquests and Historical Identities in California: 1769-1936,* 1995, 165
[49] *Californios* refers to the Spanish-speaking residents of Alta California during the Spanish and Mexican era (1769-1848), prior to California statehood in 1850.
[50] Lisbeth Haas, *Conquests and Historical Identities in California: 1769-1936,* 1995, 165.
[51] Ibid., 181.
[52] Ibid., 177.
[53] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 130.
[54] Ibid., 126.
[55] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 129.
[56] Ibid., 118, 129.
[57] Ibid., 118, 126.

the planning and construction of hotels, theaters, entertainment centers, and buildings associated with social organizations, businesses, and tradesmen.

To accommodate the rapidly growing population, several of the City's residential neighborhoods were laid out and developed, as was the expansion of the City's school system. This included the construction of Period Revival single-family homes and duplexes, and a handful of multi-family apartment buildings in residential neighborhoods into the 1930s. By this time, the French Park, Eastside, and other neighborhoods surrounding the downtown historic core were fully developed. The Wilshire Square neighborhood south of downtown began development circa 1923, and constituted of single-family residences, with multi-family residences serving as a buffer between commercial development. The Washington Square neighborhood northwest of downtown was developed from 1925 until 1950, with many of its residences built during the 1930s by local contractor Emmett Rogers according to standard plans and individual customization. The Floral Park neighborhood also northwest of downtown began development in 1920, with its subdivisions and custom residences developed by local developer and builder Allison Honer in the English Tudor, French Norman, Spanish Colonial, and Colonial Revival styles. The Jack Fisher Park and Park Santiago neighborhoods were both developed in the 1930s, with the coinciding Jack Fisher Park and Santiago Park developed in 1935.[58]

With an increased housing stock and population base came the demand for more schools, resulting in the construction of two junior highs (Willard and Lathrop) and over a dozen elementary schools; as well as additions to the Santa Ana High School, and the then-neighboring Santa Ana College.[59] New schools were constructed in remote parts of the City, while segregation still in force reflected by construction of four Mexican-only schools during this period.[60]

During the 1930s, Santa Ana sought recovery from the impact of a series of significant nationwide and regional events, including the stock market crash of October 29, 1929; the Great Depression; the Long Beach earthquake of March 10, 1933; and torrential rain and flooding from February 27 to March 4, 1938. The Long Beach earthquake caused the death of three residents in the City and substantial property damage. As a result, construction slowed dramatically in the 1930s, marking the end of a period of prosperity.[61] The 1930s was also characterized by Federal reconstruction efforts following the Great Depression, as new commercial, civic, and institutional buildings particularly in Downtown Santa Ana[62] replaced those demolished or damaged by the earthquake, with many designed in the popular Art Deco/Art Moderne styles. New construction and reconstruction of demolished or damaged public buildings was Federally funded, with buildings designed or redesigned in the Art Moderne style of the Works Progress Administration (WPA). Many of Santa Ana's old brick commercial buildings in Downtown Santa Ana were improved with Moderne facades which replaced original brick and iron storefronts. "Declared unsafe for occupancy,"[63] Santa Ana's old City Hall was demolished and replaced with the WPA-sponsored Santa Ana City Hall at Third and Main Street in 1935.[64] The 1930s also marked a turning point for arts and cultural institutions, as public support launched the formal opening of the public Bowers Museum in 1936.[65] Between 1935 and 1942, infill construction in neighborhoods like Wilshire Square began to reoccur, marking the City's recovery from the Great Depression and the war preparation years.

[58] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 141.
[59] Ibid., 119, 126.
[60] Ibid., 124-125.
[61] Ibid., 136.
[62] Ibid., 138.
[63] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 137.
[64] Guy D. Ball, *Santa Ana In Vintage Postcards*, Charleston: Arcadia Publishing, 2001, 53.
[65] Manuel Escamilla, Santa Ana Community Arts and Cultural Master Plan, City of Santa Ana, 2016, 11.

Most development of the early 1940s and during World War II involved four regional military bases,[66] including the Santa Ana Army Air Base and the West Coast Air Corps Training Center, both established to aid the war effort. The Air Base functioned as a basic training camp, and did not have airplanes, hangars, or runways, and the Training Center located on 8th Street near downtown served as a training center for airmen throughout the duration of the war.

Following World War II, Santa Ana experienced the increased suburbanization characteristic of Orange County at the time as servicemen returned from the war and the demand for homes in southern California grew, launching an unprecedented period of growth and industrial expansion that would significantly alter the once expansive agricultural, open ranch landscape.[67] Santa Ana had a population of 31,921 residents in 1940, and by 1950, the population had grown to 45,533. This influx of new residents and immigrants would continue for 40 years.[68] The need for a labor force to harvest existing crops of Orange County ranchers and farmers accounted for this population influx, where by 1943, a committee of growers and farmers established the *bracero* program to import seasonal workers from Mexico, and by 1945, over 500 German prisoners of war were brought in as part of this labor force.[69]

Residential neighborhoods like West Floral Park were largely developed between 1947 and 1950, with subsequent development and infill construction displaying the emerging, modest, and simplified California Ranch style as in the Park Santiago neighborhood. The late 1940s and 1950s post-war housing boom further developed sections of neighborhoods that remained unimproved prior to the war, like the Pico-Lowell neighborhood southwest of the City center and the Morrison Park neighborhood north of the City center, where hundreds of modest California Ranch style residences were constructed. Architects of the early 1950s had overwhelming success in building residences ranging from 1,500-6,000 square feet in this modest ranch style, including the Jack Fisher Park neighborhood north of the City center.

By the late 1940s, Downtown Santa Ana was thriving with the construction of many department stores like the J.C. Penney, Sears and Roebuck, and Rankin's Department Store.[70] However, with the post-war housing boom came a population with changing needs and values that would impact the historic character of many neighborhoods and their historic buildings. Alterations to some of the City's oldest buildings along West Fourth Street occurred at this time, while the historic character of neighborhoods like the French Park neighborhood began to decline in the 1940s and 1950s as some homes were converted into rooming houses and others left to deteriorate.

During the 1950s and 1960s, the post-war housing boom accelerated change in the character of neighborhoods as demolition and/or new construction increased in neighborhoods like the Santa Ana Triangle neighborhood northeast of the City center, and the Riverview West neighborhood northwest of the City center. The 1950s was also characterized by the growth of the automobile industry following the end of wartime gasoline rationing.[71] Changing social and economic trends led to the suburbanization of shopping areas, as the Fashion Square Mall was constructed in 1959 adjacent to the Bullock's Department Store north of downtown.

From the 1960s into the 1980s, Santa Ana was characterized by explosive population grown. By 1960, Santa Ana's population of 100,359 was almost double its 1950 census count. By 1970,

[66] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 147.
[67] Ibid., 147.
[68] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 154.
[69] Ibid., 155.
[70] Ibid., 155.
[71] Diann Marsh, *Santa Ana…An Illustrated History*, 1994, 155.

Santa Ana's population was 156,359, and by 1980, had grown to 203,714.[72] This influx in new residents was partly a result of changing post-war immigration policies, including the influx of Vietnamese refugees following the end of the Vietnam War in 1975.[73]

The early 1960s through to the late 1970s exhibited a trend of downtown business decay. This resulted in a "grass roots" historic preservation movement as advocates aimed to keep the historic integrity of buildings intact, or promote modification with reversible alterations. The demolition of some historic properties in the French Park and Heninger Park neighborhoods and their redevelopment and replacement with high-density multi-family properties during the 1960s through the 1980s coincided with this 1970s "grass roots" effort to establish the French Park neighborhood as the City's first local historic district in 1984 and the Heninger Park neighborhood as the second in 1986, through the creation of Specific Development (SD) zoning districts intended to preserve historic character. In 1984, the Downtown Santa Ana Historic District was listed in the National Register, and in 1999, the French Park Historic District was listed in the National Register. In 1998, City Council adopted Chapter 30 of the Santa Ana Municipal Code as their Historic Preservation Ordinance, which established the City's local inventory of historical resources, the "Santa Ana Register of Historical Properties," as well as created the Historic Resources Commission to oversee the City's Historic Preservation Program.

3.2 HISTORIC CONTEXT THEMES

Historical resources in the City would typically fall into six broad categories defined by function and themes specific to the City: residential; commercial; institutional and infrastructural; agricultural and industrial; architectural; and arts and cultural resources.

3.2.1 Residential

Residential properties include single-family houses, both individually constructed and part of suburban tracts, rooming houses, multi-family buildings (duplexes, fourplexes, apartment buildings, etc.), condominium development, townhouses, bungalow courtyard housing, mobile home parks, and any other buildings constructed for residential use. The majority of historically significant residential properties in Santa Ana are significant as examples of architectural styles or periods. Residential historical resources may also be significant for representation of important historical events or patterns or association with noteworthy personages. Residential properties may include accessory structures, gardens, landscaping, and mature trees, if they contribute to the historic character of the resource. In Santa Ana, notable residential resources are concentrated in early residential neighborhoods such as the French Park Historic District, Heninger Park Historic District, Floral Park, Wilshire Square, and surrounding the Downtown Santa Ana Historic District, although an increasing number of post-World War II properties have also been recognized.

3.2.2 Commercial

Commercial resources include but are not limited to retail buildings, restaurants, banks, shopping and commercial town centers, entertainment venues (theaters, bowling alleys, etc.), hotels and motels, office buildings, medical office buildings, automobile showrooms, garages, self-storage facilities, gas stations, mixed-use industrial buildings, mixed-use residential buildings, and other properties operated for profit or reused for commercial use. Notable commercial resources are concentrated in the Downtown Santa Ana Historic District along Fourth Street and the adjacent streets and along the Main Street and Broadway corridors.

[72] Ibid., 154.

[73] Vietnamese refugees settled throughout Orange County, including Garden Grove, Westminster, and Santa Ana, resulting in Orange County having the largest concentration of Vietnamese-Americans outside of Vietnam.

3.2.3 Institutional and Infrastructural

Institutional resources include but are not limited to schools, libraries, civic buildings or structures (e.g., city hall, library), Federal government buildings or structures (e.g., courthouse, post office), fraternal halls and social facilities, hospitals, religious buildings, parks and recreational facilities, detention facilities, transportation facilities, and any other resources used for public or institutional use.

Infrastructural resources include parks, bridges, historic highways, parkways, period street lighting, street furniture, and other publicly funded improvements.

Examples of notable institutional resources include the Old Orange County Courthouse, Old City Hall, and the YMCA building. A collection of historically and architecturally significant institutional resources remain concentrated around the Downtown Santa Ana Historic District.[74]

3.2.4 Agricultural and Industrial

Agricultural resources include but are not limited to farm buildings, structures, fields or groves, and packing houses associated with cultivation and distribution of citrus and walnuts, as these specific industries were historically associated with the growth of the City. Industrial resources include but are not limited to manufacturing plants, warehouses, airports and associated industrial buildings and structures, and railroad-associated resources. Industries historically associated with the City include agriculture, dairy, oil, railroad transportation, U.S. Army and Air Force, and manufacturing of clothing, jewelry, and other products.

Agricultural resources have become scarce in Santa Ana and include the Maag Ranch and Maag Ranch House. The former Pacific Electric Substation is an example of a transportation-related resource.

3.2.5 Architectural

Santa Ana's architectural history paralleled that of other southern California communities. Most historical properties that have been recognized in the City are representative of particular styles or eras. Typical architectural styles for residential resources include (but are not limited to) Eastlake, Queen Anne, Craftsman, various Period Revivals (Spanish Colonial Revival, Mission Revival, Colonial Revival, English Revival, Tudor Revival, etc.), California Ranch, and Modern. Typical architectural styles for commercial and institutional resources include Spanish Colonial Revival, Renaissance Revival, Beaux Arts, Art Deco, and Modern (International, Corporate International, etc).

A minority of historical resources in Santa Ana can be definitively attributed to specific architects, designers, or builders. Notable architects/practitioners in Santa Ana include Fred (Frederick) Eley, Rex D. Weston, Everett E. Parks, Clifford Yates, Frank Lansdown, and Gilbert Stearns. Notable regional architects/practitioners with work in Santa Ana include W. Horace Austin and Donald Beach Kirby; and work by Federal architects James A. Wetmore and Louis A. Simon. Notable builders/developers in Santa Ana include Allison Honer, Roy Russell, Wesley Farney, William D. Greschner, T.H. Fowler, and Floyd B. Rogers.

3.2.6 Arts and Cultural

Arts and cultural resources include but are not limited to theaters, museums, art galleries, entertainment halls, community-based murals, and art centers. Notable arts and cultural

[74] National Register of Historic Places Nomination Application for the Downtown Santa Ana Historic District (Downtown Santa Ana Historic Districts National Register Application). Heritage Orange County. 1983.

resources include the Walkers Orange County Theater (Fox West Coast Theater), the Yost Theater/Ritz Hotel, and the Charles Bowers Memorial Museum.

SECTION 4 BUILT ENVIRONMENT HISTORICAL RESOURCES

4.1 METHODS USED TO IDENTIFY HISTORICAL RESOURCES

Systematic efforts to identify historical resources in the City of Santa Ana began in the late 1970s, when a series of historic resource surveys, partially funded by the National Preservation Fund through grants made by the California Office of Historic Preservation, were undertaken. By the turn-of-the-twenty-first-century, "grass roots" efforts by Santa Ana citizens had led to several listings in the National Register, including the Downtown Santa Ana and French Park historic districts, and to over one hundred local designations. Various Federally assisted projects, including improvements to the Interstate 5 freeway and loans and grants funded through the Department of Housing and Urban Development, have also resulted in the identification and evaluation for historic merit of a significant number of properties in the City. Beginning in 2000, the City, with the Planning Department and the Historic Resources Commission taking the lead, has made significant strides in identifying and designating in the Santa Ana Register several hundred properties throughout the City. Additionally, the incentive offered by Mills Act contracts has convinced numerous property owners to request evaluations of eligibility with a view towards designation.

As a result, nearly 2,000 properties in Santa Ana have been identified and recorded, although not all have current evaluations. In order to provide a picture of the nature and number of built environment historical resources in Santa Ana and to capture these prior efforts and studies, an Existing Conditions Database was compiled (see Appendix). The database is summarized in Table 2, Historical Resources Recorded in Santa Ana. Primary sources for this database included the National Park Service (for National Register and other federal designation programs); the Historic Property Data File (HPDF) maintained by the State (for historic resources surveys completed with OHP-administered grants, Section 106 and tax certification evaluations, national and California designation programs); and the City of Santa Ana (for the Santa Ana Register and Specific Development properties). Since the most recent Historic Property Data File for Orange County was issued in 2012, the OHP was further consulted to determine if any additional designations were made between 2012 and 2019.[75]

4.1.1 Limitations

While the Historic Property Data File also includes properties evaluated and found not to be historical resources, as well as properties flagged for further evaluation, the resources listed in the Existing Conditions Database generally includes only those evaluated as eligible for federal, state, or local designation and excludes those found ineligible or noted for further evaluation. Many of these evaluations date to surveys recorded in 1981 and were not field checked during the course of compiling the database. Therefore, it is possible that many properties either no longer exist or have lost integrity. There were also multiple points of potential error during the process of consolidating disparate sources into a single database. These include varying dates and methods of identification and evaluation; gaps in available data such as recent listings or studies not recorded in the HPDF; the possibility of demolition or loss of integrity since identification; and multiple addresses or multiple evaluations for a single resource.

The most important consideration is that no systematic, city-wide, intensive level survey to identify historical properties in Santa Ana has been conducted, although preliminary or windshield surveys have been performed in most areas of the City. The results of these preliminary and windshield surveys have not been recorded. Also, as properties constructed in the 1960s and 1970s come of age, these must be added to the pool of potential resources. The results of

[75] Per email correspondence dated February 13, 2019 between OHP and Chattel, the California Historical Resources Commission has not approved any additional landmarks or points in the City of Santa Ana.

historical resource evaluations performed in support of City planning efforts (e.g., the Transit District) and various Environmental Impact Reports were not made available and therefore may not be reflected in the database. For all of these reasons, while the database is comprehensive of all officially designated properties in the City, it should be assumed that additional, as yet undocumented, historical resources exist throughout the City.

4.2 HISTORICAL RESOURCES IN SANTA ANA

Approximately 1950 historical resources have been recorded in Santa Ana. A breakdown by category is provided in Table 2.

Table 2
Historical Resources Recorded in Santa Ana

CHR Code	Definition	Count
1B, 1D, 1S	Listed in the NRHP either individually, as a contributor to a listed historic district, or both. Also listed in CRHR.	230
2D, 2D2, 2D3, 2S	Formally determined eligible for listing in the NRHP by the Keeper, by consensus through a Section 106 process, or by Part I Tax Certification, either individually or as a contributor to a historic district determined eligible for NRHP by the Keeper. Listed in the CRHR.	246
3B, 3D, 3S	Appears eligible for NRHP and/or CRHR either individually, as a contributor to a NRHP eligible district, or both through survey evaluation.	102
5S1	Individual property that is listed or designated locally (i.e., listed in the SAR).	667
5S2	Individual property that is eligible or appears eligible through survey evaluation for local listing or designation, either individually, as a contributor to a district eligible for local listing, or both.	970
Other		
CHL	California Registered Historical Landmark	1
CPHI	California Point of Historical Interest	6
OCHC	Orange County Historical Plaque	2
MA	SAR properties with a Mills Act contract	287
CHR	California Historical Resources	

Numerous historical properties in Santa Ana have been designated in two or more programs (typically, both listed in the National Register and the Santa Ana Register). Most of these resources with multiple classifications are located in the four historic districts that either have been listed in the National Register (Downtown Santa Ana and French Park), formally determined eligible for listing in the National Register (North Broadway Park), or recognized by the City as Specific Development areas (French Park and Heninger Park). The properties listed in the Santa Ana Register are mapped on Figure 4 (see the Appendix). Two properties in Santa Ana have plaques awarded by the Orange County Historical Commission.

Historical resources in Santa Ana reflect a range of historic contexts, property types, dates, and architectural styles:

- Association with significant historic trends or patterns include properties that reflect the City's bygone agricultural era; early settlement and community development; early or

long-lived commercial enterprises or centers; and important civic and institutional buildings and organizations
- Association with historic personages include properties linked to people who played prominent roles in Santa Ana's past, including City officers, local attorneys, doctors and other professionals and businessmen

- The vast majority of designated or identified properties are single family dwellings, most of which were determined significant on the basis of intact representation of an architectural style or period. The most prevalent architectural styles are the period revivals of the 1920s and 1930s, but a substantial minority represent the styles of the Victorian era and the early twentieth century, including the Craftsman style. Newly historic post-war homes may eventually match period revivals in terms of numbers. Several neighborhoods retain concentrations of historic properties, including Floral Park, French Park, Heninger Park, and Wilshire Square, among others.

4.3 GENERAL PLAN UPDATE FOCUS AREAS

No systematic survey of the Focus Areas has been undertaken. The following discussion characterizes the potential for each area to contain historical resources, based on examination of the Orange County Assessor's records (for dates of construction) and available online, street-level photographs. A map overlaying these focus areas with the Santa Ana Register map is provided in the Appendix (Figure 5).

South Main Street. Extending from First Street south nearly to Dyer Road, this commercial corridor contains a mix of low-rise, one- and two-story commercial and residential properties predominantly dating from the Craftsman period (early 1900s) through the post-war period (1950s). The focus area also encompasses residential blocks east and west of South Main Street between Broadway on the west and Orange Avenue on the east. A preliminary desktop survey, using online street views and assessor data (for dates of construction) suggests that this area contains both potential and listed (e.g., 100-110 South Main Street) historical resources.

Grand Avenue/17th Street. This irregularly shaped area follows Grand Avenue from just north of 1st Street to the City boundary north of Fairhaven Avenue. It is broken into two parts by the 5 Freeway. A mixed use corridor with three lanes of traffic in each direction, Grand Avenue is characterized primarily by buildings dating from the post-war period and by large swaths of paved surface parking and other open space. The preliminary desktop survey suggests that this area has a low potential for built environment historical resources.

West Santa Ana Boulevard. With West Santa Ana Boulevard as its eastern spine, this focus area follows the street from Ross Street on the east to Raitt Street on the west and then encompasses a wedge-shaped area that continues to the west and north as far as Figueroa Street. West 1st Street is the southern boundary east of the Santa Ana River, where it jumps to West 5th Street. The area follows the planned route of the Orange County Streetcar and includes the Orange County jail and coroner's facilities, residential, office, and industrial uses as well as the Willowick Golf Course and the campuses of four primary, middle, and secondary schools. Some of Santa Ana's oldest homes are located along West 2nd and 3rd Streets (e.g., 1078 and 1220 West 2nd Street, 1410 West 3rd Street, all listed in the Santa Ana Register), with construction dates beginning in the late nineteenth century. The eastern portion of this focus area appears to contain several listed and potential historical resources.

55 Freeway/Dyer Road. Lying at the southeastern boundary of the City and bisected by the 55 Freeway, this irregularly shaped area contains office and commercial buildings dating from the 1960s through the 1980s. It is unlikely to contain built environment historical resources.

South Bristol Street. This corridor spans the blocks between Warner Avenue on the north and the City boundary at Sunflower Avenue on the south. Incorporating both commercial and medium density residential uses, the area was largely improved in the 1960s and 1970s. It has a low potential to contain built environment historical resources.

SECTION 5 ANALYSIS OF PROJECT IMPACTS

5.1 THRESHOLD OF SIGNIFICANT IMPACTS

According to §15064.5 of the State CEQA Guidelines, a project with an effect that may cause a substantial adverse change in the significance of a historical resource is a project that may have a significant effect on the environment. Substantial adverse change in the significance of a historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired. The significance of an historical resource is materially impaired 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 § 5020.1(k) of the Public Resources Code or its identification in an historical resources survey meeting the requirements of § 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.

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 Grimmer, shall be considered as mitigated to a level of less than a significant impact on the historical resource. A lead agency shall identify potentially feasible measures to mitigate significant adverse changes in the significance of an historical resource. The lead agency shall ensure that any adopted measures to mitigate or avoid significant adverse changes are fully enforceable through permit conditions, agreements, or other measures.

5.2 POTENTIAL PROJECT IMPACTS ON BUILT ENVIRONMENT HISTORICAL RESOURCES

The project would not be expected to result in direct or indirect impacts to built environment historical resources. The General Plan Update does not entail any physical development that would result in physical demolition, destruction, relocation or alteration of a historical resource such that the significance of the historical resource would be materially impaired.

However, future development of projects enabled by the General Plan Update could result in significant direct and/or indirect impacts to historical resources in the absence of mitigation. The City of Santa Ana contains nearly 2,000 recorded historical resources, with potential for many more, since the majority of the City's building stock is at least 45 years old. Places in the City affected by zoning changes, increases in buildout square footage, and other aspects of the General Plan Update may contain significant historical resources, either known or as yet unidentified. The Existing Conditions Database provides a listing of recorded designated and

potential historic resources; however, the database is incomplete and requires updating. Therefore, it should be consulted for the presence of historical resources but should not be regarded as the sole authority. The CEQA Guidelines (§15064.5(a)(4) state:

> 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 §5020.1(k) of the Public Resources Code), or identified in an historical resources survey (meeting the criteria in §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 §5020.1(g) or §5024.1.

Potential impacts to historical resources resulting from future development activities pursuant to the General Plan Update will depend on where such development occurs and the nature of the proposed activity. Generally, with respect to the five focus areas, the South Main Street and West Santa Ana Boulevard areas are the most likely to contain historical resources that could be affected by future development (see Figure 5); however, in the absence of an intensive level survey of each area, the presence or absence of potential historical resources is not conclusively known. As stated in the previous subsection, a future development project that utilizes the Secretary of the Interior's Standards for the Treatment of Historic Properties would be expected to result in a less-than-significant impact on historical resources.

SECTION 6 MITIGATION MEASURES

6.1 FUTURE PROJECT MITIGATION

Generally, potential impacts to historical resources potentially resulting from future projects developed pursuant to the General Plan Update shall be mitigated by the City's fulfillment of its statutory responsibilities under CEQA. If the City's due diligence indicates that historical resources may be affected by a future project, then it shall enforce mitigation measures Historical-1 and Historical-2, unless the City determines Historical-2 is not feasible or that significant adverse impacts to historical resources cannot be avoided, in which case Historical-3 shall be implemented. Due diligence is defined as:

- Examination of the Existing Conditions Database, as it may be amended and updated from time to time, or other similar records search, to determine if recorded historical resources are present. The State assumes that any property with a California Historical Resource status code of 1 through 5 is a historical resource, for purposes of CEQA, unless evidence to the contrary is introduced into the administrative record. Such evidence may include, but is not limited to, documentation that a property has been demolished or substantially altered since its recordation such that it no longer retains historic integrity;
- Determination if any properties that are 45 years or older are present; or
- Determination that, in the opinion of the City, a property less than 45 years old and is potentially of exceptional significance, is present.

If the proposed future development site does not satisfy any of these conditions, and the City has no other reason to infer the presence of historical resources, then the City shall not implement the mitigation measures.

Historical-1. Identification of Historical Resources and Potential Project Impacts. A Historical Resources Assessment (HRA) shall be prepared by an architectural historian or historian meeting the Secretary of the Interior's Professional Qualification Standards. The HRA shall include definition of a study area or area of potential effect, which will encompass the affected property and may include surrounding properties or historic district(s); an intensive level survey of the study area to identify and evaluate under Federal, state, and local criteria significance historical resources that might be directly or indirectly affected by the proposed project; and an assessment of project impacts. An HRA is not required if an existing historic resources surveys and evaluations of the property is available; however, if the existing survey and evaluation is more than five years old, it shall be updated. The HRA shall satisfy Federal and state guidelines for the identification, evaluation, and recordation of historical resources.

Historical-2. Use of the Secretary of the Interior's Standards. The Secretary of the Interior's Standards for the Treatment of Historic Properties shall be used to the maximum extent practicable to ensure that projects involving the relocation, conversion, rehabilitation, or alteration of a historical resource and its setting or related new construction will not impair the significance of the historical resource. Use of the Standards shall be overseen by an architectural historian or historic architect meeting the Secretary of the Interior's Professional Qualification Standards. Evidence of compliance with the Standards shall be provided to the City in the form of a report identifying and photographing character-defining features and spaces and specifying how the proposed treatment of character-defining features and spaces and related construction activities will conform to the Standards. The Qualified Professional shall monitor the construction and provide a report to the City at the conclusion of the project. Use of the Secretary's Standards shall reduce the project impacts on historical resources to less than significant.

Historical-3. Documentation, Education, and Memorialization. If the City determines that significant impacts to historical resources cannot be avoided, the City shall require, at a minimum, that the affected historical resources be thoroughly documented before issuance of any permits and may also require additional public education efforts and/or memorialization of the historical resource. While demolition or alteration of a historical resource such that its significance is materially impaired cannot be mitigated to a less than significant level, recordation of the resource will reduce significant adverse impacts to historical resources to the maximum extent feasible. Such recordation should be prepared under the supervision of an architectural historian, historian, or historic architect meeting the Secretary of the Interior's Professional Qualification Standards and should take the form of Historic American Buildings Survey (HABS) documentation. At a minimum, this recordation should include an architectural and historical narrative; archival photographic documentation; and supplementary information, such as building plans and elevations and/or historic photographs. The documentation package should be reproduced on archival paper and should be made available to researchers and the public through accession by appropriate institutions such as the Santa Ana Library History Room, the South Central Coastal Information Center at California State University, Fullerton, and/or the HABS collection housed in the Library of Congress. Depending on the significance of the adversely affected historical resource, the City, at its discretion, may also require public education about the historical resource in the form of an exhibit, webpage, brochure, or other format and/or memorialization of the historical resource on or near the proposed project site. If memorialized, such memorialization shall be a permanent installation, such as a mural, display, or other vehicle that recalls the location, appearance, and historical significance of the affected historical resource, and shall be designed in conjunction with a qualified architectural historian, historian, or historic architect.

6.2 LEVEL OF SIGNIFICANCE

Adoption of the General Plan Update will not result in any physical disturbance of historical resources and therefore will not result in significant adverse impacts to historical resources and does not require mitigation measures.

Future development under the General Plan Update will not result in significant adverse impacts to historical resources with fulfillment of the City's obligations under CEQA described as mitigation measures Historical-1 and Historical-2.

Unavoidable impacts to historical resources resulting from future development under the General Plan Update will be reduced to the maximum extent feasible, but will still be significant, with implementation of mitigation measure Historical-3.

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APPENDIX

Figure 1: Proposed General Plan Land Use Map

Figure 2: Proposed General Plan Focus Areas and Other Special Planning Areas

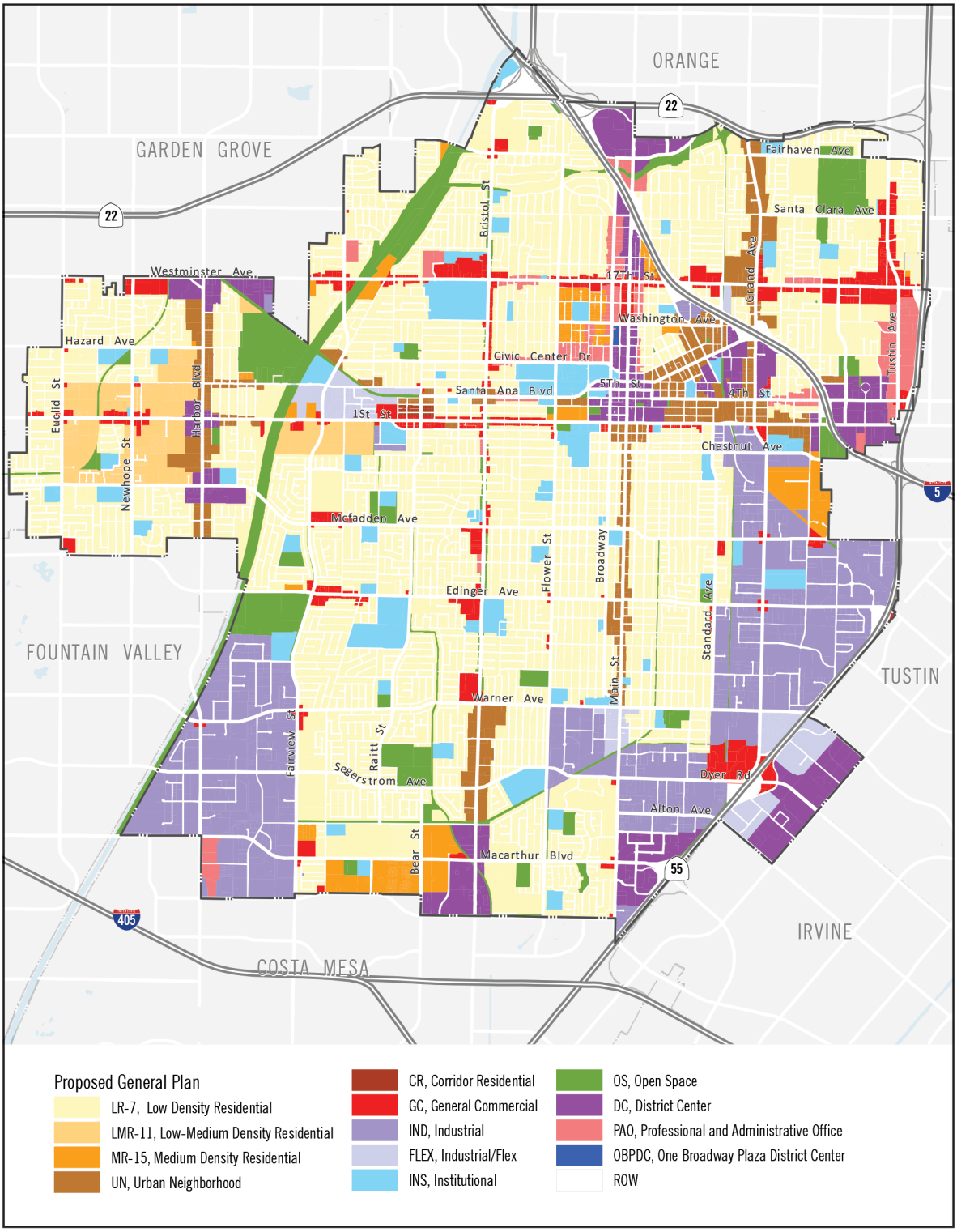
Figure 3: City of Santa Ana Neighborhoods Map

Figure 4: City of Santa Ana Register of Historical Properties, National Register Districts, and SD-40 Map

Figure 5: Proposed General Plan Focus Areas and Other Special Planning Areas Overlay on Santa Ana Register Map

Existing Conditions Database

Figure 1 - Proposed General Plan Land Use

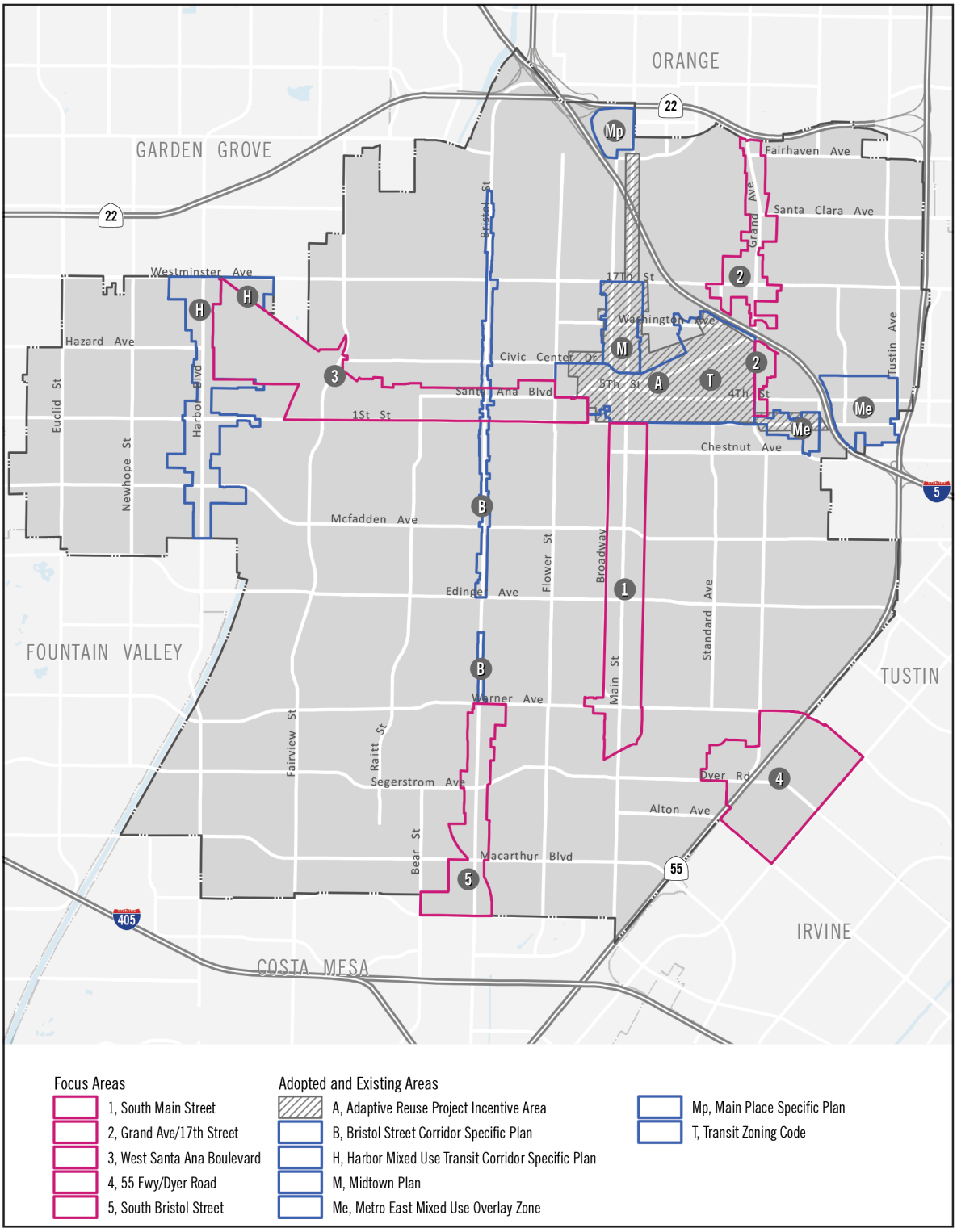


Source: PlaceWorks, 2020

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Scale (Miles)

PlaceWorks

Figure 2 - Proposed General Plan Focus Areas and Other Special Planning Areas

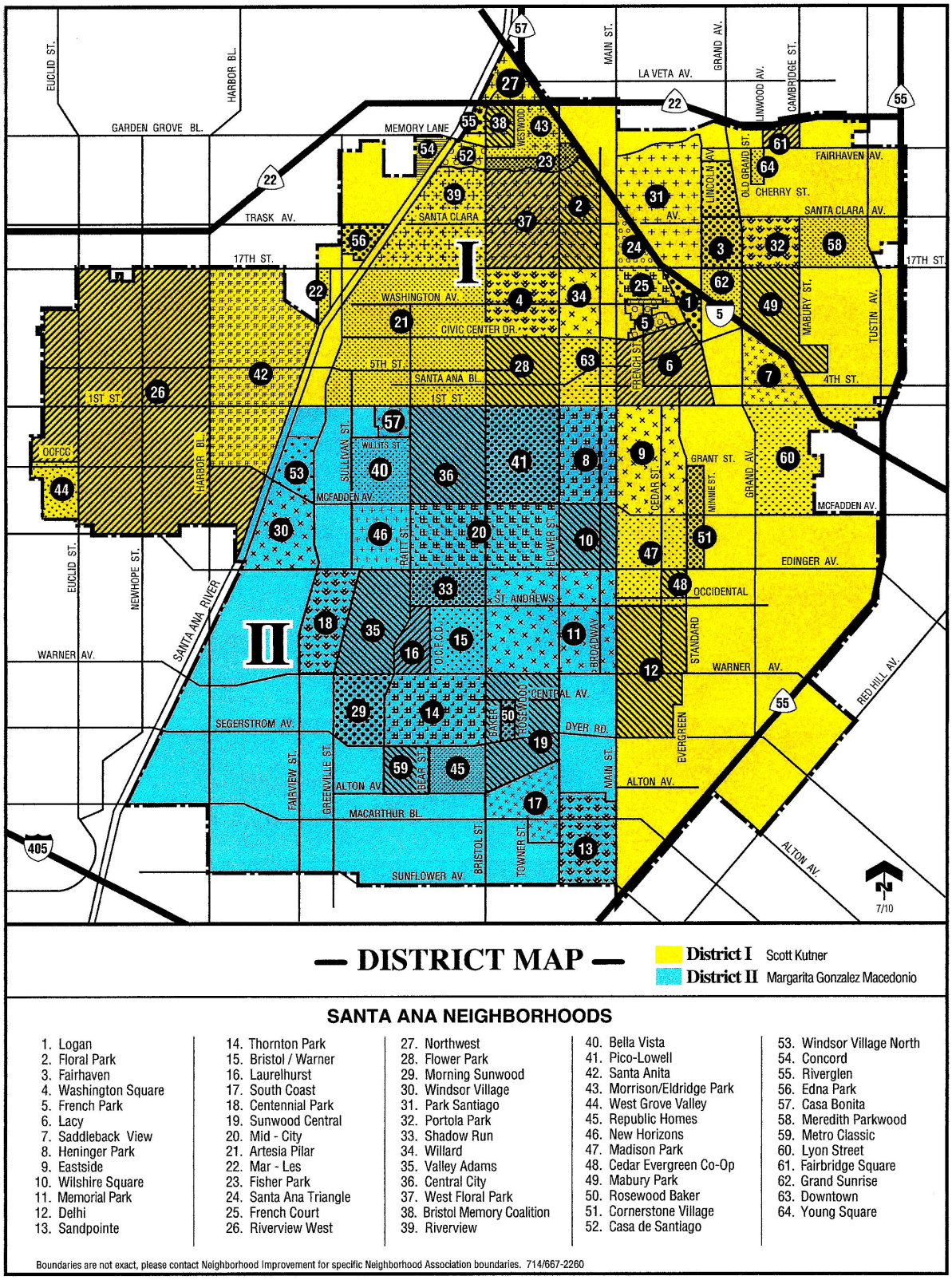


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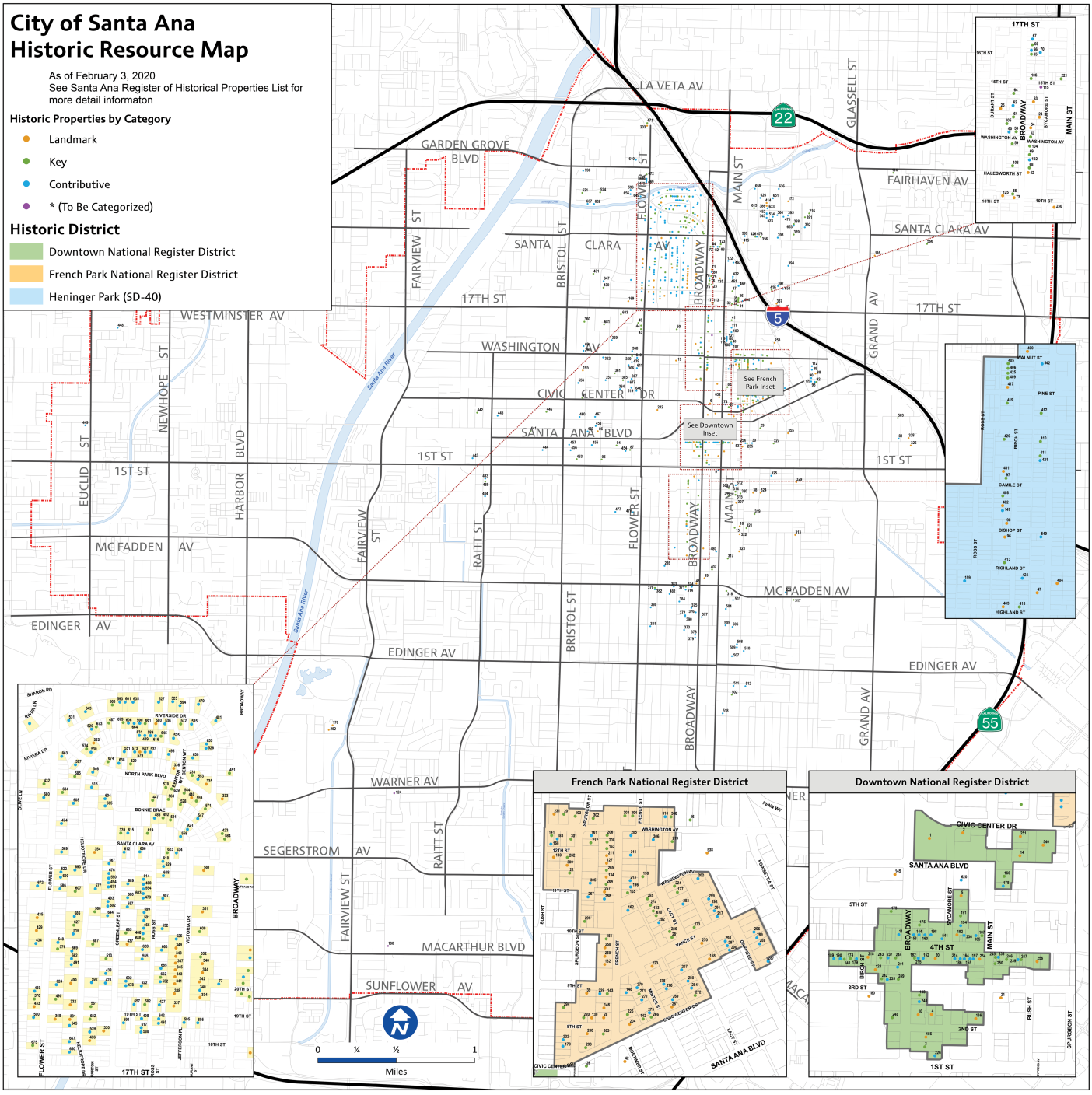
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Figure 3 - City of Santa Ana Neighborhoods Map



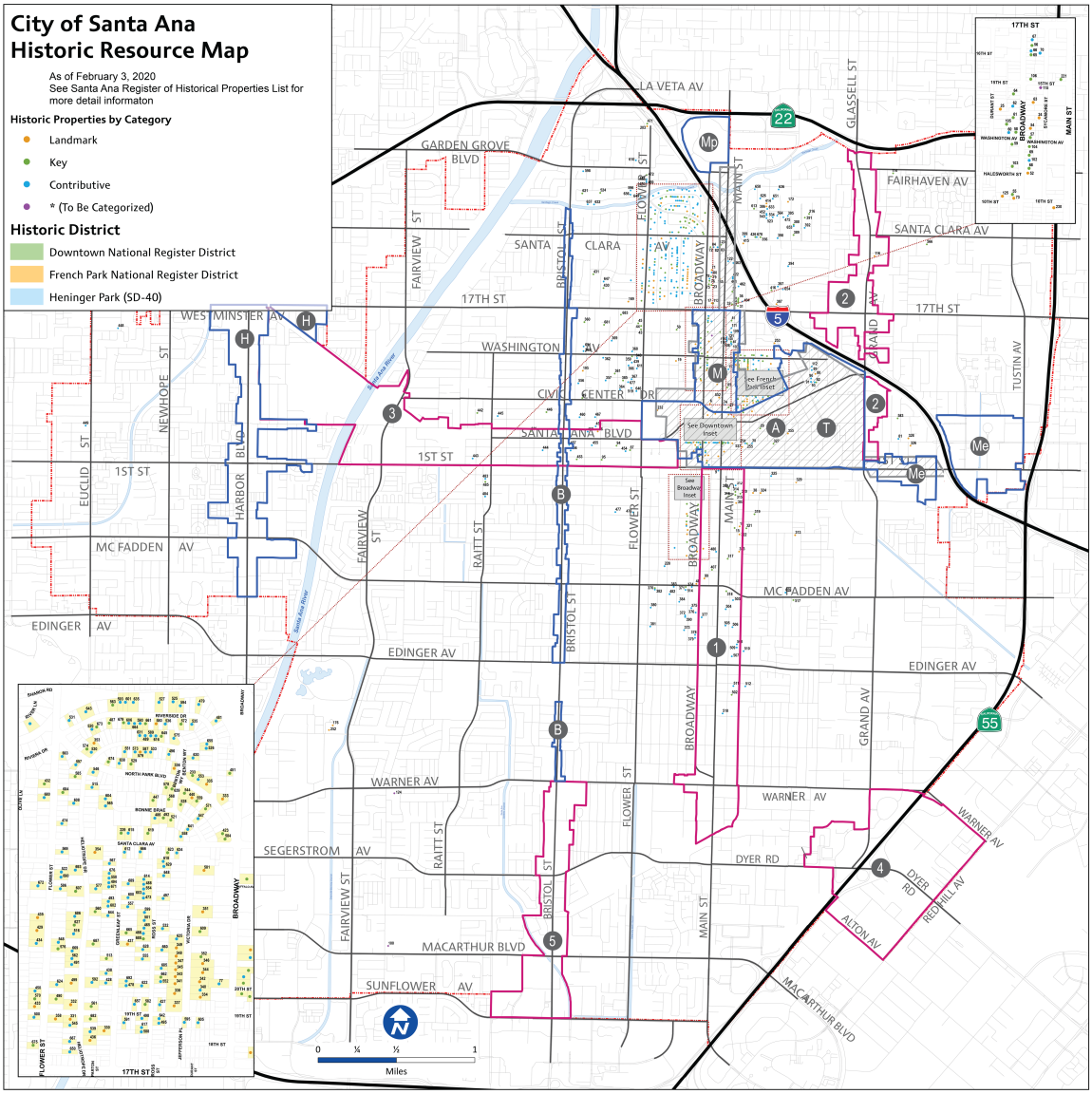
Source: City of Santa Ana, 2013

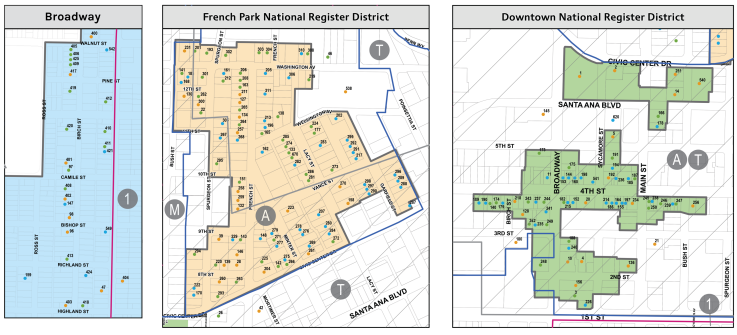
Figure 4 - City of Santa Ana Register of Historical Properties, National Register Districts, and SD-40 Map



Source: City of Santa Ana, 2020

Figure 5 – Proposed General Plan Focus Areas and Other Special Planning Areas Overlay on Santa Ana Register Map





Focus Areas

- 1, South Main Street
- 2, Grand Ave/17th Street
- 3, West Santa Ana Boulevard
- 4, 55 Fwy/Dyer Road
- 5, South Bristol Street

Adopted and Existing Areas

- A, Adaptive Reuse Project Incentive Area
- B, Bristol Street Corridor Specific Plan
- H, Harbor Mixed Use Transit Corridor Specific Plan
- M, Midtown Plan
- Me, Metro East Mixed Use Overlay Zone
- Mp, Main Place Specific Plan
- T, Transit Zoning Code

Source: City of Santa Ana, 2020; PlaceWorks, 2020; Chattel, 2020

EXISTING CONDITIONS DATABASE
of
RECORDED HISTORIC RESOURCES IN SANTA ANA

LEGEND AND COMMENTARY

Number, Extension, Dir (Direction), Street Name, [Street] Type	Collectively, the primary address of a property. Numerous properties in Santa Ana have multiple addresses. Where additional addresses are known from the recorded information, these are indicated in the Extension column (for multiple addresses on the same street) and/or cross-referenced as a separate line item on a different street (for corner properties).
Resource Name	Where multiple names were recorded, the Santa Ana Register name was used. If the property was not listed in the Santa Ana Register, the most appropriate of the names shown in the Historic Property Data File (HPDF) was selected.
Date	The date of construction as shown in the HPDF. If multiple dates were listed, a judgement of the most likely was made. Many of these dates may be based on outdated research. Subsequent, property-specific research such as that conducted for Santa Ana Register listings may provide more accurate dates.
CHR Code	California Historical Resources Status Code (see table following this legend for a list of status code meanings and Section 2.2.8 of this Technical Report). Properties listed in the HPDF often have multiple status codes, reflecting evaluations at different points in time. The highest designation or evaluation (i.e., the lowest number code) appears in this column. Codes that are *italicized* were assigned when the database was compiled to fill in gaps in the HPDF and were usually based on the current local status of a property. For example, if a property had been designated in the Santa Ana Register, a code of *5S1* was assigned. Or, if a property was itemized as a contributor to a Specific Development district by the City of Santa Ana, but not listed in the HPDF, a code of *5D2* was used.
Other CHR Code	Many properties have more than one formal evaluation, and this column was utilized in those cases. For example, a property listed in the National Register of Historic Places and also designated in the Santa Ana Register will have a CHR code of 1 (either "S" for individual property, "D" for a historic district contributor, or "B" for both) in the CHR Code column and a *5S1* in the Other CHR Code column.
CHRIS	California Historical Resources Information System. See Section 2.2.8 of this Technical Report. The most common entry for this column is "HPDF," indicating listing in the Historic Property Data File for Orange County. Other notations include "CPHI" for California Point of Historical Interest and "CHL" for a registered California Historical Landmark.
Historic District	There are two historic districts in Santa Ana that are listed in the National Register of Historic Places: Downtown Santa Ana and French Park. A third district, North Broadway Park, has been determined eligible for the National Register through a Section 106 process. Two Specific Developments in the City, French Park and Heninger Park, while not designated historic districts, function somewhat similarly. Additional potential historic district identifications resulted from historic resources surveys and may require updating. In numerous instances, it could not be

determined from the HPDF with which potential historic district a property was associated, resulting in an "Unknown" notation.

SAR — Santa Ana Register of Historical Properties. The sequential SAR listing number is indicated in this column.

Category — Every property in the Santa Ana Register is categorized as either Landmark ("L"), Key ("K"), or Contributive ("C").

NR — National Register of Historic Places. If the notation in this column reads "NRHP", then the property is an individual listing. "NRHP/C" and "NRHP/NC" denote National Register historic district Contributor or Non-Contributor, respectively.

Mills — A "MA" in this column indicates a property with a Mills Act Contract.

SD — Specific Development. The two Specific Development areas shown in this column are French Park ("SD-19") and Heninger Park ("SD-40").

OCHS — Orange County designation.

CHR Codes Used in Database

CHR Code	Definition
1B	Both 1D and 1S.
1D	Contributor to a district or multiple resource property listed in National Register (NR). Listed in the California Register (CR).
1S	Listed in the NR as an individual property. Listed in the CR.
2D	Contributor to a district determined eligible for NR by the Keeper. Listed in the CR.
2D2	Contributor to a district determined eligible for NR by consensus through Section 106 process. Listed in the CR.
2D3	Contributor to a district determined eligible for NR by Part I Tax Certification. Listed in the CR.
2S	Individual property determined eligible for NR by the Keeper. Listed in the CR.
2S2	Individual property determined eligible for NR by a consensus through Section 106 process. Listed in the CR.
3B	Both 3D and 3S.
3D	Appears eligible for NR as a contributor to a NR eligible district through survey evaluation.
3S	Appears eligible for NR as an individual property through survey evaluation.
5B	Locally significant both individually (listed, eligible, or appears eligible) and as a contributor to a district that is locally designated, determined eligible or appears eligible through survey evaluation.
5D2	Contributor to a district that is eligible for local listing or designation.
5S1	Individual property that is listed or designated locally.
5S2	Individual property that is eligible for local listing or designation.
5S3	Appears to be individually eligible for local listing or designation through survey evaluation.
6X	Determined ineligible for the NR by State Historical Resources Commission or Keeper.

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
					DOWNTOWN SANTA ANA HISTORIC DISTRICT		1S									
606		E	001ST	ST		1914	5S2		HPDF							
110		W	001ST	ST	PETERS HOUSE	1903	5D2		HPDF	UNKNOWN						
201		W	001ST	ST	ZERMAN BUILDING		*5S1*				SAR 226	C				
416		W	001ST	ST		1921	5D2		HPDF	UNKNOWN						
420		W	001ST	ST		1911	5D2		HPDF	UNKNOWN						
422		W	001ST	ST		1912	5D2		HPDF	UNKNOWN						
428		W	001ST	ST		1922	5D2		HPDF	UNKNOWN						
502		W	001ST	ST	GIAT HOUSE	1885	3S		HPDF							
508		W	001ST	ST		1920	5D2		HPDF	UNKNOWN						
512		W	001ST	ST		1921	5D2		HPDF	UNKNOWN						
518		W	001ST	ST		1937	5D2		HPDF	UNKNOWN						
602		W	001ST	ST		1923	5D2		HPDF	UNKNOWN						
608		W	001ST	ST		1922	5D2		HPDF	UNKNOWN						
200	-222	W	002ND	ST	See 125 N Broadway											
207		W	002ND	ST	SOUTHERN COUNTIES GAS COMPANY BUILDING	1923	*1B*	1S, 1D	HPDF	DOWNTOWN SANTA ANA	SAR 4	L	NRHP; NRHP/C	MA		
209	-217	W	002ND	ST	See 201-211 N Broadway											
1078		W	002ND	ST	DESSERY HOUSE	1885	*5S1*		HPDF		SAR 95	K				
1220		W	002ND	ST	THORP-NAVARRO HOUSE		*5S1*				SAR 453	K				
1906		W	002ND	ST	RAMIREZ HOUSE		*5S1*				SAR 443	C				
214	-220	W	003RD	ST	See 225-227 N Broadway											
309		W	003RD	ST	COMMERCIAL BUILDING	1932	1D		HPDF	DOWNTOWN SANTA ANA	SAR 235	C	NRHP/C			
315		W	003RD	ST	DR. HORTON'S BUILDING	1928	1D		HPDF	DOWNTOWN SANTA ANA	SAR 242	K	NRHP/C			
322		W	003RD	ST	GEORGE W MINTER HOUSE	1877	1S		HPDF		SAR 180	L	NRHP	MA		
1002		W	003RD	ST	BUSY BEE MARKET	1919	*5S1*		HPDF		SAR 87	K				
1014		W	003RD	ST	FAIRBANKS HOUSE		*5S1*				SAR 454	C				
1035		W	003RD	ST	MARTIN HOUSE	1890	*5S1*		HPDF		SAR 94	K				
1068		W	003RD	ST	CLEM HOUSE	1931	1D	5D2	HPDF	UNKNOWN						
1101		W	003RD	ST	UNITED BRETHREN CHURCH		*5S2*									
1123		W	003RD	ST	STUESSY HOUSE		*5S1*				SAR 455	C				
1236		W	003RD	ST	WATRY HOUSE		*5S1*				SAR 456	C				
1237		W	003RD	ST	GUILLEN HOUSE		*5S1*				SAR 457	C		MA		
1410		W	003RD	ST	JOPLIN HOUSE		*5S1*				SAR 444	C				
SW CORNER OF			003RD & BIRCH	ST	BIRCH PARK	1897	*5S3*		CPHI							
102		E	004TH	ST	DIBBLE BUILDING	1885	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 245	K	NRHP/C			
104		E	004TH	ST	DRAGON CONFECTIONERY	1885	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 238	C	NRHP/C			
106		E	004TH	ST		1901	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
108	-112 1/2	E	004TH	ST	SHAFFER-WAKEHAM BUILDING	1877-1887	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 246	K	NRHP/C			
114		E	004TH	ST	GEORGE EDGARS FANCY GROCERY	1885	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
116		E	004TH	ST	BRUNNER BUILDING/OLD CITY JAIL	1877	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 239	C	NRHP/C			
118		E	004TH	ST	KRYHL BUILDING	1877	1D	5S1	HPDF	DOWNTOWN SANTA ANA	SAR 247	K	NRHP/C			
120		E	004TH	ST	CALIFORNIA NATIONAL BANK BUILDING	1877	1D	2D3	HPDF	DOWNTOWN SANTA ANA			NRHP/C			
200	-210	E	004TH	ST	HERVEY-FINLEY BLOCK	1899	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 256	L	NRHP/C			
312	-316	E	004TH	ST	SEMI-TROPIC #1		*5S1*				SAR 254	C				
318	-320	E	004TH	ST	MUSSELMAN BLOCK		*5S1*				SAR 255	K				
400	-412	E	004TH	ST	HOTEL FINLEY		5S1				SAR 30	C				
509		E	004TH	ST	SANTA ANA CAR SALON	1921	5S2		HPDF							
519		E	004TH	ST	BROCK HOUSE	1902	5S2		HPDF							
526		E	004TH	ST	MISTER NORMANS AUTOMOTIVE	1910	5S2		HPDF							
601		E	004TH	ST	DELUXE MOTORCYCLE CO, FIX-IT SHOP	1912	5S2		HPDF							
609		E	004TH	ST	ROGERS BUILDING MATERIAL CO, GILBE	1926	5S2		HPDF							
610		E	004TH	ST	FOSTER HOUSE	1903	*5S1*		HPDF		SAR 327	K				

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
619		E	004TH	ST	GETTY BUILDING, REPOSSESSION CENTER	1926	5S2		HPDF							
710		E	004TH	ST		1914	5S2		HPDF							
802		E	004TH	ST		1915	5S2		HPDF							
803		E	004TH	ST	KA-RO HOTEL	1923	5S2		HPDF							
1034		E	004TH	ST	SANTA FE RAILROAD DEPOT	1923	3S		HPDF							
1111		E	004TH	ST	SOUTHERN SERVICE CO, BLUE SEAL LAU	1922	3S		HPDF							
1328		E	004TH	ST		1923	5S2		HPDF							
1334		E	004TH	ST		1911	5S2		HPDF							
1414		E	004TH	ST		1903	5S2		HPDF							
1527		E	004TH	ST		1909	5S2		HPDF							
1541		E	004TH	ST	SAFLEY HOUSE		*5S1*				SAR 81	C		MA		
1602	-1604	E	004TH	ST	QUICK-WATTS HOUSE		*5S1*				SAR 326	L				
1605		E	004TH	ST		1903	5S2		HPDF							
1610		E	004TH	ST		1909	5S2		HPDF							
1617		E	004TH	ST	BORCHARD HOUSE	1924	3S	*5S1*	HPDF		SAR 328	L				
1642		E	004TH	ST	JOHN TAYLOR HOUSE	1909	5S2		HPDF							
1658		E	004TH	ST	FRED TAYLOR HOUSE	1903	5S2		HPDF							
101		W	004TH	ST	OTIS BUILDING	1889	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 187	K	NRHP/C			
102	-106	W	004TH	ST	FIRST NATIONAL BANK BUILDING	1923	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 234	L	NRHP/C	MA		
105	-109	W	004TH	ST	OLD WOOLWORTH'S BUILDING	Pre-1885; 1888	*5S1*	6X, 2D2	HPDF	DOWNTOWN SANTA ANA	SAR 185	C	NRHP/NC			
108		W	004TH	ST	SA HARDWARE CO. BUILDING	1888	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 197	C	NRHP/C			
110		W	004TH	ST	GILBERT DRY GOODS	1888	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 155	C	NRHP/C			
112	-114	W	004TH	ST	HILL AND CARDIN COMPANY	1888	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 164	C	NRHP/C			
113		W	004TH	ST	TINKERS JEWELRY	1888	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 236	C	NRHP/C			
116		W	004TH	ST	ORANGE CO. SAVINGS & TRUST BLDG.	1911	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 186	C	NRHP/C			
117		W	004TH	ST	RANKIN DEPARTMENT STORE	1917	*1B*	1D, 1S, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 192	L	NRHP; NRHP/C			
118	-122	W	004TH	ST	VANDERMAST'S	1920	*5S1*	6X	HPDF	DOWNTOWN SANTA ANA	SAR 214	C	NRHP/NC			
201		W	004TH	ST	FALLAS-PAREDES/WOOLWORTH'S	1952	*5S1*	6X	HPDF	DOWNTOWN SANTA ANA	SAR 541	C	NRHP/NC			
202	-212	W	004TH	ST	SPURGEON BUILDING	1913	*1B*	1S, 1D, *5S1*, 7L	HPDF; CPHI	DOWNTOWN SANTA ANA	SAR 20	L	NRHP; NRHP/C			
211	-211	W	004TH	ST	SEMI-TROPIC #2	1880	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 198	C	NRHP/C			
213	-217	W	004TH	ST	HAWLEY'S SPORTING GOODS	1891	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 160	C	NRHP/C			
214	-218	W	004TH	ST	THE ELWOOD	1886	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 152	C	NRHP/C			
219		W	004TH	ST	CRABTREE SALOON	1885	*5S1*	6X, 6T	HPDF	DOWNTOWN SANTA ANA	SAR 144	C	NRHP/NC			
220		W	004TH	ST	WAITE'S SALOON	1888	*5S1*	6X, 2D2	HPDF	DOWNTOWN SANTA ANA	SAR 215	C	NRHP/NC			
221	-223	W	004TH	ST	FASHION SALOON	1885	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 153	C	NRHP/C			
222		W	004TH	ST	MOORE BUILDING	1923	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 182	K	NRHP/C			
301	-309	W	004TH	ST	PHILLIPS BLOCK BUILDING	1906	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 11	C	NRHP/C			
302	-308 1/2	W	004TH	ST	GILMAKER BLOCK	1888	2D3	*5S1*, 6X	HPDF	DOWNTOWN SANTA ANA	SAR 244	K	NRHP/NC			
310		W	004TH	ST	BON TON BAKERY	1916	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 237	C	NRHP/C			
312	-316	W	004TH	ST	SEMI-TROPIC HOTEL	1888	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 243	K	NRHP/C			
322	-326	W	004TH	ST	WEST END THEATRE	1915	1D	2S3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 218	L	NRHP/C			

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
400		W	004TH	ST	OLD COMPANY L ARMORY/MILLS & EDWARDS FEED STORE	1889	1D	2S3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 179	C	NRHP/C			
402	-408	W	004TH	ST	LAWRENCE BUILDING	1915	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 174	K	NRHP/C			
410		W	004TH	ST	CLAUSEN BLOCK	1908	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 140	K	NRHP/C			
412		W	004TH	ST	PARSON APARTMENTS ANNEX	1915	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 190	C	NRHP/C			
414	-418	W	004TH	ST	PARSON APARTMENTS	1909	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 189	C	NRHP/C			
501		E	005TH	ST	WHITSON-POWELSON HOUSE		*5S1*				SAR 29	K				
802		E	005TH	ST	See 475 N Lacy St											
118	-120	W	005TH	ST	RAMONA BUILDING	1922	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 191	K	NRHP/C			
300	-322	W	005TH	ST	See 420-424 N Broadway											
1108	-1108 1/2	W	005TH	ST	SHELTON-GARNSEY HOUSE	1878	3S	*5S1*	HPDF		SAR 86	L				
1111		W	005TH	ST	LITTEN HOUSE		*5S1*				SAR 458	C				
1132		W	005TH	ST	RUMSEY HOUSE		*5S1*				SAR 459	C				
1504	-1506	W	005TH	ST	MERCEREAU HOUSE		*5S1*				SAR 441	K				
5214		W	005TH	ST	FLORES HOUSE		*5S1*				SAR 449	C				
CORNER OF			005TH & SYCAMORE	ST	SANTA ANA'S BIRTHPLACE											OCHSP No 12
515		E	006TH	ST		1914	5D2		HPDF	UNKNOWN						
519		E	006TH	ST		1909	5D2		HPDF	UNKNOWN						
525		E	006TH	ST		1920	5D2		HPDF	UNKNOWN						
601		E	006TH	ST		1900	5D2		HPDF	UNKNOWN						
607		E	006TH	ST		1902	5D2		HPDF	UNKNOWN						
609		E	006TH	ST		1910	5D2		HPDF	UNKNOWN						
613		E	006TH	ST		1902	5D2		HPDF	UNKNOWN						
617		E	006TH	ST			5D2		HPDF	UNKNOWN						
709		E	006TH	ST		1917	5D2		HPDF	UNKNOWN						
711		E	006TH	ST		1912	5D2		HPDF	UNKNOWN						
901		E	006TH	ST		1903	5D2		HPDF	UNKNOWN						
907		E	006TH	ST		1902	5D2		HPDF	UNKNOWN						
910		E	006TH	ST		1895	5D2		HPDF	UNKNOWN						
1101		W	006TH	ST	WARD HOUSE		*5S1*				SAR 467	C				
1215		W	006TH	ST	LANCASTER HOUSE		*5S1*				SAR 460	C				
1721		W	006TH	ST	HARRISON-PENA HOUSE		*5S1*				SAR 445	C				
1319		W	007TH	ST		1942	5D2		HPDF	UNKNOWN						
1402		W	007TH	ST	EDGAR HOUSE		*5S1*				SAR 446	K				
216		E	008TH	ST	SPANISH APARTMENTS	1937				FRENCH PARK					SD-19	
301		E	008TH	ST	WHITSON HOME	1911	1D	5D2, *5S1*	HPDF	FRENCH PARK	SAR 220	K	NRHP/C	MA	SD-19	
321		E	008TH	ST	CHILTON HOUSE	1885	1D	*5S1*	HPDF	FRENCH PARK	SAR 139	L	NRHP/C	MA	SD-19	
312		E	009TH	ST	MOORE-ENGLER HOUSE	1923	1D	*5S1*	HPDF	FRENCH PARK	SAR 229	C	NRHP/C		SD-19	
320		E	009TH	ST	See 820 N French St											
305	-307	E	010TH	ST	ANDERSON HOUSE	1898	1D	5D2	HPDF	FRENCH PARK			NRHP/C		SD-19	
309		E	010TH	ST	HAYNES-GERRARD HOUSE	1900	1D	5D2	HPDF	FRENCH PARK			NRHP/C		SD-19	
312		E	010TH	ST		1923	5D2		HPDF	UNKNOWN						
311		W	010TH	ST		1914	5D2		HPDF	UNKNOWN						
315		W	010TH	ST	DELUXE APARTMENTS	1935	3S	*5S1*	HPDF	UNKNOWN	SAR 125	L				
515		W	010TH	ST		1895	5D2		HPDF	UNKNOWN						
709		W	010TH	ST		1929	5D2		HPDF	UNKNOWN						
711		W	010TH	ST		1900	5D2		HPDF	UNKNOWN						
801		W	010TH	ST		1929	5D2		HPDF	UNKNOWN						
803		W	010TH	ST		1922	5D2		HPDF	UNKNOWN						
805		W	010TH	ST		1922	5D2		HPDF	UNKNOWN						
209		E	011TH	ST	PERRY HOUSE	1885	6X	*5D1*	HPDF	FRENCH PARK			NRHP/NC		SD-19	
			013TH	ST	UPPER FRENCH PARK VICINITY	1895	5S2		HPDF							
517		E	014TH	ST	SANTA ANA WATER TOWER		*5S1*				SAR 253	L				
206		E	015TH	ST		1920	5D2		HPDF	UNKNOWN						
215		E	015TH	ST		1923	5D2		HPDF	UNKNOWN						
115		W	015TH	ST		1922	5D2		HPDF	UNKNOWN						
117		W	015TH	ST		1920	5D2		HPDF	UNKNOWN						
117	[sic]	W	015TH	ST		1924	5D2		HPDF	UNKNOWN						
202		W	015TH	ST	2ND SEVENTH DAY ADVENTIST CHURCH		*5S1*				SAR 115	U				

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
201		E	016TH	ST		1895	3S	5D2	HPDF	UNKNOWN						
202		E	016TH	ST		1895	5D2		HPDF	UNKNOWN						
208		E	016TH	ST		1926	5D2		HPDF	UNKNOWN						
301		E	016TH	ST		1902	5D2		HPDF	UNKNOWN						
315		E	016TH	ST		1927	5D2		HPDF	UNKNOWN						
412		W	016TH	ST		1917	5D2		HPDF	UNKNOWN						
414		W	016TH	ST		1923	5D2		HPDF	UNKNOWN						
422		W	016TH	ST		1923	5D2		HPDF	UNKNOWN						
1110		W	016TH	ST	FRANK HOUSE		*5S1*				SAR 681	K		MA		
202		W	018TH	ST	BEN WARNER HOUSE		*5S1*				SAR 113	K		MA		
206		W	018TH	ST	FREDERICK ELEY HOUSE		*5S1*				SAR 17	L				
936		W	018TH	ST	JUHLIN VICTORIAN COTTAGE	1885	*5S1*		HPDF		SAR 169	L				
326		W	019TH	ST	ROSENMEYER HOUSE		*5S1*				SAR 605	C		MA		
340		W	019TH	ST	TATE HOUSE		*5S1*				SAR 595	C		MA		
419		W	019TH	ST	YEARY HOUSE		*5S1*				SAR 427	C		MA		
501		W	019TH	ST	LACY-MURRAY-NESS HOUSE		*5S1*				SAR 582	K		MA		
515		W	019TH	ST	FINCH HOUSE		*5S1*				SAR 657	C		MA		
524		W	019TH	ST	DIXON HOUSE		*5S1*				SAR 591	C		MA		
414		E	020TH	ST	GARDNER HOUSE	1908	2S2		HPDF							
210		W	020TH	ST	HARDING HOUSE		*5S1*				SAR 23	K				
927		W	020TH	ST	E.A. SWANSON HOUSE		*5S1*				SAR 668	C		MA		
804		N	BAKER	ST	DUHART HOUSE	1900	*5S1*	5D2	HPDF	UNKNOWN	SAR 49	K				
827		N	BAKER	ST		1885	5S2		HPDF							
1020		N	BAKER	ST	ROSS-MCNEAL HOUSE	1879	3S	*5S1*	HPDF		SAR 195	L				
1308		N	BAKER	ST	AXWORTHY HOUSE		*5S1*				SAR 363	C		MA		
1318		N	BAKER	ST	M.C. WALKER HOUSE		*5S1*				SAR 691	C		MA		
1500		N	BAKER	ST		1926	3S		HPDF							
1524		N	BAKER	ST	CHAMBERLIN HOUSE		*5S1*				SAR 360	K				
2009		N	BAKER	ST	PRICE-PRESTON HOUSE		*5S1*				SAR 431	K		MA		
2307			BENTON	WY			2D		HPDF	N BROADWAY PARK						
2315			BENTON	WY	GOODMAN HOUSE		*5S1*	2D	HPDF	N BROADWAY PARK	SAR 630	C		MA		
2319			BENTON	WY			2D		HPDF	N BROADWAY PARK						
2323			BENTON	WY			2D		HPDF	N BROADWAY PARK						
2327			BENTON	WY			2D		HPDF	N BROADWAY PARK						
2331			BENTON	WY			2D		HPDF	N BROADWAY PARK						
2337			BENTON	WY			2D		HPDF	N BROADWAY PARK						
212		E	BERKELEY	ST	MITCHELL HOUSE		*5S1*				SAR 502	K				
313		N	BIRCH	ST	ARMORY HALL/AMERICAN LEGION HALL	1911	1D	*5S1*, 2D3	HPDF	DOWNTOWN SANTA ANA	SAR 128	L	NRHP/C			
100	-500	S	BIRCH	ST	100-500 BLOCKS SOUTH BIRCH STREET	1901	3S		HPDF	HENINGER PARK						
101		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK					SD-40	
102		S	BIRCH	ST		1909	3D		HPDF	HENINGER PARK						
105		S	BIRCH	ST	TRANSI HOUSING	1911	2S2	3D	HPDF	HENINGER PARK						
106		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
110		S	BIRCH	ST		1910	3D		HPDF	HENINGER PARK						
111		S	BIRCH	ST		1911	3D		HPDF	HENINGER PARK						
115		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK					SD-40	
116		S	BIRCH	ST		1910	3D		HPDF	HENINGER PARK						
117		S	BIRCH	ST		1911	3D		HPDF	HENINGER PARK						
121	UNITS 1-8	S	BIRCH	ST	KAISER APARTMENTS	1909	3D	*5S1*	HPDF	HENINGER PARK	SAR 400	L			SD-40	
124		S	BIRCH	ST		1910	3D		HPDF	HENINGER PARK						
201		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
202	-202 1/2	S	BIRCH	ST	BEISEL HOUSE	1910	3D	*5S1*	HPDF	HENINGER PARK	SAR 405	K			SD-40	
204	-206	S	BIRCH	ST	NAU HOUSE		3D	*5S1*	HPDF	HENINGER PARK	SAR 406	K			SD-40	
209		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
210		S	BIRCH	ST	COVINGTON HOUSE	1912	3D	*5S1*	HPDF	HENINGER PARK	SAR 425	K			SD-40	
211		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
213		S	BIRCH	ST		1923	3D		HPDF	HENINGER PARK					SD-40	
214		S	BIRCH	ST	MCMATH HOUSE	1915	3D	*5S1*	HPDF	HENINGER PARK	SAR 409	K			SD-40	
220		S	BIRCH	ST		1918	3D		HPDF	HENINGER PARK					SD-40	
222		S	BIRCH	ST	STEIN HOUSE	1919	3D	*5S1*	HPDF	HENINGER PARK	SAR 417	L		MA	SD-40	
301		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
302		S	BIRCH	ST		1919	3D		HPDF	HENINGER PARK						
305		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
306		S	BIRCH	ST	HARLAN HOUSE	1911	3D	*5S1*	HPDF	HENINGER PARK	SAR 419	K			SD-40	

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
308		S	BIRCH	ST		1922	3D		HPDF	HENINGER PARK						
309		S	BIRCH	ST		1919	3D		HPDF	HENINGER PARK						
315		S	BIRCH	ST		1919	3D		HPDF	HENINGER PARK						
316		S	BIRCH	ST		1920	3D		HPDF	HENINGER PARK					SD-40	
320		S	BIRCH	ST		1911	3D		HPDF	HENINGER PARK					SD-40	
402		S	BIRCH	ST		1909	3D		HPDF	HENINGER PARK						
406		S	BIRCH	ST	STURGEON-CAMPBELL HOUSE	1911	3D	*5S1*	HPDF	HENINGER PARK	SAR 420	K			SD-40	
409		S	BIRCH	ST		1909	3D		HPDF	HENINGER PARK						
410		S	BIRCH	ST		1915	3D		HPDF	HENINGER PARK						
415		S	BIRCH	ST		1909	3D		HPDF	HENINGER PARK						
416		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
417		S	BIRCH	ST		1909	3D		HPDF	HENINGER PARK						
419		S	BIRCH	ST		1911	3D		HPDF	HENINGER PARK						
420		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
422		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
425		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
426	A & B	S	BIRCH	ST	MOONEY HOUSE	1915	3D	*5S1*	HPDF	HENINGER PARK	SAR 401	L			SD-40	
428	-432	S	BIRCH	ST	STURGEON HOUSE	1914	3D	*5S1*	HPDF	HENINGER PARK	SAR 97	K			SD-40	
429		S	BIRCH	ST		1924	3D		HPDF	HENINGER PARK						
435		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
437		S	BIRCH	ST		1920	3D		HPDF	HENINGER PARK						
441		S	BIRCH	ST		1912	3D		HPDF	HENINGER PARK						
501		S	BIRCH	ST		1909	3D		HPDF	HENINGER PARK						
505		S	BIRCH	ST		1915	3D		HPDF	HENINGER PARK					SD-40	
506		S	BIRCH	ST	CRANE HOUSE	1912	3D	*5S1*	HPDF	HENINGER PARK	SAR 408	K		MA	SD-40	
511		S	BIRCH	ST		1911	3D		HPDF	HENINGER PARK					SD-40	
515		S	BIRCH	ST		1914	3D		HPDF	HENINGER PARK					SD-40	
516		S	BIRCH	ST	CRASHER HOUSE	1921	3D	*5S1*	HPDF	HENINGER PARK	SAR 402	L			SD-40	
518		S	BIRCH	ST	DALE HOUSE	1915	3D	*5S1*	HPDF	HENINGER PARK	SAR 147	C			SD-40	
519		S	BIRCH	ST		1915	3D		HPDF	HENINGER PARK					SD-40	
521		S	BIRCH	ST		1921	3D		HPDF	HENINGER PARK						
524		S	BIRCH	ST		1925	3D		HPDF	HENINGER PARK						
527		S	BIRCH	ST		1922	3D		HPDF	HENINGER PARK					SD-40	
530		S	BIRCH	ST	WILSON-WAGNER HOUSE	1913	*3B*	*5S1*	HPDF	HENINGER PARK	SAR 98	L			SD-40	
531		S	BIRCH	ST		1915	3D		HPDF	HENINGER PARK					SD-40	
602		S	BIRCH	ST	HENINGER HOUSE	1911	3S	*5S1*	HPDF	HENINGER PARK	SAR 96	L			SD-40	
610		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
614		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
617		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
623		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
624		S	BIRCH	ST	A. ARMSTRONG HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 413	K		MA	SD-40	
701		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
702		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
706		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
707		S	BIRCH	ST	JUDD-WISEMAN HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 424	C		MA	SD-40	
710		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
711		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
714		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
718		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
722		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
726		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
730		S	BIRCH	ST	BUSHARD HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 403	L			SD-40	
731		S	BIRCH	ST	WELBON HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 418	K			SD-40	
802		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
805		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
806		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
813		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
814		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
825		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
830		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
929		S	BIRCH	ST			*5D2*			HENINGER PARK					SD-40	
1101		S	BIRCH	ST	PIMENTAL HOUSE		*5S1*				SAR 374	C				
1102		S	BIRCH	ST	O'BRIEN HOUSE		*5S1*				SAR 371	K				
1110		S	BIRCH	ST	R. LEWIS HOUSE		*5S1*				SAR 514	C		MA		
1205		S	BIRCH	ST	LEVENGOOD HOUSE		*5S1*				SAR 375	C				

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1226		S	BIRCH	ST	SANDSTROM HOUSE (1)		*5S1*				SAR 372	C				
1230		S	BIRCH	ST	SANDSTROM HOUSE (2)		*5S1*				SAR 390	C				
1310		S	BIRCH	ST	MASIN HOUSE		*5S1*				SAR 373	C		MA		
2309		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2311		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2315		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2318		N	BONNIE BRAE		YEAGER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 641	C		MA		
2319		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2323		N	BONNIE BRAE		LIGGETT HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 547	C		MA		
2324		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2327		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2328		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2331		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2334		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2335		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2341		N	BONNIE BRAE		SWANNER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 528	K		MA		
2402		N	BONNIE BRAE		VAN DIEN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 521	K		MA		
2405		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2409		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2410		N	BONNIE BRAE		TAYLOR HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 492	K		MA		
2414		N	BONNIE BRAE		R.G. HEWITT HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 486	C		MA		
2415		N	BONNIE BRAE		JUDGE ALLEN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 568	K				
2419		N	BONNIE BRAE		D.R. BALL HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 447	K		MA		
2424		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2425		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2431		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2435		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2442		N	BONNIE BRAE				2D		HPDF	N BROADWAY PARK						
2450		N	BONNIE BRAE		BERCK-GILBER HOUSE		*5S1*				SAR 565	C		MA		
2454		N	BONNIE BRAE		BEYER HOUSE		*5S1*				SAR 604	C		MA		
109	-117	N	BROADWAY		See 110-122 N Sycamore St											
114	-116	N	BROADWAY		FLAGG BUILDING	1924	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
118	-122	N	BROADWAY		MONTGOMERY WARD, MCMAHON'S	1928	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
125		N	BROADWAY		GRAND CENTRAL BUILDING	1924	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 156	L	NRHP/C			
201	-211	N	BROADWAY		SANTORA BUILDING	1928	*1B*	2D3, *5S1*	HPDF; CPHI	DOWNTOWN SANTA ANA	SAR 10	L	NRHP; NRHP/C	MA		
202	-208	N	BROADWAY		EMPIRE MARKET	1931	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 248	K	NRHP/C	MA		
212	-218	N	BROADWAY		BROADWAY DEVELOPMENT BLOCK	1928	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
217	-221	N	BROADWAY		GILMAKER AUTO AGENCY BUILDING	1931	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 240	C		MA		
225	-227	N	BROADWAY		PACIFIC BUILDING	1925	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 188	K	NRHP/C	MA		
302	-310	N	BROADWAY		GILMAKER BROADWAY BLOCK	1922	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 249	K	NRHP/C			
309		N	BROADWAY		SMITH BUILDING, CRUMRINE BUILDING	1928	2D2		HPDF	DOWNTOWN SANTA ANA						
312		N	BROADWAY		GERWIG'S BICYCLE SHOP	1910	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 241	C	NRHP/C			
323	-325	N	BROADWAY		See 222 W 4th St											
324		N	BROADWAY		See 302-308 1/2 W 4th St											
407	-411	N	BROADWAY		J.J. WILSON'S SHOESHINE PARLOR; BEEM BUILDING	1924; 1926	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 175	K	NRHP/C			
410		N	BROADWAY		BROADWAY BARBERSHOP	1925	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
413	-419	N	BROADWAY		FINE BLOCK	1909	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
420	-424	N	BROADWAY		KNIGHTS OF PYTHIAS HALL	1926	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 173	K	NRHP/C			
518		N	BROADWAY		SMITH-TUTHILL FUNERAL PARLOR	1885	1S	*5S1*	HPDF		SAR 145	L	NRHP			
519		N	BROADWAY		PERFECTION GAS STATION	1920	5S2		HPDF							

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
801		N	BROADWAY		SPURGEON METHODIST CHURCH (EDUCATI	1928	2S2		HPDF							
1002		N	BROADWAY		MOSBAUGH-LOERCH HOUSE		*5S1*				SAR 73	L				
1007		N	BROADWAY			1926	5S2		HPDF							
1008		N	BROADWAY		ARMSTRONG HOUSE	1919	*5S1*				55	K				
1010		N	BROADWAY		LOCKETT-CLELAND HOUSE	1909	*5S1*		HPDF		SAR 60	C				
1015		N	BROADWAY		TWIST-BASLER HOUSE/ BASLER HOME	1922	3S	*5S1*	HPDF		SAR 53	L				
1103		N	BROADWAY		MCNEILL-BASLER HOUSE	1922	*5S1*				SAR 52	L				
1109		N	BROADWAY		KOENIG HOUSE	1923	*5S1*		HPDF		SAR 68	K				
1115	-1117	N	BROADWAY		MACINTOSH APARTMENTS	1931	*5S1*		HPDF		SAR 102	C				
1205		N	BROADWAY		WALTER MOORE HOUSE		*5S1*				SAR 69	K				
1206		N	BROADWAY		WILLIAM YOUNG HOUSE	1924	*5S1*		HPDF		SAR 103	K				
1211		N	BROADWAY		KELLEY HOUSE	1922	*5S1*		HPDF		SAR 104	K				
1228		N	BROADWAY		EL PATIO REAL APARTMENTS	1929	*5S1*		HPDF		SAR 59	K				
1301	-1307	N	BROADWAY		NEW WASHINGTON APARTMENTS	1923	*5S1*		HPDF		SAR 57	K				
1302	-1308	N	BROADWAY		LA CASA DEL REY APARTMENTS	1925	*5S1*		HPDF		SAR 58	K				
1314		N	BROADWAY		THE SEVENTH DAY ADVENTIST CHURCH	1939	*5S1*		HPDF		SAR 105	K				
1315		N	BROADWAY		DR. RAYMOND SMITH HOUSE	1902	*3S*	*5S1*	HPDF		SAR 54	L		MA		
1320		N	BROADWAY		WEISSMAN-FLAGG HOUSE	1911	*5S1*		HPDF		SAR 61	K		MA		
1408		N	BROADWAY		MAGNOLIA APARTMENTS		*5S1*				SAR 62	C				
1411		N	BROADWAY		SANTA ANA-TUSTIN Y.W.C.A.		*5S1*				SAR 63	L				
1420		N	BROADWAY		LA HACIENDA APARTMENTS		*5S1*				SAR 64	K				
1501		N	BROADWAY		SEGERSTROM HOUSE	1919	*5S1*		HPDF		SAR 106	K				
1516		N	BROADWAY			1902	5S2		HPDF							
1527	[1525]	N	BROADWAY		SMILEY A. HOUSE	1910	*5S1*		HPDF		SAR 65	K				
1601	-1603 1/2	N	BROADWAY		HEAD APARTMENTS		*5S1*				SAR 66	C				
1611		N	BROADWAY		CLARK HOUSE	1927	*5S1*		HPDF		SAR 56	K				
1615		N	BROADWAY		DAVIS HOUSE	1923	*5S1*		HPDF		SAR 67	C				
1902		N	BROADWAY			1910	5S2		HPDF							
1919		N	BROADWAY		DR. C.D. BALL HOUSE		*5S1*				SAR 75	K				
2002		N	BROADWAY		WATERS HOUSE		*5S1*				SAR 77	C				
2003		N	BROADWAY		TEDFORD HOUSE	1922	*5S1*		HPDF		SAR 76	K				
2009		N	BROADWAY		FARRAR HOUSE	1924	*5S1*		HPDF		SAR 78	C				
2015		N	BROADWAY		HEIL HOUSE	1922	*5S1*		HPDF		SAR 79	K				
2025		N	BROADWAY		WEISSMAN-LYON HOUSE	1922	*5S1*		HPDF		SAR 80	C				
2035		N	BROADWAY		LAS CASITAS APARTMENTS	1926	3S		HPDF							
2035		N	BROADWAY		HADDON COURT/LAS CASITAS COURT	1926	*3S*	*5S1*	HPDF		SAR 71	L				
2201	-2205 1/2	N	BROADWAY		PATRICIA APARTMENTS	1927	*5S1*		HPDF		SAR 72	K		MA		
2232		N	BROADWAY			1927	5S2		HPDF							
2312		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2314		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2320		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2322		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2328		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2330		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2336		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2338		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2342		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
2344		N	BROADWAY				2D		HPDF	N BROADWAY PARK						
		N	BROADWAY		NORTH BROADWAY PARK DISTRICT	1923	2S		HPDF	N BROADWAY PARK						
202		S	BROADWAY		JACKMAN HOUSE		*5S1*			HENINGER PARK	SAR 542	C			SD-40	
208		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
214		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
220		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
303		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
307		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
311		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
314	-318	S	BROADWAY		COOK HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 412	K			SD-40	
319		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
320		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
405		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
408		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
410		S	BROADWAY		SPENCER HOUSE (2)		*5S1*	*5D2*		HENINGER PARK	SAR 410	K			SD-40	
414		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
415		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
421		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
424		S	BROADWAY		COSELMAN HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 411	K			SD-40	
426	-426 1/2	S	BROADWAY		GILLESPIE HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 421	C			SD-40	
429		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
434		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
438		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
441		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
442		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
501		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
502		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
526		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
530		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
602		S	BROADWAY		FIPPS-FINK HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 549	C		MA	SD-40	
606		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
610		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
617		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
705		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
711		S	BROADWAY		HARDING HOUSE		*5S1*	*5D2*			SAR 404	L		MA	SD-40	
715		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
718		S	BROADWAY		POMEROY HOUSE	1912	*3S*	*5S1, 5D2*	HPDF	HENINGER PARK	SAR 47	L			SD-40	
721		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
802		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
817		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
818		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
819		S	BROADWAY				*5D2*			HENINGER PARK					SD-40	
930		S	BROADWAY		HEWITT HOUSE	1889	*3S*	3D, *5S1, 5D2*	HPDF	UNKNOWN	SAR 48	L		MA	SD-40	
1218		S	BROADWAY		BOWMAN HOUSE		*5S1*				SAR 376	C				
1229		S	BROADWAY		IRISH HOUSE		*5S1*				SAR 377	C				
1320		S	BROADWAY		GORDON HOUSE		*5S1*				SAR 378	C				
1330		S	BROADWAY		WAHL HOUSE		*5S1*				SAR 379	C				
801			BROWN	ST		1912	5D2		HPDF	UNKNOWN						
807			BROWN	ST	TRINITY LUTHERAN CHURCH, CHURCH OF	1910	3S		HPDF							
809			BROWN	ST		1922	5D2		HPDF	UNKNOWN						
812			BROWN	ST		1916	5D2		HPDF	UNKNOWN						
902			BROWN	ST		1915	5D2		HPDF	UNKNOWN						
905			BROWN	ST		1898	5D2		HPDF	UNKNOWN						
908			BROWN	ST	WESTON HOUSE	1901	3S		HPDF							
911			BROWN	ST		1900	5D2		HPDF	UNKNOWN						
107		W	BUFFALO	AVE	WOODWARD HOUSE		*5S1*				SAR 83	K				
119		W	BUFFALO	AVE	TRYTHALL HOUSE	1923	*5S1*		HPDF		SAR 82	C				
207		W	BUFFALO	AVE	SILVEY HOUSE		*5S1*				SAR 84	C				
211	-219 1/2	W	BUFFALO	ST	See 2201-2005 1/2 N Broadway											
313		N	BUSH	ST	See 200-210 E 4th St											
313		N	BUSH	ST	See 200-210 E 4th St											
601	-615	N	BUSH	ST	U.S. POST OFFICE, SPURGEON OFFICE	1931	*1B*	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 540	L	NRHP/C			
610	-612	N	BUSH	ST	RESIDENTIAL DUPLEX	1910	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
614		N	BUSH	ST	EPISCOPAL CHURCH OF THE MESSIAH	1888	1D	*5S1*	HPDF; CPHI	DOWNTOWN SANTA ANA	SAR 251	L	NRHP/C			OCHS 3
712		N	BUSH	ST	WINSLOW-LAURENCE HOUSE	1889	*5S1*	5D2	HPDF	FRENCH PARK	SAR 27	K			SD-19	
805		N	BUSH	ST	BUSH APARTMENTS	1927	5D2		HPDF	FRENCH PARK					SD-19	
1103	-1107	N	BUSH	ST	SIEMSEN'S APARTMENTS	1937	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1115	-1117	N	BUSH	ST	BARKER DUPLEX	1923	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1119		N	BUSH	ST	BALL HOUSE	1896	1D	*5S1*	HPDF	FRENCH PARK	SAR 130	L	NRHP/C		SD-19	
1201		N	BUSH	ST	ISAACSON HOUSE	1914	1D	*5S1*	HPDF	FRENCH PARK	SAR 168	C	NRHP/C		SD-19	
1315		N	BUSH	ST		1919	5D2		HPDF	UNKNOWN						
1319		N	BUSH	ST		1919	5D2		HPDF	UNKNOWN						
1322		N	BUSH	ST		1920	5D2		HPDF	UNKNOWN						
1323		N	BUSH	ST		1921	5D2		HPDF	UNKNOWN						
1325		N	BUSH	ST		1902	5D2		HPDF	UNKNOWN						
1401		N	BUSH	ST		1902	5D2		HPDF	UNKNOWN						
1402		N	BUSH	ST	BANKS/FULLER HOUSE	1912	*5S1*	5D2	HPDF	UNKNOWN	SAR 107	C				

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1406		N	BUSH	ST	TUBBS HOUSE	1914	*5S1*	5D2	HPDF	UNKNOWN	SAR 108	C				
1407		N	BUSH	ST		1914	5D2		HPDF	UNKNOWN						
1409		N	BUSH	ST		1902	5D2		HPDF	UNKNOWN						
1410		N	BUSH	ST	KILEY HOUSE	1895	*5S1*	5D2	HPDF	UNKNOWN	SAR 40	K				
1413		N	BUSH	ST		1902	5D2		HPDF	UNKNOWN						
1414		N	BUSH	ST		1910	5D2		HPDF	UNKNOWN						
1417		N	BUSH	ST		1909	5D2		HPDF	UNKNOWN						
1421		N	BUSH	ST		1912	5D2		HPDF	UNKNOWN						
1424		N	BUSH	ST		1921	5D2		HPDF	UNKNOWN						
1427		N	BUSH	ST		1922	5D2		HPDF	UNKNOWN						
1428		N	BUSH	ST		1910	5D2		HPDF	UNKNOWN						
1501		N	BUSH	ST		1922	5D2		HPDF	UNKNOWN						
1502		N	BUSH	ST	PICKERING HOUSE	1917	*5S1*	5D2	HPDF	UNKNOWN	SAR 109	C				
1504		N	BUSH	ST	EPISCOPAL PARSONAGE	1912	*5S2*	5D2	HPDF	UNKNOWN						
1505		N	BUSH	ST		1908	5D2		HPDF	UNKNOWN						
1509		N	BUSH	ST		1909	5D2		HPDF	UNKNOWN						
1513		N	BUSH	ST		1903	5D2		HPDF	UNKNOWN						
1516		N	BUSH	ST	LIGGITT-HAYES HOUSE	1921	*5S1*	5D2	HPDF	UNKNOWN	SAR 111	C				
1602		N	BUSH	ST	FITTON HOUSE	1914	*5S1*	5D2	HPDF	UNKNOWN	SAR 41	K				
1609		N	BUSH	ST		1913	5D2		HPDF	UNKNOWN						
1619		N	BUSH	ST		1923	5D2		HPDF	UNKNOWN						
1711		N	BUSH	ST	ANDRES HOUSE		*5S1*				SAR 31	K		MA		
1714		N	BUSH	ST	WAGNER HOUSE		*5S1*				SAR 32	K				
1717		N	BUSH	ST	HOEFER HOUSE		*5S1*				SAR 33	K				
1721		N	BUSH	ST	DRIPS HOUSE		*5S1*				SAR 34	K		MA		
1727		N	BUSH	ST	REMSBERG HOUSE		*5S1*				SAR 35	K				
1801		N	BUSH	ST	KOESPEL HOUSE		*5S1*				SAR 36	K				
1820		N	BUSH	ST	SHRIVER HOUSE		*5S1*				SAR 37	K		MA		
1909		N	BUSH	ST	HILL HOUSE		*5S1*				SAR 462	C				
2010		N	BUSH	ST	WILKES HOUSE		*5S1*				SAR 461	C				
2014		N	BUSH	ST	MCCLAIN HOUSE		*5S1*				SAR 422	C		MA		
2056		N	BUSH	ST	MELTON HOUSE		*5S1*				SAR 463	C		MA		
113		E	CAMILE	ST		1922	5D2		HPDF	UNKNOWN						
315		E	CAMILE	ST		1923	5D2		HPDF	UNKNOWN						
323		E	CAMILE	ST		1923	5D2		HPDF	UNKNOWN						
325		E	CAMILE	ST		1923	5D2		HPDF	UNKNOWN						
329		E	CAMILE	ST		1923	5D2		HPDF	UNKNOWN						
		E	CAMILE	ST		1923	5S2		HPDF	UNKNOWN						
411		W	CAMILE	ST		1915	5D2		HPDF	UNKNOWN						
919		W	CAMILE	ST	BROOKS HOUSE		*5S1*				SAR 476	C				
1015		W	CAMILE	ST	EVANS HOUSE		*5S1*				SAR 477	C				
115		E	CHESTNUT	AVE		1929	5D2		HPDF	UNKNOWN						
120		E	CHESTNUT	AVE		1892	5D2		HPDF	UNKNOWN						
202		E	CHESTNUT	AVE		1902	5D2		HPDF	UNKNOWN						
208		E	CHESTNUT	AVE		1914	5D2		HPDF	UNKNOWN						
212		E	CHESTNUT	AVE	C.W. WEST HOUSE	1892	*5S1*	5D2	HPDF	UNKNOWN	SAR 307	L				
215		E	CHESTNUT	AVE		1922	5D2		HPDF	UNKNOWN						
300	-600 BLKS	E	CHESTNUT	AVE	300-600 BLOCKS E CHESTNUT ST	1888	5S2		HPDF							
309		E	CHESTNUT	AVE		1921	5D2		HPDF	300-600 E CHESTNUT						
315		E	CHESTNUT	AVE		1902	5D2		HPDF	300-600 E CHESTNUT						
316		E	CHESTNUT	AVE		1914	5D2		HPDF	300-600 E CHESTNUT						
319		E	CHESTNUT	AVE		1902	5D2		HPDF	300-600 E CHESTNUT						
320		E	CHESTNUT	AVE		1911	5D2		HPDF	300-600 E CHESTNUT						
322		E	CHESTNUT	AVE	HARMON-MCNEIL HOUSE	1888	1S	3D	HPDF	300-600 E CHESTNUT						
323		E	CHESTNUT	AVE	COCHEMS-WALKER HOUSE	1902	3D		HPDF	300-600 E CHESTNUT						
331		E	CHESTNUT	AVE		1902	5D2		HPDF	300-600 E CHESTNUT						
335		E	CHESTNUT	AVE		1902	5D2		HPDF	300-600 E CHESTNUT						
404		E	CHESTNUT	AVE		1927	5D2		HPDF	300-600 E CHESTNUT						
408		E	CHESTNUT	AVE		1923	5D2		HPDF	300-600 E CHESTNUT						
412		E	CHESTNUT	AVE		1923	5D2		HPDF	300-600 E CHESTNUT						
413		E	CHESTNUT	AVE		1912	5D2		HPDF	300-600 E CHESTNUT						
416		E	CHESTNUT	AVE		1923	5D2		HPDF	300-600 E CHESTNUT						
421		E	CHESTNUT	AVE		1911	5D2		HPDF	300-600 E CHESTNUT						
422		E	CHESTNUT	AVE		1927	5D2		HPDF	300-600 E CHESTNUT						
501		E	CHESTNUT	AVE		1927	5D2		HPDF	300-600 E CHESTNUT						

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Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
502		E	CHESTNUT	AVE		1922	5D2		HPDF	300-600 E CHESTNUT						
506		E	CHESTNUT	AVE		1921	5D2		HPDF	300-600 E CHESTNUT						
507		E	CHESTNUT	AVE		1920	5D2		HPDF	300-600 E CHESTNUT						
510		E	CHESTNUT	AVE		1920	5D2		HPDF	300-600 E CHESTNUT						
511		E	CHESTNUT	AVE		1911	5D2		HPDF	300-600 E CHESTNUT						
514		E	CHESTNUT	AVE		1920	5D2		HPDF	300-600 E CHESTNUT						
515		E	CHESTNUT	AVE		1921	5D2		HPDF	300-600 E CHESTNUT						
517		E	CHESTNUT	AVE		1947	5D2		HPDF	300-600 E CHESTNUT						
520		E	CHESTNUT	AVE		1923	5D2		HPDF	300-600 E CHESTNUT						
522		E	CHESTNUT	AVE		1920	5D2		HPDF	300-600 E CHESTNUT						
523		E	CHESTNUT	AVE		1922	5D2		HPDF	300-600 E CHESTNUT						
525		E	CHESTNUT	AVE		1924	5D2		HPDF	300-600 E CHESTNUT						
526		E	CHESTNUT	AVE		1919	5D2		HPDF	300-600 E CHESTNUT						
611		E	CHESTNUT	AVE		1917	5D2		HPDF	300-600 E CHESTNUT						
614		E	CHESTNUT	AVE		1915	5D2		HPDF	300-600 E CHESTNUT						
621		E	CHESTNUT	AVE		1917	5D2		HPDF	300-600 E CHESTNUT						
623		E	CHESTNUT	AVE		1917	5D2		HPDF	300-600 E CHESTNUT						
628		E	CHESTNUT	AVE	HALLADAY HOUSE	1888	3S	*5S2*	HPDF							
411		W	CHESTNUT	AVE		1912	5D2		HPDF	UNKNOWN						
414		W	CHESTNUT	AVE		1922	5D2		HPDF	UNKNOWN						
419		E	CIVIC CENTER	DR	COOPER-JOHNSON BUNGALOW	1923	1D	*5S1*	HPDF	FRENCH PARK	SAR 142	K	NRHP/C		SD-19	
504		E	CIVIC CENTER	DR	MCANDREWS HOUSE	1910	*5D2*			FRENCH PARK					SD-19	
509	[sic]	E	CIVIC CENTER	DR	LANGLEY DUPLEX	1946				FRENCH PARK					SD-19	
509	-509 1/2	E	CIVIC CENTER	DR	COOK HOUSE	1911	1D		HPDF	FRENCH PARK			NRHP/C			
845		E	CIVIC CENTER	DR		1915	5D2		HPDF	UNKNOWN						
120		W	CIVIC CENTER	DR	DR. HOWE-WAFFLE HOUSE	1889	*1B*	*5S1*	HPDF; CPHI	DOWNTOWN SANTA ANA	SAR 2	L	NRHP; NRHP/C			
203	-205	W	CIVIC CENTER	DR	Y.M.C.A.	1924	1S	*5S1*	HPDF		SAR 6	L	NRHP			
1131		W	CIVIC CENTER	DR	HAMAKER HOUSE		*5S2*									
30			CIVIC CENTER	PLAZA	ORANGE COUNTY COURTHOUSE		*5S1*				SAR 232	L				
210		W	CUBBON	ST	FRANKLIN ELEMENTARY SCHOOL	1934	*3S*	*5S1; 5D2*	HPDF	HENINGER PARK	SAR 99	L			SD-40	
1010		N	CUSTER	ST		1915	5D2		HPDF	UNKNOWN						
1018		N	CUSTER	ST		1907	5D2		HPDF	UNKNOWN						
1019		N	CUSTER	ST		1903	5D2		HPDF	UNKNOWN						
1020		N	CUSTER	ST		1908	5D2		HPDF	UNKNOWN						
1023		N	CUSTER	ST	ECKMAN HOUSE		*5S1*				SAR 89	C				
1024		N	CUSTER	ST		1907	5D2		HPDF	UNKNOWN						
1027		N	CUSTER	ST		1921	5D2		HPDF	UNKNOWN						
1030		N	CUSTER	ST		1902	5D2		HPDF	UNKNOWN						
1033		N	CUSTER	ST	OSCAR SMITH HOUSE	1902	*5S1*	5D2	HPDF	UNKNOWN	SAR 112	C				
1037		N	CUSTER	ST		1902	5D2		HPDF	UNKNOWN						
1923		N	CUSTER	ST		1903	5D2		HPDF	UNKNOWN						
202		S	CYPRESS	AVE		1919	5D2		HPDF	UNKNOWN						
203		S	CYPRESS	AVE		1921	5D2		HPDF	UNKNOWN						
206		S	CYPRESS	AVE		1900	5D2		HPDF	UNKNOWN						
207		S	CYPRESS	AVE		1921	5D2		HPDF	UNKNOWN						
209		S	CYPRESS	AVE		1921	5D2		HPDF	UNKNOWN						
215		S	CYPRESS	AVE	SYLVESTER HOUSE	1914	*5S1*	5D2	HPDF	UNKNOWN	SAR 312	C				
216		S	CYPRESS	AVE		1909	5D2		HPDF	UNKNOWN						
219		S	CYPRESS	AVE		1902	5D2		HPDF	UNKNOWN						
220		S	CYPRESS	AVE		1902	5D2		HPDF	UNKNOWN						
221		S	CYPRESS	AVE		1902	5D2		HPDF	UNKNOWN						
222		S	CYPRESS	AVE	DINSMORE HOUSE	1893	*5S1*	5D2	HPDF	UNKNOWN	SAR 309	K				
301		S	CYPRESS	AVE	CROSE HOUSE	1911	*5S1*	7N	HPDF	UNKNOWN	SAR 314	K		MA		
305		S	CYPRESS	AVE		1902	5D2		HPDF	UNKNOWN						
311		S	CYPRESS	AVE	KENDALL HOUSE	1909	*5S1*	5D2	HPDF	UNKNOWN	SAR 315	K				
316		S	CYPRESS	AVE	HUFF-SLEEPER HOUSE	1902	*5S1*	7N	HPDF	UNKNOWN	SAR 316	K				
320		S	CYPRESS	AVE		1914	5D2		HPDF	UNKNOWN						
413		S	CYPRESS	AVE		1919	5D2		HPDF	UNKNOWN						
418		S	CYPRESS	AVE		1898	5D2		HPDF	UNKNOWN						
505		S	CYPRESS	AVE		1924	5D2		HPDF	UNKNOWN						
509		S	CYPRESS	AVE		1899	5D2		HPDF	UNKNOWN						
510		S	CYPRESS	AVE		1902	5D2		HPDF	UNKNOWN						
625		S	CYPRESS	AVE	CYPRESS FIRE STATION	1928	*5S1*		HPDF		SAR 15	K				
902	-904	S	CYPRESS	AVE	CLOTHIER HOUSE		*5S1*				SAR 317	K				

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Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1116		S	CYPRESS	AVE	DUARTE HOUSE		*5S1*				SAR 318	K				
1205		S	CYPRESS	AVE	JOHNSON HOUSE		*5S1*				SAR 503	C				
1232		S	CYPRESS	AVE	LOY HOUSE		*5S1*				SAR 504	C				
1324		S	CYPRESS	AVE	EUDALY HOUSE		*5S1*				SAR 505	C				
1325		S	CYPRESS	AVE	GARDNER HOUSE		*5S1*				SAR 506	C				
1449		S	CYPRESS	AVE	GARDINER HOUSE		*5S1*				SAR 507	C				
1909		S	CYPRESS	AVE		1909	5D2		HPDF	UNKNOWN						
615		N	DAISY	ST	GONSALES HOUSE		*5S1*				SAR 442	K				
1318		N	DURANT	ST		1936	5D2		HPDF	UNKNOWN						
1322		N	DURANT	ST		1925	5D2		HPDF	UNKNOWN						
1323		N	DURANT	ST		1915	5D2		HPDF	UNKNOWN						
1324		N	DURANT	ST		1922	5D2		HPDF	UNKNOWN						
1401		N	DURANT	ST	GRANVILLE SPURGEON HOUSE	1893	3S	*5S1*	HPDF	UNKNOWN	SAR 25	L				
1417		N	DURANT	ST		1915	5D2		HPDF	UNKNOWN						
1418		N	DURANT	ST		1930	5D2		HPDF	UNKNOWN						
1422		N	DURANT	ST		1930	5D2		HPDF	UNKNOWN						
1423		N	DURANT	ST		1936	5D2		HPDF	UNKNOWN						
1425		N	DURANT	ST		1932	5D2		HPDF	UNKNOWN						
1501		N	DURANT	ST		1911	5D2		HPDF	UNKNOWN						
1507		N	DURANT	ST		1920	5D2		HPDF	UNKNOWN						
1510		N	DURANT	ST		1923	5D2		HPDF	UNKNOWN						
1511		N	DURANT	ST		1911	5D2		HPDF	UNKNOWN						
1514		N	DURANT	ST		1915	5D2		HPDF	UNKNOWN						
1515		N	DURANT	ST		1920	5D2		HPDF	UNKNOWN						
1517		N	DURANT	ST		1909	5D2		HPDF	UNKNOWN						
1523		N	DURANT	ST		1922	5D2		HPDF	UNKNOWN						
1528		N	DURANT	ST		1922	5D2		HPDF	UNKNOWN						
1531		N	DURANT	ST		1920	5D2		HPDF	UNKNOWN						
1613		N	DURANT	ST		1928	5D2		HPDF	UNKNOWN						
532		N	EASTSIDE	AVE	PRENTICE HOUSE		*5S1*				SAR 583	K		MA		
1414		E	FAIRHAVEN	AVE	NUNN HOUSE		*5S1*				SAR 114	K				
2422		N	FAIRMONT	AVE	WALLACE HOUSE	1897	*5S1*		HPDF		SAR 216	K				
2909		N	FALLBROOK	DR	BURNS HOUSE		*5S1*				SAR 471	K				
201		N	FLOWER	ST	RED BRICK HOUSE	1880	3S		HPDF							
812		N	FLOWER	ST		1929	5D2		HPDF	UNKNOWN						
816		N	FLOWER	ST		1929	5D2		HPDF	UNKNOWN						
819		N	FLOWER	ST		1914	5D2		HPDF	UNKNOWN						
826		N	FLOWER	ST		1925	5D2		HPDF	UNKNOWN						
903		N	FLOWER	ST		1930	5D2		HPDF	UNKNOWN						
904		N	FLOWER	ST		1925	5D2		HPDF	UNKNOWN						
906		N	FLOWER	ST		1925	5D2		HPDF	UNKNOWN						
907		N	FLOWER	ST		1920	5D2		HPDF	UNKNOWN						
910		N	FLOWER	ST		1925	5D2		HPDF	UNKNOWN						
915		N	FLOWER	ST		1920	5D2		HPDF	UNKNOWN						
918		N	FLOWER	ST		1925	5D2		HPDF	UNKNOWN						
925		N	FLOWER	ST		1920	5D2		HPDF	UNKNOWN						
926		N	FLOWER	ST		1931	5D2		HPDF	UNKNOWN						
1001		N	FLOWER	ST		1922	5D2		HPDF	UNKNOWN						
1003		N	FLOWER	ST		1909	5D2		HPDF	UNKNOWN						
1009		N	FLOWER	ST		1923	5D2		HPDF	UNKNOWN						
1015		N	FLOWER	ST		1925	5D2		HPDF	UNKNOWN						
1411		N	FLOWER	ST		1929	5D2		HPDF	UNKNOWN						
1421		N	FLOWER	ST		1929	5D2		HPDF	UNKNOWN						
1502		N	FLOWER	ST	G.W. ROSS HOUSE	1909	3D	*5S1*	HPDF	ROSS FAMILY HOMES	SAR 43	K				
1502	-1522	N	FLOWER	ST	ROSS FAMILY HOMES	1909	3S		HPDF							
1516		N	FLOWER	ST	D.E. ROSS HOUSE	1909	3D	*5S1*	HPDF	ROSS FAMILY HOMES	SAR 44	K				
1522		N	FLOWER	ST	ROSS-WILSON HOUSE	1909	3D	*5S1*	HPDF	ROSS FAMILY HOMES	SAR 45	K				
1718		N	FLOWER	ST	H. WAGNER HOUSE		*5S1*				SAR 675	K		MA		
1815		N	FLOWER	ST	HERSHISER HOUSE		*5S1*				SAR 358	L		MA		
1816		N	FLOWER	ST	B. WARNER HOUSE		*5S1*				SAR 500	C		MA		
1904		N	FLOWER	ST	VAN HORNE-AMSLER HOUSE		*5S1*				SAR 433	L		MA		
1907		N	FLOWER	ST	BOWER HOUSE		*5S1*				SAR 490	K		MA		
1908		N	FLOWER	ST	DR. D. WAYNICK HOUSE		*5S1*				SAR 570	K		MA		
1916		N	FLOWER	ST	LEWIS HOUSE		*5S1*				SAR 450	C		MA		
2001		N	FLOWER	ST	PHILLIPS HOUSE		*5S1*				SAR 624	C		MA		

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
2029		N	FLOWER	ST	DR. M. MCMURRAY HOUSE		*5S1*				SAR 576	K		MA		
2033		N	FLOWER	ST	MEYERS-TUBBS HOUSE		*5S1*				SAR 548	C		MA		
2040		N	FLOWER	ST	ANDERSON-EDGERTON HOUSE		*5S1*				SAR 434	C				
2046		N	FLOWER	ST	E. WAGNER HOUSE		*5S1*				SAR 429	L		MA		
2112		N	FLOWER	ST	WRIGHT-TIERNAN HOUSE		*5S1*				SAR 435	L				
2139		N	FLOWER	ST	DR. H.B. NALL HOUSE		*5S1*				SAR 586	C		MA		
2140		N	FLOWER	ST	BUTLER HOUSE		*5S1*				SAR 672	C		MA		
2203		N	FLOWER	ST	JENSEN HOUSE		*5S1*				SAR 690	C		MA		
2207		N	FLOWER	ST	RANNEY HOUSE		*5S1*				SAR 522	C		MA		
2223		N	FLOWER	ST	A. GARDNER HOUSE		*5S1*				SAR 569	C		MA		
2301		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2305		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2309		N	FLOWER	ST	CLYDE A. MARTIN HOUSE		*2D*	*5S1*	HPDF	N BROADWAY PARK	SAR 474	C		MA		
2315		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2319		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2325		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2369		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2370		N	FLOWER	ST	EVANS-HARR HOUSE		*5S1*				SAR 680	C		MA		
2373		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2377		N	FLOWER	ST	A & M WAGNER HOUSE		2D	*5S1*		N BROADWAY PARK	SAR 684	K		MA		
2379		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2383		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2387		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2393		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2395		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2397		N	FLOWER	ST			2D		HPDF	N BROADWAY PARK						
2401		N	FLOWER	ST	HULL HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 663	C		MA		
2402		N	FLOWER	ST	MILLMAN HOUSE		*5S1*				SAR 432	K				
2602		N	FLOWER	ST	W.F. PETERSON HOUSE		*5S1*				SAR 470	C				
2606		N	FLOWER	ST	M.W. PETERSON HOUSE		*5S1*				SAR 469	C				
2612		N	FLOWER	ST	ROEHM HOUSE		*5S1*				SAR 468	C		MA		
2620		N	FLOWER	ST	MILLER-TAYLOR HOUSE		*5S1*				SAR 472	K				
2900		N	FLOWER	ST	SMILEY HOUSE	1911	2S2	*5S1*	HPDF		SAR 203	L		MA		
207		S	FLOWER	ST		1917	5D2		HPDF	UNKNOWN						
209		S	FLOWER	ST		1917	5D2		HPDF	UNKNOWN						
305		S	FLOWER	ST		1920	5D2		HPDF	UNKNOWN						
309		S	FLOWER	ST		1921	5D2		HPDF	UNKNOWN						
315		S	FLOWER	ST		1922	5D2		HPDF	UNKNOWN						
317		S	FLOWER	ST		1920	5D2		HPDF	UNKNOWN						
321		S	FLOWER	ST		1921	5D2		HPDF	UNKNOWN						
325		S	FLOWER	ST		1924	5D2		HPDF	UNKNOWN						
331		S	FLOWER	ST		1920	5D2		HPDF	UNKNOWN						
333		S	FLOWER	ST		1921	5D2		HPDF	UNKNOWN						
401		S	FLOWER	ST		1919	5D2		HPDF	UNKNOWN						
405		S	FLOWER	ST		1919	5D2		HPDF	UNKNOWN						
409		S	FLOWER	ST		1921	5D2		HPDF	UNKNOWN						
417		S	FLOWER	ST		1922	5D2		HPDF	UNKNOWN						
421		S	FLOWER	ST		1921	5D2		HPDF	UNKNOWN						
423		S	FLOWER	ST		1921	5D2		HPDF	UNKNOWN						
211		S	FRANKLIN	ST	REYES HOUSE		*5S1*				SAR 483	C				
219		S	FRANKLIN	ST	DE LA RIVA HOUSE		*5S1*				SAR 485	K				
405		S	FRANKLIN	ST	MENDOZA HOUSE		*5S1*				SAR 484	C				
827		N	FREEMAN	ST	RABE HOUSE		*5S1*				SAR 364	C				
1006		N	FREEMAN	ST	HAGAN HOUSE	1937	*3S*	*5S1*	HPDF		SAR 361	K				
1615		N	FREEMAN	ST	BOYLE HOUSE		*5S1*				SAR 683	K		MA		
613		N	FRENCH	ST		1922	5D2		HPDF	UNKNOWN						
625		N	FRENCH	ST	EBELL CLUB	1924	1S	*5S1*	HPDF		SAR 42	L	NRHP			
720		N	FRENCH	ST	COCHEMS HOUSE	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 263	K	NRHP/C		SD-19	
801		N	FRENCH	ST	SMITH A. HOME	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 204	L	NRHP/C		SD-19	
802		N	FRENCH	ST	MILES CROOKSHANK HOUSE	1899	1D	3S, *5S1*	HPDF	FRENCH PARK	SAR 28	L	NRHP/C		SD-19	
810		N	FRENCH	ST	[CLARENCE] CROOKSHANK HOME	1904	1D	*5S1*	HPDF	FRENCH PARK	SAR 146	L	NRHP/C	MA	SD-19	
814		N	FRENCH	ST	HARRIS HOUSE	1903	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
815		N	FRENCH	ST	YOUNG HOME	1893	1D	*5S1*	HPDF	FRENCH PARK	SAR 225	K	NRHP/C		SD-19	
817	-823	N	FRENCH	ST	WARNER APARTMENTS NO. 1	1946	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
820		N	FRENCH	ST	COWLES HOME	1926	1D	*5S1*	HPDF	FRENCH PARK	SAR 143	K	NRHP/C	MA	SD-19	

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Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
825	-827	N	FRENCH	ST	WARNER APARTMENTS NO. 2	1946	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
831		N	FRENCH	ST	GOWDY HOUSE	1911	1D	*5S1*	HPDF	FRENCH PARK	SAR 148	C	NRHP/C		SD-19	
835	-837	N	FRENCH	ST	BULLARD HOUSE	1910	6X	*5D2*	HPDF	FRENCH PARK			NRHP/NC		SD-19	
839		N	FRENCH	ST	EMBREE HOUSE	1911	1D		HPDF	FRENCH PARK			NRHP/C			
910		N	FRENCH	ST	BEATTY HOUSE	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 132	L	NRHP/C		SD-19	
916		N	FRENCH	ST	SMITH-FRANK HOUSE	1902	1D	*5S1*	HPDF	FRENCH PARK	SAR 259	L	NRHP/C		SD-19	
918		N	FRENCH	ST	GLEASON-CARDEN HOUSE	1903	1D	*5S1*	HPDF	FRENCH PARK	SAR 258	L	NRHP/C		SD-19	
922		N	FRENCH	ST	ROTH HOUSE		*5S1*				SAR 133	K				
932		N	FRENCH	ST	RUTAN HOUSE	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 151	K	NRHP/C	MA	SD-19	
1002		N	FRENCH	ST	THOMAS-HAMILTON HOUSE	1898	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1006		N	FRENCH	ST	MORRIS HOUSE	1922	1D	*5S1*	HPDF	FRENCH PARK	SAR 264	K	NRHP/C	MA	SD-19	
1009		N	FRENCH	ST	HICKOX HOME (1ST)	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 162	C	NRHP/C		SD-19	
1014		N	FRENCH	ST	ISAACSON HOUSE	1911	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1016		N	FRENCH	ST	BEALS HOUSE	1921	1D	*5S1*	HPDF	FRENCH PARK	SAR 268	C	NRHP/C		SD-19	
1101		N	FRENCH	ST	HILL-HAWLEY HOUSE	1912	1D	*2S2, 5S1*	HPDF	FRENCH PARK	SAR 165	K	NRHP/C		SD-19	
1102	-1102 1/2	N	FRENCH	ST	KITTLE-PERKINS HOUSE	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 257	L	NRHP/C		SD-19	
1104		N	FRENCH	ST	ERNEST SMITH HOUSE	1924	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1107		N	FRENCH	ST	RUSSELL HOME	1911	1D	*5S1*	HPDF	FRENCH PARK	SAR 196	C	NRHP/C		SD-19	
1108		N	FRENCH	ST	BISHOP HOUSE	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 134	L	NRHP/C	MA	SD-19	
1109	-1109 1/2	N	FRENCH	ST	VAN WYK HOME	1911	1D	*5S1*	HPDF	FRENCH PARK	SAR 213	C	NRHP/C		SD-19	
1112		N	FRENCH	ST	JAMES ALEXANDER HOUSE	1887	1D	*5S1*	HPDF	FRENCH PARK	SAR 265	K	NRHP/C	MA	SD-19	
1115		N	FRENCH	ST	PHILLEO HOUSE	1926	6X		HPDF	FRENCH PARK			NRHP/NC		SD-19	
1116		N	FRENCH	ST	ALEXANDER HOME	1914	1D	*5S1*	HPDF	FRENCH PARK	SAR 127	L	NRHP/C	MA	SD-19	
1117	-1119	N	FRENCH	ST	DUPLEX	1944	6X	*5D2*	HPDF	FRENCH PARK			NRHP/NC		SD-19	
1121		N	FRENCH	ST	FOURPLEX	1945	6X	*5D2*	HPDF	FRENCH PARK			NRHP/NC		SD-19	
1216		N	FRENCH	ST	THEE HOME	1914	1D	*5S1*	HPDF	FRENCH PARK	SAR 211	L	NRHP/C		SD-19	
1218		N	FRENCH	ST	HICKOX HOME (2ND)	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 163	K	NRHP/C		SD-19	
1224		N	FRENCH	ST	SPRAGUE HOME	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 208	K	NRHP/C		SD-19	
1225		N	FRENCH	ST	DAVIS-HOY HOUSE	1905	1D	*5S1*	HPDF	FRENCH PARK	SAR 311	C	NRHP/C	MA	SD-19	
1227		N	FRENCH	ST	ROSCOE WILSON HOUSE	1921	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1229		N	FRENCH	ST	GRACE HOUSE	1921	6X	*5D2*	HPDF	FRENCH PARK			NRHP/NC		SD-19	
1230		N	FRENCH	ST	SMITH W. HOME	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 206	K	NRHP/C		SD-19	
1235		N	FRENCH	ST	SMITH H. HOME	1919	1D	*5S1*	HPDF	FRENCH PARK	SAR 205	C	NRHP/C		SD-19	
1518		N	FRENCH	ST		1914	5D2		HPDF	UNKNOWN						
1520		N	FRENCH	ST		1921	5D2		HPDF	UNKNOWN						
1522		N	FRENCH	ST		1903	5D2		HPDF	UNKNOWN						
1528		N	FRENCH	ST		1903	5D2		HPDF	UNKNOWN						
1608		N	FRENCH	ST		1922	5D2		HPDF	UNKNOWN						
1610		N	FRENCH	ST		1923	5D2		HPDF	UNKNOWN						
2502		N	FRENCH	ST	BROWN HOUSE		*5S1*				SAR 613	K		MA		
2527		N	FRENCH	ST	SCHLUETER HOUSE		*5S1*				SAR 626	C		MA		
2544		N	FRENCH	ST	E.L. & H. SMITH HOUSE		*5S1*				SAR 658	C		MA		
	& 10TH ST	N	FRENCH	ST	FRENCH PARK	1898	1D		HPDF	FRENCH PARK			NRHP/C			
1102		E	FRUIT	ST		1920	2S2		HPDF							
602		N	GARFIELD	ST		1921	5D2		HPDF	UNKNOWN						
606		N	GARFIELD	ST		1912	5D2		HPDF	UNKNOWN						
609		N	GARFIELD	ST		1906	5D2		HPDF	UNKNOWN						
610		N	GARFIELD	ST		1901	5D2		HPDF	UNKNOWN						
614		N	GARFIELD	ST		1901	5D2		HPDF	UNKNOWN						
622		N	GARFIELD	ST		1921	5D2		HPDF	UNKNOWN						
623		N	GARFIELD	ST		1923	5D2		HPDF	UNKNOWN						
627		N	GARFIELD	ST		1917	5D2		HPDF	UNKNOWN						
628		N	GARFIELD	ST		1914	5D2		HPDF	UNKNOWN						
629		N	GARFIELD	ST		1917	5D2		HPDF	UNKNOWN						
630		N	GARFIELD	ST		1915	5D2		HPDF	UNKNOWN						
707		N	GARFIELD	ST		1915	5D2		HPDF	UNKNOWN						
708		N	GARFIELD	ST		1920	5D2		HPDF	UNKNOWN						
711		N	GARFIELD	ST		1915	5D2		HPDF	UNKNOWN						
724		N	GARFIELD	ST		1911	5D2		HPDF	UNKNOWN						
803		N	GARFIELD	ST	CHILDS HOUSE	1902	1D	*5S1*	HPDF	FRENCH PARK	SAR 287	C	NRHP/C		SD-19	
807		N	GARFIELD	ST		1925	5D2	*6X*	HPDF							
812		N	GARFIELD	ST		1911	5D2		HPDF	UNKNOWN						
813		N	GARFIELD	ST	STEARNS HOUSE	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 288	C	NRHP/C		SD-19	
819		N	GARFIELD	ST	ALBERT BEALS HOUSE	1902	1D	*5S1*	HPDF	FRENCH PARK	SAR 289	C	NRHP/C		SD-19	
820		N	GARFIELD	ST	ETCHINSON HOUSE (1)	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 290	C	NRHP/C		SD-19	

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Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
821		N	GARFIELD	ST	NATHAN BEALS HOUSE	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 296	C	NRHP/C		SD-19	
824		N	GARFIELD	ST	AYERS HOUSE	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 297	C	NRHP/C		SD-19	
904		N	GARFIELD	ST	WANZLAFF HOME	1923	1D	*5S1*	HPDF	FRENCH PARK	SAR 217	C	NRHP/C		SD-19	
908		N	GARFIELD	ST	TURNER HOUSE	1923	1D	*5S1*	HPDF	FRENCH PARK	SAR 291	C	NRHP/C		SD-19	
909		N	GARFIELD	ST		1914	5D2		HPDF	UNKNOWN						
912		N	GARFIELD	ST	GOODWIN HOUSE	1923	1D	*5S1*	HPDF	FRENCH PARK	SAR 292	C	NRHP/C		SD-19	
916		N	GARFIELD	ST	ADKINSON HOUSE	1923	1D	*5S1*	HPDF	FRENCH PARK	SAR 299	C	NRHP/C		SD-19	
917		N	GARFIELD	ST		1921	5D2		HPDF	UNKNOWN						
920	-926	N	GARFIELD	ST	SANTA ANA MANOR APARTMENT	1946	1D		HPDF	FRENCH PARK			NRHP/C			
921		N	GARFIELD	ST		1914	5D2		HPDF	UNKNOWN						
802		N	GARNSEY	ST		1938	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
814		N	GARNSEY	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
818		N	GARNSEY	ST		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
820		N	GARNSEY	ST		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
822		N	GARNSEY	ST		1925	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
825		N	GARNSEY	ST		1914	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
828		N	GARNSEY	ST		1920	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
829		N	GARNSEY	ST		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
831		N	GARNSEY	ST		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
834		N	GARNSEY	ST		1921	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
835		N	GARNSEY	ST		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
838		N	GARNSEY	ST		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
839		N	GARNSEY	ST		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
840		N	GARNSEY	ST		1924	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
841		N	GARNSEY	ST		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
842		N	GARNSEY	ST		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
843		N	GARNSEY	ST		1920	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
848		N	GARNSEY	ST		1902	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
849		N	GARNSEY	ST		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
852		N	GARNSEY	ST		1926	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1302		N	GARNSEY	ST		1924	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1311		N	GARNSEY	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1317		N	GARNSEY	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1321		N	GARNSEY	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1325		N	GARNSEY	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1405		N	GARNSEY	ST		1924	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1415		N	GARNSEY	ST		1930	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1423		N	GARNSEY	ST		1924	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
		N	GARNSEY	ST	N GARNSEY-N PARTON-N VAN NESS VICINITY	1895	5S2		HPDF	UNKNOWN						
301		S	GARNSEY	ST		1926	5D2		HPDF	UNKNOWN						
302		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
306		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
307		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
309		S	GARNSEY	ST		1920	5D2		HPDF	UNKNOWN						
310		S	GARNSEY	ST		1920	5D2		HPDF	UNKNOWN						
313		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
316		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
320		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
323		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
324		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
325		S	GARNSEY	ST		1920	5D2		HPDF	UNKNOWN						
326		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
328		S	GARNSEY	ST		1922	5D2		HPDF	UNKNOWN						
331		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
332		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
335		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
336		S	GARNSEY	ST		1924	5D2		HPDF	UNKNOWN						
339		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
401		S	GARNSEY	ST		1922	5D2		HPDF	UNKNOWN						
402		S	GARNSEY	ST			5D2		HPDF	UNKNOWN						
405		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
408		S	GARNSEY	ST		1923	5D2		HPDF	UNKNOWN						
409		S	GARNSEY	ST		1923	5D2		HPDF	UNKNOWN						
410		S	GARNSEY	ST		1922	5D2		HPDF	UNKNOWN						
411		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
414		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
417		S	GARNSEY	ST		1921	5D2		HPDF	UNKNOWN						
427		S	GARNSEY	ST		1920	5D2		HPDF	UNKNOWN						
701		S	GARNSEY	ST			*5D2*			HENINGER PARK					SD-40	
906		S	GARNSEY	ST			*5D2*			HENINGER PARK					SD-40	
1205		S	GARNSEY	ST	MCKEE HOUSE		*5S1*				SAR 380	C				
1301		S	GARNSEY	ST	LAMBROS-O'DAY HOUSE		*5S1*				SAR 381	C				
2139		N	GRAND	AVE	HASENYAGER HOUSE	1907	*3S*	*5S1*	HPDF		SAR 116	L				
9002	[sic]	N	GRAND	AVE	REUTER CASTLE	1885	3S		HPDF							
614		S	GRAND	AVE	GUS ALLEN RANCH HOUSE	1910	3S		HPDF							
1810		N	GREENLEAF	ST	GREENWALD CASAZZA HOUSE		*5S1*				SAR 30	L		MA		
1923		N	GREENLEAF	ST	BARCK HOUSE		*5S1*				SAR 478	C		MA		
1928		N	GREENLEAF	ST	ZIMMERMAN HOUSE		*5S1*				SAR 428	C		MA		
2005		N	GREENLEAF	ST	WARD HOUSE		*5S1*				SAR 692	C				
2008		N	GREENLEAF	ST	MOSHER HOUSE		*5S1*				SAR 438	C		MA		
2018		N	GREENLEAF	ST	WAHLBERG HOUSE		*5S1*				SAR 513	K		MA		
2033		N	GREENLEAF	ST	GUSTLIN HOUSE		*5S1*				SAR 437	L		MA		
2045		N	GREENLEAF	ST	LUND HOUSE		*5S1*				SAR 665	C		MA		
2108		N	GREENLEAF	ST	P. BROWN HOUSE		*5S1*				SAR 644	C		MA		
2118		N	GREENLEAF	ST	PRITCHARD HOUSE		*5S1*				SAR 602	C		MA		
2127		N	GREENLEAF	ST	E.B. SMITH HOUSE		*5S1*				SAR 557	C		MA		
2128		N	GREENLEAF	ST	MARKEL HOUSE		*5S1*				SAR 493	C		MA		
2133		N	GREENLEAF	ST	STEIN HOUSE		*5S1*				SAR 600	C		MA		
2140		N	GREENLEAF	ST	HEATH HOUSE		*5S1*				SAR 671	C		MA		
2144		N	GREENLEAF	ST	ROGERS-MORRISON HOUSE		*5S1*				SAR 494	C		MA		
2145		N	GREENLEAF	ST	EDWARDS HOUSE		*5S1*				SAR 689	C		MA		
2204		N	GREENLEAF	ST	ALICE PETERSON HOUSE		*5S1*				SAR 550	C		MA		
2208		N	GREENLEAF	ST	W.W. WOOD HOUYSE		*5S1*				SAR 676	C		MA		
2214		N	GREENLEAF	ST	JACOBS HOUSE		*5S1*				SAR 567	C		MA		
3501		S	GREENVILLE	ST	GREENVILLE CHURCH		*5S1*				SAR 100	*				
316			HALESWORTH	ST	EDWIN HALESWORTH HOUSE	1906	3S		HPDF	HALESWORTH-DURANT ST VICINITY						
328			HALESWORTH	ST		1915	5D2		HPDF	HALESWORTH-DURANT ST VICINITY						
334			HALESWORTH	ST		1909	5D2		HPDF	HALESWORTH-DURANT ST VICINITY						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
338			HALESWORTH	ST		1911	5D2		HPDF	HALESWORTH-DURANT ST VICINITY						
406			HALESWORTH	ST		1919	5D2		HPDF	HALESWORTH-DURANT ST VICINITY						
408			HALESWORTH	ST		1921	5D2		HPDF	HALESWORTH-DURANT ST VICINITY						
412			HALESWORTH	ST		1914	5D2		HPDF	HALESWORTH-DURANT ST VICINITY						
			HALESWORTH	ST	HALESWORTH-DURANT ST VICINITY	1900	5S2		HPDF							
502		S	HALLADAY	ST		1921	5D2		HPDF	UNKNOWN						
701		S	HALLADAY	ST	CLINARD HOUSE		*5S1*				SAR 313	L				
1201		S	HALLADAY	ST	WITMER HOUSE		*5S1*				SAR 517	K				
3101	DGS B, C, & D	W	HARVARD	ST	MAAG RANCH HOUSE		*5S1*				SAR 176	L				
3101	BLDG A	W	HARVARD	ST	KELLOGG HOUSE		*5S1*				SAR 252	L				
1710		N	HELIOTROPE	DR	SCHAFFER HOUSE		*5S1*				SAR 650	C		MA		
1719		N	HELIOTROPE	DR	BULPITT HOUSE		*5S1*				SAR 436	L		MA		
1722		N	HELIOTROPE	DR	FRANDSON HOUSE		*5S1*				SAR 667	C		MA		
1809		N	HELIOTROPE	DR	MILLER HOUSE		*5S1*				SAR 539	C		MA		
1812		N	HELIOTROPE	DR	BRYTE HOUSE		*5S1*				SAR 545	C		MA		
1815		N	HELIOTROPE	DR	AMLING HOUSE		*5S1*				SAR 682	K		MA		
1816		N	HELIOTROPE	DR	HILLIS HOUSE		*5S1*				SAR 331	L		MA		
1901		N	HELIOTROPE	DR	HALL-KNICKERBOCKER HOUSE		*5S1*				SAR 561	K		MA		
1904		N	HELIOTROPE	DR	ELLIOTT HOUSE		*5S1*				SAR 332	L		MA		
1919		N	HELIOTROPE	DR	MACMULLEN HOUSE		*5S1*				SAR 592	C		MA		
1920		N	HELIOTROPE	DR	JOHN S. FLUOR JR. HOUSE		*5S1*				SAR 499	L		MA		
1932		N	HELIOTROPE	DR	OELSCHLAGER HOUSE		*5S1*				SAR 491	C		MA		
2002		N	HELIOTROPE	DR	LASBY HOUSE		*5S1*				SAR 562	C		MA		
2008		N	HELIOTROPE	DR	GABRIEL HOUSE		*5S1*				SAR 669	C		MA		
2013		N	HELIOTROPE	DR	FLAGG HOUSE		*5S1*				SAR 687	K		MA		
2022		N	HELIOTROPE	DR	HESTER-VANDERMAS HOUSE		*5S1*				SAR 516	C		MA		
2102		N	HELIOTROPE	DR	KINWALD HOUSE		*5S1*				SAR 627	K		MA		
2108		N	HELIOTROPE	DR	MARTIEN HOUSE		*5S1*				SAR 686	C		MA		
2109		N	HELIOTROPE	DR	STAUFFER HOUSE		*5S1*				SAR 560	K		MA		
2125		N	HELIOTROPE	DR	DYE HOUSE		*5S1*				SAR 577	C		MA		
2126		N	HELIOTROPE	DR	BOLTON HOUSE		*5S1*				SAR 607	K		MA		
2221		N	HELIOTROPE	DR	MAHARAJAH HOUSE		*5S1*				SAR 354	L		MA		
2302		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2305		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2310		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2311		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2314		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2317		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2320		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2325		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2328		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2329		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2332		N	HELIOTROPE	DR	JELLIS HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 608	C		MA		
2335		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2336		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2339		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2340		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2345		N	HELIOTROPE	DR	WADDELL HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 515	C		MA		
2346		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2384		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2385		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2388		N	HELIOTROPE	DR	HARWOOD HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 585	K		MA		
2391		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2394		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2404		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2405		N	HELIOTROPE	DR	CLEM HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 575	C		MA		
2408		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2409		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
2412		N	HELIOTROPE	DR	HENINGER-ANDERSON HOUSE		*5S1*				SAR 496	C		MA		
2415		N	HELIOTROPE	DR	PATERSON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 645	K		MA		
2418		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2421		N	HELIOTROPE	DR	REID HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 616	C		MA		
2422		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2425		N	HELIOTROPE	DR	WALKER-SACKERSON HOUSE		*5S1*				SAR 589	C		MA		
2426		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2429		N	HELIOTROPE	DR	KELLY HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 489	C		MA		
2433		N	HELIOTROPE	DR	EDWARDS HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 631	C		MA		
2434		N	HELIOTROPE	DR	MEYER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 533	C		MA		
2437		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2438		N	HELIOTROPE	DR	MARKSITY HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 587	C		MA		
2439		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2442		N	HELIOTROPE	DR	NEIMAN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 579	L		MA		
2446		N	HELIOTROPE	DR	SYMMES HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 573	C		MA		
2450		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2452		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2454		N	HELIOTROPE	DR	J.C. SMITH HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 551	C		MA		
2456		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2457		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2459		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2460		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2463		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2464		N	HELIOTROPE	DR			2D		HPDF	N BROADWAY PARK						
2473		N	HELIOTROPE	DR	ROBERTSON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 353	L		MA		
2475		N	HELIOTROPE	DR	ROHRBACHER HOUSE		*5S1*				SAR 530	C		MA		
114		S	HICKORY	ST		1923	5D2		HPDF	UNKNOWN						
115		S	HICKORY	ST		1922	5D2		HPDF	UNKNOWN						
312		S	HICKORY	ST		1920	5D2		HPDF	UNKNOWN						
1121		S	HICKORY	ST	EASTIN HOUSE		*5S1*				SAR 659	C		MA		
475		N	LACY	ST	PACIFIC ELECTRIC SUBSTATION #1	1907	1S	2D3, *5S1*	HPDF	UNKNOWN	SAR 355	L	NRHP			
601		N	LACY	ST		1902	5D2		HPDF	UNKNOWN						
604		N	LACY	ST		1912	5D2		HPDF	UNKNOWN						
605		N	LACY	ST		1909	5D2		HPDF	UNKNOWN						
606		N	LACY	ST		1911	5D2		HPDF	UNKNOWN						
613		N	LACY	ST		1916	5D2		HPDF	UNKNOWN						
614		N	LACY	ST		1915	5D2		HPDF	UNKNOWN						
622		N	LACY	ST		1907	5D2		HPDF	UNKNOWN						
706		N	LACY	ST		1900	5D2		HPDF	UNKNOWN						
708		N	LACY	ST		1919	5D2		HPDF	UNKNOWN						
709		N	LACY	ST		1902	5D2		HPDF	UNKNOWN						
710		N	LACY	ST		1914	5D2		HPDF	UNKNOWN						
711		N	LACY	ST		1917	5D2		HPDF	UNKNOWN						
714		N	LACY	ST		1900	5D2		HPDF	UNKNOWN						
717		N	LACY	ST		1898	5D2		HPDF	UNKNOWN						
718		N	LACY	ST		1895	5D2		HPDF	UNKNOWN						
719		N	LACY	ST		1915	5D2		HPDF	UNKNOWN						
720		N	LACY	ST		1914	5D2		HPDF	UNKNOWN						
802		N	LACY	ST	LANGLEY HOUSE	1894	1D	*5S1*	HPDF	FRENCH PARK	SAR 272	K	NRHP/C		SD-19	
806		N	LACY	ST	HARVEY HOUSE	1902	1D	*5S1*	HPDF	FRENCH PARK	SAR 284	C	NRHP/C		SD-19	
812		N	LACY	ST	WARNE HOUSE	1914	1D	*5S1*	HPDF	FRENCH PARK	SAR 280	C	NRHP/C		SD-19	
817		N	LACY	ST	HARMON MCNEIL HOUSE	1888	*1B*	*5S1*	HPDF	FRENCH PARK	SAR 158	L	NRHP; NRHP/C	MA	SD-19	
820		N	LACY	ST	HAMAKER-SPENCER HOUSE	1913	1D	*5S1*	HPDF	FRENCH PARK	SAR 207	C	NRHP/C			
823		N	LACY	ST		1902	5D2		HPDF	UNKNOWN						
825		N	LACY	ST	DUGGAN HOUSE	1906	1D	*5S1*	HPDF	FRENCH PARK	SAR 270	L	NRHP/C		SD-19	
829	-835	N	LACY	ST	MINIMAL TRADITIONAL APARTMENTS	1946	1D		HPDF	FRENCH PARK			NRHP/C			
901		N	LACY	ST	EL SOLANO APARTMENTS	1931	1D	*5S1*	HPDF	FRENCH PARK	SAR 273	K	NRHP/C		SD-19	
902	-904	N	LACY	ST	SANBORN APARTMENTS NO. 1	1931	1D	*5S1*	HPDF	FRENCH PARK	SAR 281	K	NRHP/C		SD-19	
905	-907	N	LACY	ST	JACKSON HOUSE	1946	1D		HPDF	FRENCH PARK			NRHP?C			
906	-908	N	LACY	ST	SANBORN APARTMENTS NO. 2	1931	1D	*5S1*	HPDF	FRENCH PARK	SAR 286	K	NRHP/C		SD-19	
910		N	LACY	ST	LIEBERMAN HOUSE	1946	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
911		N	LACY	ST	HOLTZ HOUSE	1928	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
914	-914 1/2	N	LACY	ST	DIERKER HOUSES	1928	1D	*5S1*	HPDF	FRENCH PARK	SAR 282	C	NRHP/C		SD-19	

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Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
918		N	LACY	ST	TAYLOR-ROSE HOUSE	1914	1D	*5S1*	HPDF	FRENCH PARK	SAR 670	K	NRHP/C	MA	SD-19	
919		N	LACY	ST	STRAUB HOUSE	1924	1D	*5S1*	HPDF	FRENCH PARK	SAR 283	C	NRHP/C		SD-19	
921		N	LACY	ST	EL FRANCITA APARTMENTS	1932	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
922		N	LACY	ST	ROTH HOUSE	1923	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
925		N	LACY	ST	MARYLIN APARTMENTS	1929	1D	*5S1*	HPDF	FRENCH PARK	SAR 177	K	NRHP/C		SD-19	
926	-928	N	LACY	ST	TERRY STEPHENSON HOUSE	1915	1D	*5S1*	HPDF	FRENCH PARK	SAR 274	K	NRHP/C		SD-19	
930		N	LACY	ST	ROBBINS HOUSE	1911	1D	*5S1*	HPDF	FRENCH PARK	SAR 285	K	NRHP/C		SD-19	
1102	-1110	N	LACY	ST	DEHNE APARTMENTS NO. 1	1944	1D		HPDF	FRENCH PARK			NRHP/C			
1214		N	LACY	ST	WELLS HOUSE	1910	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1218		N	LACY	ST	ANTISDELL HOUSE	1921	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1221		N	LACY	ST	DEHNE APARTMENTS NO. 2	1948	1D		HPDF	FRENCH PARK			NRHP/C			
515		W	LIME	ST		1922	5D2		HPDF	UNKNOWN						
610		W	LIME	ST		1923	5D2		HPDF	UNKNOWN						
926			LINCOLN	AVE		1906	5D2		HPDF	UNKNOWN						
1020			LINCOLN	AVE		1902	5D2		HPDF	UNKNOWN						
1024			LINCOLN	AVE		1955	5D2		HPDF	UNKNOWN						
1024			LINCOLN	AVE		1906	5D2		HPDF	UNKNOWN						
1026			LINCOLN	AVE		1909	5D2		HPDF	UNKNOWN						
1030			LINCOLN	AVE		1902	5D2		HPDF	UNKNOWN						
1046			LINCOLN	AVE		1921	5D2		HPDF	UNKNOWN						
1306			LINCOLN	AVE		1895	5D2		HPDF	UNKNOWN						
1310			LINCOLN	AVE		1900	5D2		HPDF	UNKNOWN						
2541			LINWOOD	ST	YOUNG HOUSE	1888	5S2		HPDF							
917		N	LOGAN	ST		1906	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
920		N	LOGAN	ST		1920	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
922		N	LOGAN	ST		1902	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
924		N	LOGAN	ST		1922	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
926		N	LOGAN		See 914-916 E Stafford St											
935		N	LOGAN	ST		1920	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1012		N	LOGAN	ST		1904	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1016		N	LOGAN	ST	MCKERN HOUSE	1902	*5S1*	5D2	HPDF	HAWKINS ADDITION; LOGAN BARRIO	SAR 88	L				
1017		N	LOGAN	ST		1915	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1018		N	LOGAN	ST		1902	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1026		N	LOGAN	ST		1910	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1027		N	LOGAN	ST		1915	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1030		N	LOGAN	ST		1905	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1034		N	LOGAN	ST		1915	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
1035		N	LOGAN	ST		1916	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
		N	LOGAN	ST	HAWKINS ADDITION, LOGAN BARRIO	1895	5S2		HPDF							
917		N	LOUISE	ST	W.P. HENINGER HOUSE		*5S1*				SAR 556	C		MA		
1300	-1600	N	LOUISE	ST	1300-1600 BLOCKS NORTH LOUISE STREET	1925	5S2		HPDF							
1307		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1308		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1310		N	LOUISE	ST	MILLER HOUSE	1929	*5S1*	5D2	HPDF	1300-1600 N LOUISE ST	SAR 365	C				
1311		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1315		N	LOUISE	ST		1929	5D2		HPDF	1300-1600 N LOUISE ST						
1316		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
1319		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
1320		N	LOUISE	ST			5D2		HPDF	1300-1600 N LOUISE ST						
1323		N	LOUISE	ST		1932	5D2		HPDF	1300-1600 N LOUISE ST						
1401		N	LOUISE	ST		1929	5D2		HPDF	1300-1600 N LOUISE ST						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1404		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
1407		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
1408		N	LOUISE	ST		1928	5D2		HPDF	1300-1600 N LOUISE ST						
1411		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
1412		N	LOUISE	ST		1933	5D2		HPDF	1300-1600 N LOUISE ST						
1415		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1416		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1420		N	LOUISE	ST		1935	5D2		HPDF	1300-1600 N LOUISE ST						
1424		N	LOUISE	ST		1937	5D2		HPDF	1300-1600 N LOUISE ST						
1435		N	LOUISE	ST		1929	5D2		HPDF	1300-1600 N LOUISE ST						
1440		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
1443		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1444		N	LOUISE	ST		1929	5D2		HPDF	1300-1600 N LOUISE ST						
1511		N	LOUISE	ST		1928	5D2		HPDF	1300-1600 N LOUISE ST						
1530		N	LOUISE	ST		1928	5D2		HPDF	1300-1600 N LOUISE ST						
1602		N	LOUISE	ST		1931	5D2		HPDF	1300-1600 N LOUISE ST						
1605		N	LOUISE	ST		1928	5D2		HPDF	1300-1600 N LOUISE ST						
1612		N	LOUISE	ST		1930	5D2		HPDF	1300-1600 N LOUISE ST						
2618		N	LOUISE	ST	CONLEY HOUSE		*5S1*				598	C		MA		
800	-1100	N	LOWELL	ST	800-1100 BLOCK OF NORTH LOWELL STREET	1923	5D2		HPDF							
802		N	LOWELL	ST		1926	5D2		HPDF	800-1100 N LOWELL ST						
803		N	LOWELL	ST		1926	5D2		HPDF	800-1100 N LOWELL ST						
805		N	LOWELL	ST		1925	5D2		HPDF	800-1100 N LOWELL ST						
806		N	LOWELL	ST		1926	5D2		HPDF	800-1100 N LOWELL ST						
811		N	LOWELL	ST		1925	5D2		HPDF	800-1100 N LOWELL ST						
812		N	LOWELL	ST		1926	5D2		HPDF	800-1100 N LOWELL ST						
816		N	LOWELL	ST		1926	5D2		HPDF	800-1100 N LOWELL ST						
819		N	LOWELL	ST		1925	5D2		HPDF	800-1100 N LOWELL ST						
821		N	LOWELL	ST		1925	5D2		HPDF	800-1100 N LOWELL ST						
825		N	LOWELL	ST		1925	5D2		HPDF	800-1100 N LOWELL ST						
907		N	LOWELL	ST		1925	5D2		HPDF	800-1100 N LOWELL ST						
911		N	LOWELL	ST		1926	5D2		HPDF	800-1100 N LOWELL ST						
915		N	LOWELL	ST		1931	5D2		HPDF	800-1100 N LOWELL ST						
919		N	LOWELL	ST	E.N. STEFFENSEN HOUSE	1928	*5S1*	5D2	HPDF	800-1100 N LOWELL ST	SAR 677	C		MA		
924		N	LOWELL	ST	JOE LOWELL HOUSE	1926	*5S1*	5D2	HPDF	800-1100 N LOWELL ST	SAR 385	K				
925		N	LOWELL	ST		1928	5D2		HPDF	800-1100 N LOWELL ST						
1007		N	LOWELL	ST		1923	5D2		HPDF	800-1100 N LOWELL ST						
1011		N	LOWELL	ST		1923	5D2		HPDF	800-1100 N LOWELL ST						
1015		N	LOWELL	ST		1924	5D2		HPDF	800-1100 N LOWELL ST						
1020		N	LOWELL	ST		1936	5D2		HPDF	800-1100 N LOWELL ST						
1021		N	LOWELL	ST		1928	5D2		HPDF	800-1100 N LOWELL ST						
1025		N	LOWELL	ST		1928	5D2		HPDF	800-1100 N LOWELL ST						
1103		N	LOWELL	ST	CROCKER HOUSE	1933	*5S1*	5D2	HPDF	800-1100 N LOWELL ST	366	C				
1105		N	LOWELL	ST			5D2		HPDF	800-1100 N LOWELL ST						
1130		N	LOWELL	ST		1936	5D2		HPDF	800-1100 N LOWELL ST						
1925		N	LOWELL	ST		1925	5D2		HPDF	UNKNOWN						
2713		N	LOWELL	LN	HENSLEY AND KAY HOUSE		*5S1*				SAR 610	C		MA		
200		N	MAIN	ST	BUILDERS EXCHANGE BUILDING	1928	*1B*	*5S1,* 2D3	HPDF	DOWNTOWN SANTA ANA	SAR 136	L	NRHP; NRHP/C			
217		N	MAIN	ST	OLD SANTA ANA CITY HALL	1935	1S	*5S1, 2D3*	HPDF		SAR 21	L	NRHP			
302		N	MAIN	ST	GREEN CAT CAFÉ	1920	6X	2D2	HPDF							
308		N	MAIN	ST	FOX WEST COAST THEATER	1923	*1B*	*5S2*	HPDF	DOWNTOWN SANTA ANA			NRHP; NRHP/C			
309	-311	N	MAIN	ST	ODD FELLOWS HALL	1903	*1B*	2D3, *5S2*	HPDF	DOWNTOWN SANTA ANA			NRHP; NRHP/C			
315		N	MAIN	ST	CAREY SMITH BUILDING	1906	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 250	K	NRHP/C			
408		N	MAIN	ST	See 101 W 4th Street											
501		N	MAIN	ST	MAIN INVESTMENT COMPANY BUILDING		*5S1*				SAR 137	C				
504		N	MAIN	ST	PACIFIC TELEGRAPH AND TELEPHONE CO	1925	2D		HPDF	UNKNOWN						
505		N	MAIN	ST	SEARS ROEBUCK & CO. - HILLS, INC. BUILDING		*5S1*				SAR 149	C				
508		N	MAIN	ST		1929	2D		HPDF	UNKNOWN						
510		N	MAIN	ST	B J CHANDLER FURNITURE COMPANY	1928	2D		HPDF	UNKNOWN						
515		N	MAIN	ST	MCFADDEN PUBLIC MARKET	1926	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 178	C	NRHP/C			

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
517	-519	N	MAIN	ST	HORTON'S FURNITURE BUILDING	1929	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 166	K	NRHP/C			
601		N	MAIN	ST	KEYSTONE APARTMENTS/CALIFORNIA HOTEL	1919	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
604		N	MAIN	ST	SANTA ANA HOTEL	1922	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
607		N	MAIN	ST		1920	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
618		N	MAIN	ST	DR WEHRLY MEDICAL BUILDING	1921	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
717	-719	N	MAIN	ST	AUTOMOBILE CLUB OF SOUTHERN CALIFORNIA		*5S1*				SAR 74	C				
888		N	MAIN	ST	SECURITY BANK BUILDING		*5S1*				SAR 652	L				
900		N	MAIN	ST	SANTA ANA FIRST CHURCH OF CHRIST S	1922	2S2		HPDF							
909		N	MAIN	ST	BUFFUM'S DEPARTMENT STORE		*5S1*				SAR 85	K				
920		N	MAIN	ST	FIRST CHURCH CHRISTIAN SCIENTIST		*5S2*									
1107	-1115	N	MAIN	ST	WASHINGTON CLEANERS		*5S1*				SAR 117	C				
1411		N	MAIN	ST	GIBSON HOUSE		*5S1*				SAR 118	C				
1415		N	MAIN	ST	EDEN-JACOBS HOUSE		*5S1*				SAR 119	C				
1417		N	MAIN	ST	NELSON WARNER HOUSE		*5S1*				SAR 120	C				
1421		N	MAIN	ST	GALLOWAY HOUSE		*5S1*				SAR 121	C				
1502		N	MAIN	ST	WILLIAMS HOUSE		*5S1*				SAR 221	K				
2002	-2004	N	MAIN	ST	BOWERS MUSEUM		*5S1*				SAR 135	L				
2115	-2117	N	MAIN	ST	MACFARLANE HOUSE		*5S1*				SAR 122	C		MA		
2212		N	MAIN	ST	ELMER WHITNEY HOUSE	1900	*5S1*		HPDF		SAR 123	K				
		N	MAIN	ST	FRENCH PARK HISTORIC DISTRICT	1883	1S		HPDF				NRHP			
100	-110	S	MAIN	ST	UNITED AUTOMOTIVE BUILDING		*5S1*				SAR 9	C				
818		S	MAIN	ST	LEAK HOUSE		*5S1*				SAR 480	C				
		S	MAPLE	ST	PACIFIC ELECTRIC RAILROAD TRACKS A	1905	5S2		HPDF							
606		N	MINTER	ST		1912	5D2		HPDF	UNKNOWN						
608		N	MINTER	ST		1919	5D2		HPDF	UNKNOWN						
609		N	MINTER	ST		1915	5D2		HPDF	UNKNOWN						
611		N	MINTER	ST		1930	5D2		HPDF	UNKNOWN						
702		N	MINTER	ST	FREE METHODIST CHURCH, FAITH ASSEM	1928	5D2		HPDF	UNKNOWN						
705		N	MINTER	ST		1895	5D2		HPDF	UNKNOWN						
708		N	MINTER	ST		1902	5D2		HPDF	UNKNOWN						
709		N	MINTER	ST		1900	5D2		HPDF	UNKNOWN						
715		N	MINTER	ST		1914	5D2		HPDF	UNKNOWN						
717		N	MINTER	ST		1914	5D2		HPDF	UNKNOWN						
729	-727	N	MINTER	ST	ST. JOSEPH ROMAN CATHOLIC CHURCH	1946	5B	*5S2*	HPDF	UNKNOWN						
801	A & B	N	MINTER	ST	COOPER HOUSE	1900	1D	*5S1*	HPDF	FRENCH PARK	SAR 261	L	NRHP/C		SD-19	
802		N	MINTER	ST	KINLEY HOUSE	1895	1D	*5S1*	HPDF	FRENCH PARK	SAR 266	K	NRHP/C		SD-19	
805		N	MINTER	ST	EIMERS HOUSE	1905	1D	*5S1*	HPDF	FRENCH PARK	SAR 269	C	NRHP/C		SD-19	
806		N	MINTER	ST	HUTCHINGS HOUSE	1924	1D	*5S1*	HPDF	FRENCH PARK	SAR 275	C	NRHP/C		SD-19	
813		N	MINTER	ST	KITTLE HOUSE	1922	1D	*5S1*	HPDF	FRENCH PARK	SAR 276	C	NRHP/C		SD-19	
814		N	MINTER	ST	DAVIES HOUSE	1921	1D	*5S1*	HPDF	FRENCH PARK	SAR 277	C	NRHP/C		SD-19	
815		N	MINTER	ST	GRIM HOUSE	1898	1D	*5S1*	HPDF	FRENCH PARK	SAR 278	C	NRHP/C		SD-19	
818	-820	N	MINTER	ST	DAVIES DUPLEX	1919	1D	*5S1*	HPDF	FRENCH PARK	SAR 271	K	NRHP/C	MA	SD-19	
824		N	MINTER	ST	HAYNES HOUSE	1915	1D	*5S1*	HPDF	FRENCH PARK	SAR 279	C	NRHP/C		SD-19	
831	-835	N	MINTER	ST	WRIGHT HOUSE	1919	*1B*	*5S1*	HPDF	FRENCH PARK	SAR 223	L	NRHP; NRHP/C		SD-19	
901		N	MINTER	ST	BREAUX APARTMENTS	1948	1D		HPDF	FRENCH PARK			NRHP/C			
712			MORTIMER	ST		1911	5D2		HPDF	UNKNOWN						
714			MORTIMER	ST		1923	5D2		HPDF	UNKNOWN						
H			MORTIMER	ST		1902	5D2		HPDF	UNKNOWN						
105		E	MYRTLE	ST		1922	5D2		HPDF	UNKNOWN						
107		E	MYRTLE	ST		1922	5S2		HPDF	UNKNOWN						
109		E	MYRTLE	ST		1922	5D2		HPDF	UNKNOWN						
215		E	MYRTLE	ST		1929	5D2		HPDF	UNKNOWN						
300	-600	E	MYRTLE	ST	300-600 BLOCKS E MYRTLE	1894	5S2		HPDF	300-600 E MYRTLE						
314		E	MYRTLE	ST		1894	5D2		HPDF	300-600 E MYRTLE						
316		E	MYRTLE	ST		1927	5D2		HPDF	300-600 E MYRTLE						
324		E	MYRTLE	ST	RICHTER HOUSE	1899	*5S1*	5D2	HPDF	300-600 E MYRTLE	SAR 319	K				
328		E	MYRTLE	ST		1928	5D2		HPDF	300-600 E MYRTLE						
401		E	MYRTLE	ST		1927	5D2		HPDF	300-600 E MYRTLE						
402		E	MYRTLE	ST		1927	5D2		HPDF	300-600 E MYRTLE						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
405		E	MYRTLE	ST		1928	5D2		HPDF	300-600 E MYRTLE						
406		E	MYRTLE	ST		1927	5D2		HPDF	300-600 E MYRTLE						
409		E	MYRTLE	ST		1931	5D2		HPDF	300-600 E MYRTLE						
416		E	MYRTLE	ST		1925	5D2		HPDF	300-600 E MYRTLE						
417		E	MYRTLE	ST		1924	5D2		HPDF	300-600 E MYRTLE						
506		E	MYRTLE	ST		1930	5D2		HPDF	300-600 E MYRTLE						
507		E	MYRTLE	ST		1925	5D2		HPDF	300-600 E MYRTLE						
510		E	MYRTLE	ST		1930	5D2		HPDF	300-600 E MYRTLE						
514		E	MYRTLE	ST		1929	5D2		HPDF	300-600 E MYRTLE						
515		E	MYRTLE	ST		1926	5D2		HPDF	300-600 E MYRTLE						
518		E	MYRTLE	ST		1930	5D2		HPDF	300-600 E MYRTLE						
522		E	MYRTLE	ST		1930	5D2		HPDF	300-600 E MYRTLE						
525		E	MYRTLE	ST	SANTA ANA FIRST REFORMED PRESBYTER	1908	5D2		HPDF	300-600 E MYRTLE						
607		E	MYRTLE	ST		1925	5D2		HPDF	300-600 E MYRTLE						
610		E	MYRTLE	ST		1923	5D2		HPDF	300-600 E MYRTLE						
618		E	MYRTLE	ST		1923	5D2		HPDF	300-600 E MYRTLE						
621		E	MYRTLE	ST		1919	5D2		HPDF	300-600 E MYRTLE						
708		W	MYRTLE	ST		1923	5D2		HPDF	UNKNOWN						
711		W	MYRTLE	ST		1921	5D2		HPDF	UNKNOWN						
712		W	MYRTLE	ST		1923	5D2		HPDF	UNKNOWN						
714		W	MYRTLE	ST		0	5D2		HPDF	UNKNOWN						
808		W	MYRTLE	ST		1923	5D2		HPDF	UNKNOWN						
809		W	MYRTLE	ST		1924	5D2		HPDF	UNKNOWN						
811		W	MYRTLE	ST	CHURCH OF JESUS CHRIST OF LDS, CHURCH	1925	5D2		HPDF	UNKNOWN						
812		W	MYRTLE	ST		1921	5D2		HPDF	UNKNOWN						
109		S	OAK	ST		1914	5S2		HPDF	UNKNOWN						
118		S	OAK	ST		1924	5D2		HPDF	UNKNOWN						
2335		N	OAKMONT	AVE	ANDERSON HOUSE		*5S1*				SAR 392	C		MA		
2421		N	OAKMONT	AVE	R.R. ROSS HOUSE		*5S1*				SAR 391	K		MA		
2428		N	OAKMONT	AVE	FORGY HOUSE		*5S1*				SAR 393	C				
			OLD PACIFIC ELECTRIC		PACIFIC ELECTRIC BRIDGE #55C-99		2S2		HPDF							
800	-1100	N	OLIVE	ST	800-1100 NORTH OLIVE STREET	1923	5S2		HPDF							
801		N	OLIVE	ST		1926	5D2		HPDF	800-1100 N OLIVE						
806		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
808		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
811		N	OLIVE	ST		1923	5D2		HPDF	800-1100 N OLIVE						
812		N	OLIVE	ST		1926	5D2		HPDF	800-1100 N OLIVE						
813		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
816		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
820		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
821		N	OLIVE	ST	TRAVIS HOUSE	1928	*5S1*	5D2	HPDF	800-1100 N OLIVE	SAR 646	C		MA		
824		N	OLIVE	ST		1926	5D2		HPDF	800-1100 N OLIVE						
825		N	OLIVE	ST		1930	5D2		HPDF	800-1100 N OLIVE						
828		N	OLIVE	ST		1930	5D2		HPDF	800-1100 N OLIVE						
901		N	OLIVE	ST		1926	5D2		HPDF	800-1100 N OLIVE						
903		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
904		N	OLIVE	ST	GRANT HOUSE	1928	*5S1*	5D2	HPDF	800-1100 N OLIVE	SAR 519	C		MA		
907		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
908		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
911		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
912		N	OLIVE	ST		1932	5D2		HPDF	800-1100 N OLIVE						
919		N	OLIVE	ST		1926	5D2		HPDF	800-1100 N OLIVE						
920		N	OLIVE	ST		1926	5D2		HPDF	800-1100 N OLIVE						
923		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
924		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
925		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
926		N	OLIVE	ST	VEATCH HOUSE	1926	*5S1*	5D2	HPDF	800-1100 N OLIVE	SAR 367	C		MA		
1002		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
1008		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
1011		N	OLIVE	ST		1923	5D2		HPDF	800-1100 N OLIVE						
1012		N	OLIVE	ST		1923	5D2		HPDF	800-1100 N OLIVE						
1015		N	OLIVE	ST		1923	5D2		HPDF	800-1100 N OLIVE						
1016		N	OLIVE	ST		1930	5D2		HPDF	800-1100 N OLIVE						
1017		N	OLIVE	ST		1923	5D2		HPDF	800-1100 N OLIVE						
1020		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1023		N	OLIVE	ST	RICHARDSON HOUSE	1924	*5S1*	5D2	HPDF	800-1100 N OLIVE	SAR 611	C		MA		
1024		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
1027		N	OLIVE	ST		1923	5D2		HPDF	800-1100 N OLIVE						
1028		N	OLIVE	ST		1925	5D2		HPDF	800-1100 N OLIVE						
1104		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
1108		N	OLIVE	ST		1930	5D2		HPDF	800-1100 N OLIVE						
1111		N	OLIVE	ST		1930	5D2		HPDF	800-1100 N OLIVE						
1112		N	OLIVE	ST	NALL HOUSE	1924	*5S1*	5D2	HPDF	800-1100 N OLIVE	SAR 439	C		MA		
1115		N	OLIVE	ST		1932	5D2		HPDF	800-1100 N OLIVE						
1119		N	OLIVE	ST		1930	5D2		HPDF	800-1100 N OLIVE						
1120		N	OLIVE	ST		1924	5D2		HPDF	800-1100 N OLIVE						
1123		N	OLIVE	ST	URBINE HOUSE	1924	*5S1*	5D2	HPDF	800-1100 N OLIVE	SAR 640	C		MA		
1124		N	OLIVE	ST		1927	5D2		HPDF	800-1100 N OLIVE						
1308		N	OLIVE	ST	MATZEN HOUSE		*5S1*				SAR 368	C				
100	-500	S	ORANGE	AVE	100-500 BLOCKS SOUTH ORANGE AVENUE	1887	5S2		HPDF							
100	-500	S	ORANGE	AVE	CAMPHOR TREES	1900	5D2		HPDF	100-500 S ORANGE						
109		S	ORANGE	AVE		1899	5D2		HPDF	100-500 S ORANGE						
115		S	ORANGE	AVE		1899	5D2		HPDF	100-500 S ORANGE						
119		S	ORANGE	AVE		1902	5D2		HPDF	100-500 S ORANGE						
121		S	ORANGE	AVE		1902	5D2		HPDF	100-500 S ORANGE						
201		S	ORANGE	AVE		1921	5D2		HPDF	100-500 S ORANGE						
207		S	ORANGE	AVE		1911	5D2		HPDF	100-500 S ORANGE						
212		S	ORANGE	AVE		1910	5D2		HPDF	100-500 S ORANGE						
213		S	ORANGE	AVE		1921	5D2		HPDF	100-500 S ORANGE						
216		S	ORANGE	AVE		1910	5D2		HPDF	100-500 S ORANGE						
217		S	ORANGE	AVE		1902	5D2		HPDF	100-500 S ORANGE						
218		S	ORANGE	AVE		1921	5D2		HPDF	100-500 S ORANGE						
223		S	ORANGE	AVE		1909	5D2		HPDF	100-500 S ORANGE						
224		S	ORANGE	AVE		1919	5D2		HPDF	100-500 S ORANGE						
302		S	ORANGE	AVE		1898	5D2		HPDF	100-500 S ORANGE						
303		S	ORANGE	AVE		1893	5D2		HPDF	100-500 S ORANGE						
306		S	ORANGE	AVE	TURNER-POTTER-LYON HOUSE	1898	*5S1*	5D2	HPDF	100-500 S ORANGE	SAR 320	K				
310		S	ORANGE	AVE		1902	5D2		HPDF	100-500 S ORANGE						
315		S	ORANGE	AVE		1923	5D2		HPDF	100-500 S ORANGE						
321		S	ORANGE	AVE		1899	5D2		HPDF	100-500 S ORANGE						
408		S	ORANGE	AVE		1909	5D2		HPDF	100-500 S ORANGE						
409		S	ORANGE	AVE		1921	5D2		HPDF	100-500 S ORANGE						
411		S	ORANGE	AVE		1921	5D2		HPDF	100-500 S ORANGE						
412		S	ORANGE	AVE		1909	5D2		HPDF	100-500 S ORANGE						
416		S	ORANGE	AVE		1919	5D2		HPDF	100-500 S ORANGE						
502		S	ORANGE	AVE		1909	5D2		HPDF	100-500 S ORANGE						
505		S	ORANGE	AVE		1914	5D2		HPDF	100-500 S ORANGE						
508		S	ORANGE	AVE		1902	5D2		HPDF	100-500 S ORANGE						
512		S	ORANGE	AVE		1906	5D2		HPDF	100-500 S ORANGE						
513		S	ORANGE	AVE		1919	5D2		HPDF	100-500 S ORANGE						
517		S	ORANGE	AVE		1914	5D2		HPDF	100-500 S ORANGE						
520		S	ORANGE	AVE		1902	5D2		HPDF	100-500 S ORANGE						
525		S	ORANGE	AVE		1920	5D2		HPDF	100-500 S ORANGE						
617	-619	S	ORANGE	AVE	MCWILLIAMS HOUSE		*5S1*				SAR 321	K				
620		S	ORANGE	AVE	COLLINS HOUSE	1885	3S	*5S1*	HPDF		SAR 18	L				
702		S	ORANGE	AVE	GEORGE R. SMITH HOUSE		*5S1*				SAR 322	L				
818		S	ORANGE	AVE	INMAN HOUSE		*5S1*				SAR 323	L				
1418		S	ORANGE	AVE	STYRING HOUSE		*5S1*				SAR 508	C				
1426		S	ORANGE	AVE	GOBBS HOUSE		*5S1*				SAR 509	C				
1441		S	ORANGE	AVE	MAYNARD HOUSE		*5S1*				SAR 510	C				
2300		N	PARK	BLVD	STEELE HOUSE		*5S1*				SAR 584	K		MA		
2301		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2304		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2310		N	PARK	BLVD	WINCKLER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 423	K		MA		
2311		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2314		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2320		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2321		N	PARK	BLVD	RANNEY HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 333	L				
2334		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2335		N	PARK	BLVD	EMISON-GEORGIEFF HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 335	L		MA		

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
2340		N	PARK	BLVD	MELLENTHIN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 571	K		MA		
2342		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2345		N	PARK	BLVD	GEAR HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 553	C		MA		
2346		N	PARK	BLVD	C. SWANNER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 559	K		MA		
2348		N	PARK	BLVD	SPICER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 440	L		MA		
2351		N	PARK	BLVD	SPENCER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 233	K		MA		
2360		N	PARK	BLVD	J.C. HORTON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 544	K		MA		
2402		N	PARK	BLVD	WENER HOUSE		*5S1*				SAR 639	K		MA		
2409		N	PARK	BLVD	ZLAKET HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 336	L		MA		
2410		N	PARK	BLVD	NISSON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 578	K		MA		
2411		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2414		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2417		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2418		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2420		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2425		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2429		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2433		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2434		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2437		N	PARK	BLVD	COFFING HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 529	K		MA		
2438		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2442		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2445		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2446		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2449		N	PARK	BLVD	WARREN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 638	C		MA		
2450		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2454		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2457		N	PARK	BLVD	CECIL O. CARTWRIGHT HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 674	K		MA		
2460		N	PARK	BLVD	H. BALDWIN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 546	C				
2463		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2510		N	PARK	BLVD	MCKAMY HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 597	C		MA		
2511		N	PARK	BLVD	H.C. HEAD HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 574	K		MA		
2512		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2515		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2516		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2519		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
2525		N	PARK	BLVD			2D		HPDF	N BROADWAY PARK						
		N	PARK	BLVD	STREET FURNITURE		2D		HPDF	N BROADWAY PARK						
825		N	PARTON	ST		1903	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
830		N	PARTON	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
836		N	PARTON	ST		1907	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
838		N	PARTON	ST		1905	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
839		N	PARTON	ST		1895	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
842		N	PARTON	ST		1903	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
843		N	PARTON	ST		1911	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
848		N	PARTON	ST		1903	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1004		N	PARTON	ST		1911	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1008		N	PARTON	ST		1906	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1009		N	PARTON	ST		1902	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1014		N	PARTON	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1015		N	PARTON	ST		1921	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1017		N	PARTON	ST		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1202		N	PARTON	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1204		N	PARTON	ST		1905	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1208		N	PARTON	ST		1921	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1209		N	PARTON	ST		1921	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1211		N	PARTON	ST		1921	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1212		N	PARTON	ST		1937	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1318		N	PARTON	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1322		N	PARTON	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1406		N	PARTON	ST		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
109		S	PARTON	ST		1938	5D2		HPDF	UNKNOWN						
302		S	PARTON	ST		1921	5D2		HPDF	UNKNOWN						
306		S	PARTON	ST		1920	5D2		HPDF	UNKNOWN						
310		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
316		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
320		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
326		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
328		S	PARTON	ST		1923	5D2		HPDF	UNKNOWN						
332		S	PARTON	ST		1923	5D2		HPDF	UNKNOWN						
336		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
340		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
402		S	PARTON	ST		1934	5D2		HPDF	UNKNOWN						
412		S	PARTON	ST		1923	5D2		HPDF	UNKNOWN						
414		S	PARTON	ST		1922	5D2		HPDF	UNKNOWN						
420		S	PARTON	ST		1931	5D2		HPDF	UNKNOWN						
424		S	PARTON	ST		1920	5D2		HPDF	UNKNOWN						
601		S	PARTON	ST			*5D2*			HENINGER PARK					SD-40	
701		S	PARTON	ST			*5D2*			HENINGER PARK					SD-40	
1106		S	PARTON	ST	WHITTEN HOUSE		*5S1*				SAR 370	K				
1110		S	PARTON	ST	FRIEND HOUSE		*5S1*				SAR 382	C		MA		
112		E	PINE	ST		1911	5D2		HPDF	UNKNOWN						
115		E	PINE	ST		1914	5D2		HPDF	UNKNOWN						
209		E	PINE	ST		1923	5D2		HPDF	UNKNOWN						
213		E	PINE	ST		1921	5D2		HPDF	UNKNOWN						
324		E	PINE	ST	HORTON HOUSE	1890	3S	*5S1*	HPDF		SAR 38	L				
332		E	PINE	ST		1921	5S2		HPDF							
402		E	PINE	ST	GRAY HOUSE		*5S1*				SAR 324	L				
42	[SIC]	W	PINE	ST		1916	5D2		HPDF	UNKNOWN						
415		W	PINE	ST		1921	5D2		HPDF	UNKNOWN						
416		W	PINE	ST		1911	5D2		HPDF	HENINGER PARK					SD-40	
418		W	PINE	ST		1911	5D2		HPDF	HENINGER PARK					SD-40	
422		W	PINE	ST			*5D2*			HENINGER PARK					SD-40	
708		W	PINE	ST		1922	5D2		HPDF	UNKNOWN						
712		W	PINE	ST		1921	5D2		HPDF	UNKNOWN						
715		W	PINE	ST		1920	5D2		HPDF	UNKNOWN						
719		W	PINE	ST		1919	5D2		HPDF	UNKNOWN						
806		W	PINE	ST		1920	5D2		HPDF	UNKNOWN						
808		W	PINE	ST		1920	5D2		HPDF	UNKNOWN						
811		W	PINE	ST		1920	5D2		HPDF	UNKNOWN						
		W	PINE	ST	WEST OF SANTA ANA HIGH SCHOOL	1900	5S2		HPDF							
1105		N	POINSETTIA	ST		1912	5D2		HPDF	UNKNOWN						
1113		N	POINSETTIA	ST		1902	5D2		HPDF	UNKNOWN						
1115		N	POINSETTIA	ST		1905	5D2		HPDF	UNKNOWN						
1720		N	POINSETTIA	ST	ENDERLIE HOUSE	1909	2S2	*5S1*	HPDF		SAR 387	L		MA		
1909		N	POINSETTIA	ST	MOLFETTO HOUSE		*5S1*				SAR 654	C		MA		

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1920		N	POINSETTIA	ST	ESAU HOUSE		*5S1*				SAR 397	C				
2415		N	POINSETTIA	ST	DIXON HOUSE		*5S1*				SAR 475	C		MA		
2418		N	POINSETTIA	DR	STANLEY HOUSE		*5S1*				SAR 564	C		MA		
216		E	POMONA	ST	BARR HOUSE		*5S1*				SAR 511	C				
316		E	POMONA	ST	AFFLECK HOUSE		*5S1*				SAR 512	C				
4921		W	PROGRESSO	ST	PEREZ HOUSE		*5S1*				SAR 448	C				
5009		W	PROGRESSO	ST	DRURY'S BOOKBINDERS	1890	5S2		HPDF							
930		W	RIVER	LN	BUSACCA HOUSE		*5S1*				SAR 649	C		MA		
949		W	RIVER	LN	TETER HOUSE		*5S1*				SAR 656	C		MA		
1150		W	RIVER	LN	SCHULZ HOUSE		*5S1*				SAR 632	C		MA		
1210		W	RIVER	LN	DR. GEDDES HOUSE		*5S1*				SAR 637	C		MA		
1010			RIVERINE	AVE		1920	5D2		HPDF	UNKNOWN						
1011			RIVERINE	AVE		1909	5D2		HPDF	UNKNOWN						
1013			RIVERINE	AVE		1915	5D2		HPDF	UNKNOWN						
2303		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2307		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2311		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2315		N	RIVERSIDE	DR	WEBSTER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 451	K		MA		
2319		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2320		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2325		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2329		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2333		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2336		N	RIVERSIDE	DR	GERKEN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 526	C		MA		
2340		N	RIVERSIDE	DR	DR. HARRY HUFFMAN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 655	C		MA		
2341		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2344		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2345		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2346		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2349		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2352		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2353		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2356		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2357		N	RIVERSIDE	DR	WARNER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 481	C		MA		
2360		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2361		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2365		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2366		N	RIVERSIDE	DR	HENNINGER-GREEVER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 535	C		MA		
2369		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2370		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2371		N	RIVERSIDE	DR	WATTERS HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 479	C		MA		
2372		N	RIVERSIDE	DR	E.C. ROGERS HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 572	K		MA		
2375		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2379		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2385		N	RIVERSIDE	DR	M. HENINGER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 594	C		MA		
2403		N	RIVERSIDE	DR	MCBRIDE HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 525	C		MA		
2408		N	RIVERSIDE	DR	WATKINS-COOKE HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 536	C		MA		
2412		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2415		N	RIVERSIDE	DR	ALYMORE-STEPHENSON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 527	C		MA		
2416		N	RIVERSIDE	DR	MANSUR HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 580	L		MA		
2418		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2424		N	RIVERSIDE	DR	K.H. SUTHERLAND HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 661	K		MA		
2425		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2428		N	RIVERSIDE	DR	BUTLER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 590	C		MA		
2429		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2432		N	RIVERSIDE	DR	DAVIS-SCHNEIDER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 664	C		MA		
2435		N	RIVERSIDE	DR	STANLEY BAILEY HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 635	C		MA		
2436		N	RIVERSIDE	DR	AULT HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 606	C		MA		
2440		N	RIVERSIDE	DR	GREGG HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 679	K		MA		
2441		N	RIVERSIDE	DR	HENDERSON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 601	C		MA		
2442		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2445		N	RIVERSIDE	DR	DUNTON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 593	C		MA		
2448		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2450		N	RIVERSIDE	DR	MATHEWS HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 487	K		MA		
2453		N	RIVERSIDE	DR	WALKER HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 563	K		MA		

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
2454		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2458		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2461		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2461		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2462		N	RIVERSIDE	DR	JENNIE LASBY TESSMAN HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 673	K		MA		
2465		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2467		N	RIVERSIDE	DR	REED HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 643	C		MA		
2468		N	RIVERSIDE	DR	HANSON HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 520	C		MA		
2473		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2476		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2477		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2481		N	RIVERSIDE	DR	BROWN-MCDONALD HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 531	C		MA		
2488		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
2489		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
H		N	RIVERSIDE	DR			2D		HPDF	N BROADWAY PARK						
825		N	ROSS	ST		1902	3S		HPDF	UNKNOWN						
1002		N	ROSS	ST		1926	5D2		HPDF	UNKNOWN						
1014		N	ROSS	ST		1903	5D2		HPDF	UNKNOWN						
1017		N	ROSS	ST		1914	5D2		HPDF	UNKNOWN						
1019		N	ROSS	ST		1914	5D2		HPDF	UNKNOWN						
1021		N	ROSS	ST		1915	5D2		HPDF	UNKNOWN						
1204		N	ROSS	ST		1922	5D2		HPDF	UNKNOWN						
1210	-1210 1/2	N	ROSS	ST	Z. B. WEST HOUSE	1902	3S	*5S1*	HPDF		SAR 19	L				
1212		N	ROSS	ST		1915	5D2		HPDF	UNKNOWN						
1213		N	ROSS	ST	FRIENDLY MARKET	1917	5D2		HPDF	UNKNOWN						
1215		N	ROSS	ST		1909	5D2		HPDF	UNKNOWN						
1225		N	ROSS	ST		1915	5D2		HPDF	UNKNOWN						
1321		N	ROSS	ST		1920	5D2		HPDF	UNKNOWN						
1325		N	ROSS	ST		1931	5D2		HPDF	UNKNOWN						
1327		N	ROSS	ST		1931	5D2		HPDF	UNKNOWN						
1401		N	ROSS	ST		1931	5D2		HPDF	UNKNOWN						
1409		N	ROSS	ST		1931	5D2		HPDF	UNKNOWN						
1413		N	ROSS	ST		1942	5D2		HPDF	UNKNOWN						
1419		N	ROSS	ST		1902	5D2		HPDF	UNKNOWN						
1502		N	ROSS	ST	FORD HOUSE-PEPITO AND JOANNE'S DANCE STUDIO	1885	3S	*5S1*	HPDF		SAR 50	K				
1515		N	ROSS	ST		1923	5D2		HPDF	UNKNOWN						
1812		N	ROSS	ST	SUMNER HOUSE		*5S1*				SAR 588	C		MA		
1816		N	ROSS	ST	COPE HOUSE		*5S1*				SAR 617	C		MA		
1819		N	ROSS	ST	WELLS-ROBBINS HOUSE		*5S1*				SAR 495	C		MA		
1824		N	ROSS	ST	W.H. DIXON HOUSE		*5S1*				SAR 498	C		MA		
1825		N	ROSS	ST	OAKES HOUSE		*5S1*				SAR 642	C		MA		
1924		N	ROSS	ST	CHILSON HOUSE		*5S1*				SAR 622	C		MA		
2003		N	ROSS	ST	FRANDSON HOUSE		*5S1*				SAR 552	C		MA		
2005		N	ROSS	ST	HUGH J. LOWE HOUSE		*5S1*				SAR 662	K				
2011		N	ROSS	ST	W.H. DIXON HOUSE		*5S1*				SAR 685	C		MA		
2022		N	ROSS	ST	COTTON MATHER HOUSE		*5S1*				SAR 555	C		MA		
2030		N	ROSS	ST	TRAWICK HOUSE		*5S1*				SAR 628	C		MA		
2031		N	ROSS	ST	W.L. & C. TUBBS HOUSE		*5S1*				SAR 660	C		MA		
2038		N	ROSS	ST	RIDLEY C. SMITH HOUSE		*5S1*				SAR 688	K		MA		
2042		N	ROSS	ST	BESSER HOUSE		*5S1*				SAR 466	C		MA		
2102		N	ROSS	ST	SMEDLEY HOUSE		*5S1*				SAR 465	C		MA		
2103		N	ROSS	ST	ROWELL HOUSE		*5S1*				SAR 532	C		MA		
2110		N	ROSS	ST	SCHENK HOUSE		*5S1*				SAR 501	C		MA		
2112		N	ROSS	ST	BEMIS HOUSE		*5S1*				SAR 599	C		MA		
2126		N	ROSS	ST	MACKAY HOUSE		*5S1*				SAR 473	C		MA		
2127		N	ROSS	ST	MORRIS-MENTON HOUSE		*5S1*				SAR 497	C		MA		
2130		N	ROSS	ST	GREGORY HOUSE		*5S1*				SAR 603	C		MA		
2134		N	ROSS	ST	CONKLIN HOUSE		*5S1*				SAR 554	C		MA		
2140		N	ROSS	ST	UTT HOUSE		*5S1*				SAR 488	C		MA		
2203		N	ROSS	ST	P.A. MITCHELL HOUSE		*5S1*				SAR 648	C		MA		
2204		N	ROSS	ST	KING HOUSE		*5S1*				SAR 614	C		MA		
2211		N	ROSS	ST	GANTMAN HOUSE		*5S1*				SAR 629	C		MA		
2215		N	ROSS	ST	REVILL HOUSE		*5S1*				SAR 618	C		MA		
105		S	ROSS	ST		1922	5D2		HPDF	S ROSS ST VICINITY						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
107		S	ROSS	ST		1924	5D2		HPDF	S ROSS ST VICINITY						
111		S	ROSS	ST		1915	5D2		HPDF	S ROSS ST VICINITY						
114		S	ROSS	ST		1926	5D2		HPDF	S ROSS ST VICINITY						
117		S	ROSS	ST		1922	5D2		HPDF	S ROSS ST VICINITY						
118		S	ROSS	ST			5D2		HPDF	S ROSS ST VICINITY						
122		S	ROSS	ST		1928	5D2		HPDF	S ROSS ST VICINITY						
211		S	ROSS	ST		1915	5D2		HPDF	S ROSS ST VICINITY						
217		S	ROSS	ST		1922	5D2		HPDF	S ROSS ST VICINITY						
305		S	ROSS	ST		1923	5D2		HPDF	S ROSS ST VICINITY						
401		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
403		S	ROSS	ST		1917	5D2		HPDF	S ROSS ST VICINITY						
405		S	ROSS	ST		1921	5D2		HPDF	HENINGER PARK					SD-40	
409		S	ROSS	ST		1921	5D2		HPDF	HENINGER PARK					SD-40	
417		S	ROSS	ST		1920	5D2		HPDF	S ROSS ST VICINITY						
421		S	ROSS	ST		1923	5D2		HPDF	S ROSS ST VICINITY						
425		S	ROSS	ST		1915	5D2		HPDF	S ROSS ST VICINITY						
429		S	ROSS	ST		1915	5D2		HPDF	S ROSS ST VICINITY						
435		S	ROSS	ST		1921	5D2		HPDF	S ROSS ST VICINITY						
439		S	ROSS	ST		1923	5D2		HPDF	S ROSS ST VICINITY						
443		S	ROSS	ST		1923	5D2		HPDF	S ROSS ST VICINITY						
514		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
524		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
529		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
601		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
602		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
624		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
701		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
710		S	ROSS	ST	HARMON'S CASTLE	1921	*5S1*		HPDF	HENINGER PARK	SAR 159	C			SD-40	
715		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
721		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
722		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
725		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
726		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
802		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
805		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
921		S	ROSS	ST			*5D2*			HENINGER PARK					SD-40	
1102		S	ROSS	ST	CHENEY HOUSE		*5S1*				SAR 383	C				
1141		S	ROSS	ST	KLASELL HOUSE		*5S1*				SAR 384	C				
		S	ROSS	ST	SOUTH ROSS STREET VICINITY	1909	5S2		HPDF							
113	-115	E	SANTA ANA	BLVD	UNITED PRESBYTERIAN CHURCH	1911	*1D*	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 14	L	NRHP/C			
401		E	SANTA ANA	BLVD	BAPTIST FELLOWSHIP	1925	5D2		HPDF	LOWER FRENCH PARK						
607		E	SANTA ANA	BLVD		1924	5D2		HPDF	LOWER FRENCH PARK						
611		E	SANTA ANA	BLVD		1909	5D2		HPDF	LOWER FRENCH PARK						
612		E	SANTA ANA	BLVD		1900	5D2		HPDF	LOWER FRENCH PARK						
614		E	SANTA ANA	BLVD		1910	5D2		HPDF	LOWER FRENCH PARK						
615		E	SANTA ANA	BLVD		1919	5D2		HPDF	LOWER FRENCH PARK						
618		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
619		E	SANTA ANA	BLVD		1912	5D2		HPDF	LOWER FRENCH PARK						
622		E	SANTA ANA	BLVD		1890	5D2		HPDF	LOWER FRENCH PARK						
623		E	SANTA ANA	BLVD		1919	5D2		HPDF	LOWER FRENCH PARK						
626		E	SANTA ANA	BLVD		1921	5D2		HPDF	LOWER FRENCH PARK						
702		E	SANTA ANA	BLVD		1897	5D2		HPDF	LOWER FRENCH PARK						
703		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
707		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
708		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
709		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
710		E	SANTA ANA	BLVD		1905	5D2		HPDF	LOWER FRENCH PARK						
714		E	SANTA ANA	BLVD		1908	5D2		HPDF	LOWER FRENCH PARK						
725		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
729		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
731		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
801		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
802		E	SANTA ANA	BLVD		1910	5D2		HPDF	LOWER FRENCH PARK						
807		E	SANTA ANA	BLVD		1900	5D2		HPDF	LOWER FRENCH PARK						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
809		E	SANTA ANA	BLVD		1895	5D2		HPDF	LOWER FRENCH PARK						
935		E	SANTA ANA	BLVD		1915	5D2		HPDF	LOWER FRENCH PARK						
		E	SANTA ANA	BLVD	LOWER FRENCH PARK DISTRICT	1895	5S2		HPDF							
211		W	SANTA ANA	BLVD	OLD ORANGE COUNTY COURTHOUSE (SHL 837)	1901	*1B*	1CL, *5S1*	HPDF; SHL	DOWNTOWN SANTA ANA	SAR 1	L	NRHP; NRHP/C			
214		E	SANTA CLARA	AVE	MCCOWAN HOUSE		*5S1*				SAR 415	L				
317		E	SANTA CLARA	AVE	WETTLIN HOUSE		*5S1*				SAR 426	K				
321		E	SANTA CLARA	AVE	WET & WEST HOUSE		*5S1*				SAR 678	C		MA		
403		E	SANTA CLARA	AVE	F.S.BISHOP HOUSE		*5S1*				SAR 356	K		MA		
521		E	SANTA CLARA	AVE	SCHMIDT HOUSE		*5S1*				SAR 398	C				
1584		E	SANTA CLARA	AVE	SEXLINGER FARMHOUSE AND ORCHARD		*5S1*				SAR 566	K				
315		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
411		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
412		W	SANTA CLARA	AVE	CHICK HOUSE		*5S1*				SAR 634	C		MA		
413		W	SANTA CLARA	AVE	NEFF HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 558	C		MA		
417		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
421		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
422		W	SANTA CLARA	AVE	NAT NEFF HOUSE		*5S1*				SAR 623	K		MA		
433		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
501		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
512		W	SANTA CLARA	AVE	JACOBS HOUSE		*5S1*				SAR 666	C		MA		
525		W	SANTA CLARA	AVE	DR. ASHMORE HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 619	K		MA		
528		W	SANTA CLARA	AVE	RUSSELL HOUSE		*5S1*				SAR 612	C		MA		
529		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
533		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
537		W	SANTA CLARA	AVE	MOORE HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 615	C		MA		
541		W	SANTA CLARA	AVE	PETZ HOUSE		2D	*5S1*	HPDF	N BROADWAY PARK	SAR 339	K		MA		
615		W	SANTA CLARA	AVE			2D		HPDF	N BROADWAY PARK						
2104		N	SANTIAGO	ST	TIDBALL HOUSE		*5S1*				SAR 394	C		MA		
2315		N	SANTIAGO	ST	BAKER HOUSE		*5S1*				SAR 389	K				
2337		N	SANTIAGO	ST	H.L. JOHNSON HOUSE		*5S1*				SAR 653	C		MA		
2401		N	SANTIAGO	ST	GOODWIN HOUSE		*5S1*				SAR 388	K				
2420		N	SANTIAGO	ST	HAYS-CRUMBAKER HOUSE		*5S1*				SAR 395	C				
2526		N	SANTIAGO	ST	KLEIDOSTY HOUSE	1910	*3S*	*5S1*	HPDF		SAR 172	L				
934		W	SHARON	RD	COHRT HOUSE		*5S1*				SAR 596	C		MA		
1138		W	SHARON	RD	PETERSON HOUSE		*5S1*				SAR 524	K		MA		
1222		W	SHARON	RD	DR. SAMMY LEE HOUSE		*5S1*				SAR 621	K		MA		
301	-307	N	SPURGEON	ST	YOST THEATER	1912	*1S*	*5S1*	HPDF		SAR 537	L				
621		N	SPURGEON	ST	THOMAS HOUSE	1890	*3S*	*5S1*	HPDF		SAR 26	K				
710		N	SPURGEON	ST	BULLARD HOUSE	1880	*1D*	*5S1*	HPDF	FRENCH PARK	SAR 170	C	NRHP/C		SD-19	
713		N	SPURGEON	ST	FOX HOUSE	1905	*1D*	*5S1*	HPDF	FRENCH PARK	SAR 293	K	NRHP/C	MA	SD-19	
714		N	SPURGEON	ST	WOOD HOUSE	1880	*1D*	*5S1*	HPDF	FRENCH PARK	SAR 222	C	NRHP/C		SD-19	
719		N	SPURGEON	ST	BROWN-BAKER HOUSE	1905	*1D*	*5S1*	HPDF	FRENCH PARK	SAR 260	L	NRHP/C		SD-19	
720		N	SPURGEON	ST	LINDSAY HOUSE	1895	5D2		HPDF	FRENCH PARK			NRHP/NC		SD-19	
802	-804	N	SPURGEON	ST	SPANISH COLONIAL REVIVAL APARTMENT	1937	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
808	-810 1/2	N	SPURGEON	ST	DAWES PERKINS HOUSE	1904	1D	*5S1*	HPDF	FRENCH PARK	SAR 294	K	NRHP/C		SD-19	
819		N	SPURGEON	ST	DR. WEHRLY HOUSE	1904	1D	*5S1*	HPDF	FRENCH PARK	SAR 39	L	NRHP/C	MA	SD-19	
1003		N	SPURGEON	ST	HANSLER HOUSE	1922	1D	*5S1*	HPDF	FRENCH PARK	SAR 295	K	NRHP/C		SD-19	
1009		N	SPURGEON	ST	BLANCHAR HOUSE	1922	1D	5D2	HPDF	FRENCH PARK			NRHP/C		SD-19	
1011		N	SPURGEON	ST	SUTTON DUPLEX [1]	1928	1D	5D2	HPDF	FRENCH PARK			NRHP/C		SD-19	
1015		N	SPURGEON	ST	SUTTON DUPLEX [2]	1928	1D	5D2	HPDF	FRENCH PARK			NRHP/C		SD-19	
1019		N	SPURGEON	ST	SUTTON HOUSE	1900	1D	*5S1*	HPDF	FRENCH PARK	SAR 267	C	NRHP/C		SD-19	
1025		N	SPURGEON	ST		1928	1D	5D2	HPDF				NRHP/NC			
1105		N	SPURGEON	ST	WILLIAMS HOUSE	1922	1D	*5S1*	HPDF	FRENCH PARK	SAR 305	C	NRHP/C		SD-19	
1106		N	SPURGEON	ST	CLAYCOMB HOUSE	1905	1D	*5S1*	HPDF	FRENCH PARK	SAR 22	K	NRHP/C	MA	SD-19	
1107	-1109	N	SPURGEON	ST		1940	1D		HPDF	FRENCH PARK			NRHP/C			
1110		N	SPURGEON	ST	PEASE HOUSE	1912	1D	*5S1*	HPDF	FRENCH PARK	SAR 300	L	NRHP/C		SD-19	
1113	-1113 1/2	N	SPURGEON	ST	PREBLE HOUSE	1919	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
1120		N	SPURGEON	ST	AXELSON HOUSE	1890	1D	*5S1*	HPDF	FRENCH PARK	SAR 262	K	NRHP/C		SD-19	
1206		N	SPURGEON	ST	See 220 E Washington St											
1207		N	SPURGEON	ST	TUBBS HOME	1904	1D	*5S1*	HPDF	FRENCH PARK	SAR 212	K	NRHP/C		SD-19	
1209		N	SPURGEON	ST	HERVEY HOUSE	1903	1D	*5S1*	HPDF	FRENCH PARK	SAR 161	C	NRHP/C		SD-19	
1309		N	SPURGEON	ST		1922	5D2		HPDF	UNKNOWN						
1313		N	SPURGEON	ST		1929	5D2		HPDF	UNKNOWN						
1316		N	SPURGEON	ST		1920	5D2		HPDF	UNKNOWN						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
1407		N	SPURGEON	ST		1920	5D2		HPDF	UNKNOWN						
1408		N	SPURGEON	ST		1930	5D2		HPDF	UNKNOWN						
1414		N	SPURGEON	ST		1922	5D2		HPDF	UNKNOWN						
1423		N	SPURGEON	ST		1920	5D2		HPDF	UNKNOWN						
1424		N	SPURGEON	ST		1921	5D2		HPDF	UNKNOWN						
1502		N	SPURGEON	ST		1920	5D2		HPDF	UNKNOWN						
1510		N	SPURGEON	ST		1902	5D2		HPDF	UNKNOWN						
1514		N	SPURGEON	ST		1902	5D2		HPDF	UNKNOWN						
1515		N	SPURGEON	ST		1929	5D2		HPDF	UNKNOWN						
1517		N	SPURGEON	ST		1909	5D2		HPDF	UNKNOWN						
1518		N	SPURGEON	ST		1903	5D2		HPDF	UNKNOWN						
1521		N	SPURGEON	ST		1912	5D2		HPDF	UNKNOWN						
1618		N	SPURGEON	ST		1919	5D2		HPDF	UNKNOWN						
1620		N	SPURGEON	ST		1920	5D2		HPDF	UNKNOWN						
1724		N	SPURGEON	ST	WINSLOW HOUSE		*5S1*				SAR 464	C				
2306		N	SPURGEON	ST	KENNEDY HOUSE		*5S1*				SAR 399	C		MA		
121		E	ST. ANDREW	PL	VAN METER HOUSE		*5S1*				SAR 518	C				
903		E	STAFFORD	ST	PERRY HOUSE	1905	*5S1*	5D2	HPDF	HAWKINS ADDITION; LOGAN BARRIO	SAR 90	C		MA		
904		E	STAFFORD	ST	FRANKE HOUSE	1897	*5S1*	5D2	HPDF	HAWKINS ADDITION; LOGAN BARRIO	SAR 91	C				
906		E	STAFFORD	ST		1916	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
907		E	STAFFORD	ST		1911	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
908		E	STAFFORD	ST		1902	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
912		E	STAFFORD	ST	CUMMINGS HOUSE	1905	*5S1*	5D2	HPDF	HAWKINS ADDITION; LOGAN BARRIO	SAR 93	C				
914	-916	E	STAFFORD	ST	ANDERSON HOUSE/*RUIZ & MARTINEZ GENERAL MERCHANDISE*	1905; 1921	*5S1*	5D2	HPDF	HAWKINS ADDITION; LOGAN BARRIO	SAR 92	K				
1010		E	STAFFORD	ST		1911	5D2		HPDF	HAWKINS ADDITION; LOGAN BARRIO						
108		N	SYCAMORE	ST	ZERMAN FEED STORE	1923	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
110	-122	N	SYCAMORE	ST	GRAND CENTRAL MARKET	1924	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 3	K	NRHP/C			
115		N	SYCAMORE	ST	CENTRAL AUTO BODY WORKS	1923	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
117		N	SYCAMORE	ST	MAY MOTOR CO, PARKER'S AUTO BODY	1922	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
200		N	SYCAMORE	ST	ELECTRICAL SUBSTATION YARD SITE		*1D*			DOWNTOWN SANTA ANA			NRHP/C			
214		N	SYCAMORE	ST	SALVATION ARMY BUILDING	1923	2D2		HPDF							
318	-320	N	SYCAMORE	ST	See 202-212 W 4th St											
415		N	SYCAMORE	ST	ROHRS BUILDING	1924	1D	*5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 194	C	NRHP/C			
421	-431	N	SYCAMORE	ST	See 118-120 W 5th St											
501	-505	N	SYCAMORE	ST	MASONIC TEMPLE	1930	1D	2D3, *5S1*	HPDF	DOWNTOWN SANTA ANA	SAR 5	L	NRHP/C			
511	-515	N	SYCAMORE	ST	DORIUS-TRANCREDI BUILDING		*5S1*				SAR 620	C				
601		N	SYCAMORE	ST	SANTA ANA FIRST PRESBYTERIAN CHURCH	1937	1D		HPDF	DOWNTOWN SANTA ANA			NRHP/C			
921		N	SYCAMORE	ST	FIRST CHURCH OF CHRIST SCIENTIST		*5S1*				SAR 230	L				
1322		N	SYCAMORE	ST	FIRE STATION HEADQUARTERS NO. 1	1928	*1S*	2D3, *5S1*	HPDF		SAR 24	L				
1524	-1530	N	SYCAMORE	ST	DE SOTO-SYCAMORE APARTMENTS		*5S1*				SAR 70	C				
200	-500	S	SYCAMORE	ST	200-500 BLOCKS SOUTH SYCAMORE STREET	1902	5S2		HPDF							
214		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
220		S	SYCAMORE	ST		1902	5D2		HPDF	200-500 S SYCAMORE						
221		S	SYCAMORE	ST		1910	5D2		HPDF	200-500 S SYCAMORE						
222		S	SYCAMORE	ST		1905	5D2		HPDF	200-500 S SYCAMORE						
305		S	SYCAMORE	ST		1920	5D2		HPDF	HENINGER PARK					SD-40	
309		S	SYCAMORE	ST		1909	5D2		HPDF	200-500 S SYCAMORE						
313		S	SYCAMORE	ST		1914	5D2		HPDF	200-500 S SYCAMORE						
314		S	SYCAMORE	ST		1918	5D2		HPDF	200-500 S SYCAMORE						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
317		S	SYCAMORE	ST		1911	5D2		HPDF	HENINGER PARK					SD-40	
320		S	SYCAMORE	ST		1902	5D2		HPDF	200-500 S SYCAMORE						
401		S	SYCAMORE	ST			5D2		HPDF	HENINGER PARK					SD-40	
402		S	SYCAMORE	ST		1911	5D2		HPDF	HENINGER PARK					SD-40	
406		S	SYCAMORE	ST		1907	5D2		HPDF	200-500 S SYCAMORE						
409		S	SYCAMORE	ST		1909	5D2		HPDF	HENINGER PARK					SD-40	
410		S	SYCAMORE	ST		1909	5D2		HPDF	HENINGER PARK					SD-40	
411		S	SYCAMORE	ST		1909	5D2		HPDF	200-500 S SYCAMORE						
414		S	SYCAMORE	ST		1911	5D2		HPDF	200-500 S SYCAMORE						
417		S	SYCAMORE	ST		1914	5D2		HPDF	200-500 S SYCAMORE						
420		S	SYCAMORE	ST		1903	5D2		HPDF	200-500 S SYCAMORE						
421		S	SYCAMORE	ST		1940	5D2		HPDF	200-500 S SYCAMORE						
422		S	SYCAMORE	ST		1915	5D2		HPDF	200-500 S SYCAMORE						
425		S	SYCAMORE	ST		1912	5D2		HPDF	HENINGER PARK					SD-40	
429		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
430		S	SYCAMORE	ST		1914	5D2		HPDF	200-500 S SYCAMORE						
433		S	SYCAMORE	ST		1919	5D2		HPDF	200-500 S SYCAMORE						
434		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
437		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
438		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
439		S	SYCAMORE	ST		1917	5D2		HPDF	HENINGER PARK					SD-40	
440		S	SYCAMORE	ST		1914	5D2		HPDF	HENINGER PARK					SD-40	
501		S	SYCAMORE	ST		1914	5D2		HPDF	HENINGER PARK					SD-40	
502		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
505		S	SYCAMORE	ST		1910	5D2		HPDF	200-500 S SYCAMORE						
506		S	SYCAMORE	ST		1912	5D2		HPDF	HENINGER PARK					SD-40	
509		S	SYCAMORE	ST		1914	5D2		HPDF	200-500 S SYCAMORE						
510		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
512		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
513		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
517		S	SYCAMORE	ST		1914	5D2		HPDF	200-500 S SYCAMORE						
518		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
519		S	SYCAMORE	ST		1914	*5D2*	6Y	HPDF	HENINGER PARK					SD-40	
522		S	SYCAMORE	ST		1912	5D2		HPDF	HENINGER PARK					SD-40	
525		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
526		S	SYCAMORE	ST		1912	5D2		HPDF	200-500 S SYCAMORE						
530		S	SYCAMORE	ST		1914	5D2		HPDF	200-500 S SYCAMORE						
602		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
617		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
711		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
715		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
718		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
801		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
806		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
814		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
821	-823	S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
822		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
826		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
827		S	SYCAMORE	ST			*5D2*			HENINGER PARK					SD-40	
829		S	SYCAMORE	ST	SWOFFER HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 407	K			SD-40	
1909		S	SYCAMORE	ST		1909	5D2		HPDF	UNKNOWN						
920		N	TOWNER	ST	TOWNER-ROGERS HOUSE	1910	*5S1*		HPDF		SAR 357	C		MA		
1407		N	TOWNER	ST	SANBORN HOUSE		*5S1*				SAR 369	C		MA		
1905		N	VALENCIA	ST	F.B. ELLIOT HOUSE		*5S1*				SAR 416	K				
2412		N	VALENCIA	ST	E. JOHNSON HOUSE		*5S1*				SAR 523	C				
2417		N	VALENCIA	DR	GRANGER HOUSE		*5S1*				SAR 534	C		MA		
2420		N	VALENCIA	AVE	SORENSON-SPIELMAN HOUSE		*5S1*				SAR 543	C				
2424		N	VALENCIA	ST	CHARLES WAFFLE HOUSE		*5S1*				SAR 452	C		MA		
2502		N	VALENCIA	ST	DEVER HOUSE		*5S1*				SAR 633	C		MA		
2510		N	VALENCIA	ST	TAYLOR-OGLESBY HOUSE	1910	3D	*5S1*	HPDF	UNKNOWN	SAR 386	L		MA		
2520		N	VALENCIA	ST	TAYLOR-GUSTLIN HOUSE	1910	3D	*5S1*	HPDF	UNKNOWN	SAR 414	L				
2529		N	VALENCIA	ST	R.D. BIRD HOUSE		*5S1*				SAR 651	C		MA		
			VALENCIA	AVE	LIGHTER-THAN-AIR SHIP HANGARS	1943	1S		HPDF							
			VALENCIA	AVE	QUICK HOUSES	1910	3S		HPDF							

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
828		N	VAN NESS	AVE		1902	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
829		N	VAN NESS	AVE		1914	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
833		N	VAN NESS	AVE		1921	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
841		N	VAN NESS	AVE		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
843		N	VAN NESS	AVE		1909	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
844		N	VAN NESS	AVE		1905	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
926		N	VAN NESS	AVE		1902	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1002		N	VAN NESS	AVE		1901	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1013		N	VAN NESS	AVE		1920	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1018		N	VAN NESS	AVE		1915	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1020		N	VAN NESS	AVE		1903	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1030		N	VAN NESS	AVE		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1032		N	VAN NESS	AVE		1924	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1201		N	VAN NESS	AVE		1922	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1202		N	VAN NESS	AVE		1923	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1208		N	VAN NESS	AVE		1905	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1211		N	VAN NESS	AVE		1911	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1213		N	VAN NESS	AVE		1912	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1214		N	VAN NESS	AVE		1912	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1215		N	VAN NESS	AVE		1911	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1217		N	VAN NESS	AVE		1912	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
1219		N	VAN NESS	AVE		1912	5D2		HPDF	N GARNSEY-N PARTON-N VAN NESS VICINITY						
109		S	VAN NESS			1921	5D2		HPDF	UNKNOWN						
110		S	VAN NESS			1921	5D2		HPDF	UNKNOWN						
115		S	VAN NESS			1920	5D2		HPDF	UNKNOWN						
116		S	VAN NESS			1922	5D2		HPDF	UNKNOWN						
501		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
601		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
706		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
710		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
714		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
718		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
722		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
726		S	VAN NESS	AVE			*5D2*			HENINGER PARK					SD-40	
822		S	VAN NESS	AVE	HAVEN HOUSE		*5S1*	*5D2*		HENINGER PARK	SAR 228	C		MA	SD-40	
1121		S	VAN NESS	AVE	WOODFILL HOUSE		*5S1*				SAR 482	C		MA		
		S	VAN NESS		HIGH SCHOOL VICINITY	1912	5D2		HPDF							
402			VANCE	ST	MITCHELL HOUSE	1914	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
403	-409		VANCE	ST	BREAUX APARTMENTS	1948	1D		HPDF	FRENCH PARK			NRHP/C			
410			VANCE	ST	WRIGHT TRANSFER CO	1919	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
412			VANCE	ST		1924	5D2		HPDF	UNKNOWN						
415	-417		VANCE	ST	GALBREATH DUPLEX	1922	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
419			VANCE	ST	SANBORN APARTMENTS	1931	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
506	-510		VANCE	ST	APARTMENTS	1946	1D		HPDF	FRENCH PARK			NRHP/C			
1913		N	VICTORIA	DR	STOREY HOUSE		*5S1*				SAR 334	L				
1914		N	VICTORIA	DR	ANTON SEGERSTROM HOUSE		*5S1*				SAR 337	L		MA		
1917		N	VICTORIA	DR	HOILES HOUSE		*5S1*				SAR 340	C		MA		
1920		N	VICTORIA	DR	E.B. SPRAGUE/SCHAUWECKER HOUSE		*5S1*				SAR 338	L				
2002		N	VICTORIA	DR	PARKE/ST. JACQUES HOUSE		*5S1*				SAR 341	L		MA		
2003		N	VICTORIA	DR	COTANT HOUSE		*5S1*				SAR 342	L				
2006		N	VICTORIA	DR	CARDEN HOUSE		*5S1*				SAR 343	L		MA		
2009		N	VICTORIA	DR	RUSSELL HOUSE		*5S1*				SAR 344	L		MA		
2010		N	VICTORIA	DR	REID HOUSE		*5S1*				SAR 345	L		MA		
2019		N	VICTORIA	DR	WAS HOUSE		*5S1*				SAR 346	L		MA		
2020		N	VICTORIA	DR	WELLS HOUSE		*5S1*				SAR 347	L		MA		
2024		N	VICTORIA	DR	HAMMOND-HAAN HOUSE		*5S1*				SAR 348	L		MA		
2025		N	VICTORIA	DR	DUCKET HOUSE		*5S1*				SAR 352	K				
2028		N	VICTORIA	DR	GEORGE HOUSE		*5S1*				SAR 349	L		MA		
2035		N	VICTORIA	DR	TUTHILL HOUSE		*5S1*				SAR 350	L				
2036		N	VICTORIA	DR	LEVERSON HOUSE		*5S1*				SAR 625	C		MA		
2043		N	VICTORIA	DR	ARENS HOUSE		*5S1*				SAR 609	K		MA		
2117		N	VICTORIA	DR	L.A. WEST HOUSE		*5S1*				SAR 351	L		MA		
2215		N	VICTORIA	DR	KIMES HOUSE		*5S1*				SAR 581	L		MA		
524		E	VIRGINIA	AVE	BARLOW-CALTIS HOUSE		*5S1*				SAR 636	C		MA		
112		E	WALNUT	ST		1919	5D2		HPDF	UNKNOWN						
116		E	WALNUT	ST		1921	5D2		HPDF	UNKNOWN						
214		E	WALNUT	ST		1928	5D2		HPDF	UNKNOWN						
300	-600	E	WALNUT	ST	300-600 BLOCKS EAST WALNUT	1891	5S2		HPDF							
312		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
316		E	WALNUT	ST		1905	5D2		HPDF	300-600 E WALNUT						
320		E	WALNUT	ST		1911	5D2		HPDF	300-600 E WALNUT						
324		E	WALNUT	ST		1911	5D2		HPDF	300-600 E WALNUT						
328		E	WALNUT	ST		1919	5D2		HPDF	300-600 E WALNUT						
336		E	WALNUT	ST		1905	5D2		HPDF	300-600 E WALNUT						
401		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
402		E	WALNUT	ST		1905	5D2		HPDF	300-600 E WALNUT						
406		E	WALNUT	ST		1914	5D2		HPDF	300-600 E WALNUT						
407		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
409		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
410		E	WALNUT	ST		1912	5D2		HPDF	300-600 E WALNUT						
413		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
416		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
418		E	WALNUT	ST		1912	5D2		HPDF	300-600 E WALNUT						
421		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
422		E	WALNUT	ST		1924	5D2		HPDF	300-600 E WALNUT						
501		E	WALNUT	ST	CARNAHAN HOUSE		*5S1*				SAR 325	C				
507		E	WALNUT	ST		1911	5D2		HPDF	300-600 E WALNUT						
510		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
511		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
512		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
515		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
519		E	WALNUT	ST		1893	5D2		HPDF	300-600 E WALNUT						
520		E	WALNUT	ST		1915	5D2		HPDF	300-600 E WALNUT						
521		E	WALNUT	ST		1907	5D2		HPDF	300-600 E WALNUT						
527		E	WALNUT	ST		1920	5D2		HPDF	300-600 E WALNUT						
528		E	WALNUT	ST	KELLY HOUSE	1891	3S		HPDF							
601		E	WALNUT	ST		1912	5D2		HPDF	300-600 E WALNUT						
610		E	WALNUT	ST		1924	5D2		HPDF	300-610 E WALNUT						
611		E	WALNUT	ST		1909	5D2		HPDF	300-600 E WALNUT						
614		E	WALNUT	ST		1902	5D2		HPDF	300-600 E WALNUT						
615		E	WALNUT	ST		1907	5D2		HPDF	300-600 E WALNUT						
617		E	WALNUT	ST		1914	5D2		HPDF	300-600 E WALNUT						
618		E	WALNUT	ST		1925	5D2		HPDF	300-600 E WALNUT						
706		E	WALNUT	ST	HAWKINS HOUSE		*5S1*				SAR 329	L				
310		W	WALNUT	ST		1917	5D2		HPDF	UNKNOWN						
314		W	WALNUT	ST		1917	5D2		HPDF	UNKNOWN						
318		W	WALNUT	ST		1917	5D2		HPDF	UNKNOWN						
414		W	WALNUT	ST		1914	5D2		HPDF	UNKNOWN						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
415		W	WALNUT	ST		1909	5D2		HPDF	UNKNOWN						
416		W	WALNUT	ST		1912	5D2		HPDF	UNKNOWN						
419		W	WALNUT	ST		1912	5D2		HPDF	UNKNOWN						
420		W	WALNUT	ST		1912	5D2		HPDF	UNKNOWN						
421		W	WALNUT	ST		1914	5D2		HPDF	UNKNOWN						
423		W	WALNUT	ST		1922	5D2		HPDF	UNKNOWN						
507		W	WALNUT	ST		1926	5D2		HPDF	UNKNOWN						
511		W	WALNUT	ST		1925	5D2		HPDF	UNKNOWN						
513		W	WALNUT	ST		1921	5D2		HPDF	UNKNOWN						
521		W	WALNUT	ST		1921	5D2		HPDF	UNKNOWN						
601		W	WALNUT	ST		1922	5D2		HPDF	UNKNOWN						
605		W	WALNUT	ST		1923	5D2		HPDF	UNKNOWN						
615		W	WALNUT	ST		1922	5D2		HPDF	UNKNOWN						
806		W	WALNUT	ST		1925	5D2		HPDF	UNKNOWN						
816		W	WALNUT	ST		1903	5D2		HPDF	UNKNOWN						
820		W	WALNUT	ST		1900	5D2		HPDF	UNKNOWN						
822		W	WALNUT	ST		1901	5D2		HPDF	UNKNOWN						
2514		W	WARNER	AVE	MANDERSHEID HOUSE		*5S1*				SAR 124					
201		E	WASHINGTON	AVE	KEECH-KLATT HOUSE	1899	1D	*2S2, 5S1*	HPDF	FRENCH PARK	SAR 231	L	NRHP/C	MA	SD-19	
204		E	WASHINGTON	AVE	CLEAVER HOME	1898	1D	*5S1*	HPDF	FRENCH PARK	SAR 141	K	NRHP/C		SD-19	
206		E	WASHINGTON	AVE	MORROW BUNGALOW	1909	1D	*5S1*	HPDF	FRENCH PARK	SAR 183	C	NRHP/C		SD-19	
209		E	WASHINGTON	AVE	SCHILDMEYER HOME	1929	1D	*5S1*	HPDF	FRENCH PARK	SAR 201	K	NRHP/C		SD-19	
216		E	WASHINGTON	AVE	FLOOK HOUSE	1909	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
219		E	WASHINGTON	AVE	ROBINSON HOME & CARRIAGE HOUSE	1907	1D	*5S1*	HPDF	FRENCH PARK	SAR 193	K	NRHP/C	MA	SD-19	
220		E	WASHINGTON	ST	CAMERON HOUSE	1895	1D	*5S1*	HPDF	FRENCH PARK	SAR 301	K	NRHP/C		SD-19	
305		E	WASHINGTON	ST	WILSON HOUSE	1922	1D	2D3, *5S1*	HPDF	FRENCH PARK	SAR 302	K	NRHP/C		SD-19	
311		E	WASHINGTON	AVE	HOFFMAN HOUSE	1987	5D2		HPDF	FRENCH PARK			NRHP/NC			
323		E	WASHINGTON	ST	OP-HUFF HOUSE	1908	1D	*5S1*	HPDF	FRENCH PARK	SAR 303	K	NRHP/C		SD-19	
327		E	WASHINGTON	ST	HALEY HOUSE	1916	1D	*5S1*	HPDF	FRENCH PARK	SAR 304	K	NRHP/C	MA	SD-19	
401		E	WASHINGTON	AVE	GREELY HOUSE	1920	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
406		E	WASHINGTON	AVE	GALBRETH HOUSE	1919	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
410		E	WASHINGTON	AVE	FORESTER HOUSE	1919	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
420		E	WASHINGTON	ST	HULBER/TOOLE HOUSE	1919	1D	*5S1*	HPDF	FRENCH PARK	SAR 306	C	NRHP/C		SD-19	
501		E	WASHINGTON	AVE	LIGGETT-WALLACE HOUSE	1921	1D	*5S1*	HPDF	FRENCH PARK	SAR 310	C	NRHP/C		SD-19	
505	-505 1/2	E	WASHINGTON	AVE	THOMPSON HOUSE	1886	1D	*5S1*	HPDF	FRENCH PARK	SAR 308	K	NRHP/C		SD-19	
506		E	WASHINGTON	AVE	WHITNEY HOME	1885	1D	*5S1*	HPDF	FRENCH PARK	SAR 219	K	NRHP/C		SD-19	
519		E	WASHINGTON	AVE	GILNES-WATERS HOUSE	1900	*5S1*	5D2	HPDF	FRENCH PARK	SAR 46	K			SD-19	
525		E	WASHINGTON	ST	VAUGLIN HOUSE	1915	*5D2*			FRENCH PARK					SD-19	
600		E	WASHINGTON	ST	SANTA ANA COMMUNITY HOSPITAL		*5S1*				SAR 538	L				
605		E	WASHINGTON	AVE	WASHINGTON COURT	1928	5S2		HPDF							
611		E	WASHINGTON	AVE		1895	5D2		HPDF	E WASHINGTON AVE						
901		E	WASHINGTON	AVE		1910	5D2		HPDF	E WASHINGTON AVE						
902		E	WASHINGTON	AVE	LA CHIQUITA MARKET	1902	5D2		HPDF	E WASHINGTON AVE						
905		E	WASHINGTON	AVE		1924	5D2		HPDF	E WASHINGTON AVE						
912		E	WASHINGTON	AVE		1923	5D2		HPDF	E WASHINGTON AVE						
916		E	WASHINGTON	AVE		1923	5D2		HPDF	E WASHINGTON AVE						
920		E	WASHINGTON	AVE	BUILDING REHABILITATION	1923	5D2		HPDF	E WASHINGTON AVE						
1004		E	WASHINGTON	AVE		1923	5D2		HPDF	E WASHINGTON AVE						
1006		E	WASHINGTON	AVE		1922	5D2		HPDF	E WASHINGTON AVE						
1008		E	WASHINGTON	AVE		1922	5D2		HPDF	E WASHINGTON AVE						
1010		E	WASHINGTON	AVE		1922	5D2		HPDF	E WASHINGTON AVE						
1014		E	WASHINGTON	AVE		1922	5D2		HPDF	E WASHINGTON AVE						
1016		E	WASHINGTON	AVE		1923	5D2		HPDF	E WASHINGTON AVE						
1018		E	WASHINGTON	AVE		1923	5D2		HPDF	E WASHINGTON AVE						
1019		E	WASHINGTON	AVE		1910	5D2		HPDF	E WASHINGTON AVE						
1020		E	WASHINGTON	AVE		1923	5D2		HPDF	E WASHINGTON AVE						
		E	WASHINGTON	AVE		1923	5D2		HPDF							
		E	WASHINGTON	AVE		1890	5S2		HPDF							
208		W	WASHINGTON	AVE		1885	5D2		HPDF	UNKNOWN						
231		W	WASHINGTON	AVE		1925	5D2		HPDF	UNKNOWN						
311		W	WASHINGTON	AVE		1920	5D2		HPDF	UNKNOWN						
403		W	WASHINGTON	AVE		0	5D2		HPDF	UNKNOWN						
409		W	WASHINGTON	AVE		1921	5D2		HPDF	UNKNOWN						
415		W	WASHINGTON	AVE		1922	5D2		HPDF	UNKNOWN						
416		W	WASHINGTON	AVE		1895	5D2		HPDF	UNKNOWN						

Existing Conditions Database

Number	Extension	Dir	Street Name	Type	Resource Name	Date	CHR Code	CHR Code	CHRIS	Historic District	SAR	Category	NR	Mills	SD	OCHS
419		W	WASHINGTON	AVE		1921	5D2		HPDF	UNKNOWN						
428		W	WASHINGTON	AVE		1909	5D2		HPDF	UNKNOWN						
610		W	WASHINGTON	AVE		1921	5D2		HPDF	UNKNOWN						
702		W	WASHINGTON	AVE		1902	5D2		HPDF	UNKNOWN						
703		W	WASHINGTON	AVE		1923	5D2		HPDF	UNKNOWN						
710		W	WASHINGTON	AVE		1915	5D2		HPDF	UNKNOWN						
711		W	WASHINGTON	AVE		1905	5D2		HPDF	UNKNOWN						
715		W	WASHINGTON	AVE		1920	5D2		HPDF	UNKNOWN						
807		W	WASHINGTON	AVE		1920	5D2		HPDF	UNKNOWN						
809		W	WASHINGTON	AVE		1920	5D2		HPDF	UNKNOWN						
819		W	WASHINGTON	AVE		1909	5D2		HPDF	UNKNOWN						
918		W	WASHINGTON	AVE	GARAGE AT WEST WASHINGTON AVENUE	1930	5S2		HPDF							
1002		W	WASHINGTON	AVE	FILES HOUSE	1926	*5S1*		HPDF		SAR 359	K				
1110		W	WASHINGTON	AVE	HENDRIE HOUSE	1914	*5S1*		HPDF		SAR 362	C				
410		E	WELLINGTON	AVE	COLLINS HOUSE	1909	1D		HPDF	FRENCH PARK			NRHP/C		SD-19	
419		E	WELLINGTON	AVE	TITCHENEL-CATLAND HOUSE	1888	1D	*5S1*	HPDF	FRENCH PARK	SAR 138	K	NRHP/C		SD-19	
425	-427	E	WELLINGTON	AVE	See 1102-1110 N Lacy St											
502	-512	E	WELLINGTON	AVE	YOST APARTMENTS	1929	1D	*5S1*	HPDF	FRENCH PARK	SAR 224	K	NRHP/C		SD-19	
520	-522	E	WELLINGTON	AVE	SINGER-TURNER DUPLEX	1924	1D	*5S1*	HPDF	FRENCH PARK	SAR 202	C	NRHP/C		SD-19	
1911		N	WESTWOOD	ST	A.T. BATES RANCH HOUSE		*5S1*				SAR 430	K		MA		
1923		N	WESTWOOD	AVE	STYLIANOUS HOUSE		*5S1*				SAR 647	C		MA		

Appendix F Energy Worksheet

Appendices

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Energy Worksheet

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Operation-Related Annual Vehicle Fuel/Energy Usage Summary

Existing - Baseline Year 2020

Full VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Existing Baseline	3,687,441,808	148,001,638	24.91	224,263,378	19,896,581	11.27	5,115,903	1,576,272	3.25	41,450,939	13,850,850	2.99

Existing - Year 2045

Full VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Existing Year 2045	3,471,552,120	92,891,225	37.37	291,979,782	17,946,794	16.27	6,570,424	1,928,457	3.41	188,169,702	50,665,611	3.71

Proposed Project

Full VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
Proposed Project	3,505,587,082	93,801,926	37.37	294,842,340	18,122,744	16.27	6,634,840	1,947,363	3.41	190,014,511	51,162,334	3.71

Net Change

Full VMT Scenario

Year	Gas			Diesel			CNG			Electricity		
	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	Gallons	Miles/Gal	VMT	kWh	Miles/kWh
From Existing Baseline	-181,854,726	-54,199,711	12.46	70,578,962	-1,773,837	5.00	1,518,937	371,092	0.16	148,563,572	37,311,485	0.72
From Existing 2045	34,034,962	910,702	0.00	2,862,558	175,950	0.00	64,416	18,907	0.00	1,844,808	496,724	0.00

Notes

** VMT based on VMT data provided by IBI Group.*

*** Fuel consumption rates based on data obtained from EMFAC2017 Web Database, Version 1.0.2. https://www.arb.ca.gov/emfac/2017/*

*****VMT per year based on a conversion of VMT x 347 days per year to account for less travel on weekend, consistent with CARB statewide GHG emissions inventory methodology. California Air Resources Board. 2008, October. Climate Change Proposed Scoping Plan: A Framework for Change.*

Existing Baseline Year 2020: Full VMT

Vehicle type	Fleet percent	VMT
LDA	55.03%	2,178,266,322
LDT1	5.55%	219,776,692
LDT2	18.89%	747,522,572
MDV	12.81%	507,141,005
LHD1	2.51%	99,270,097
LHD2	0.63%	24,973,023
MHD	2.40%	95,090,699
HHD	1.31%	51,901,428
OBUS	0.05%	1,951,803
UBUS	0.12%	4,567,669
MCY	0.45%	17,689,702
SBUS	0.07%	2,687,820
MH	0.10%	4,114,598
All Other Buses	0.03%	1,217,803
Motor Coach	0.02%	755,930
PTO	0.03%	1,344,865
	100%	3,958,272,028

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	97.46%	0.90%	0.00%	1.64%	
LDT1	99.61%	0.02%	0.00%	0.37%	
LDT2	98.87%	0.63%	0.00%	0.50%	
MDV	97.61%	2.17%	0.00%	0.22%	
LHD1	60.43%	39.57%	0.00%	0.00%	
LHD2	40.22%	59.78%	0.00%	0.00%	
MHD	19.10%	80.90%	0.00%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.08%	97.21%	2.71%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	49.72%	50.28%	0.00%	0.00%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	18.82%	0.00%	81.18%	0.00%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	32.93%	67.07%	0.00%	0.00%	
MH	69.88%	30.12%	0.00%	0.00%	
All Other Buses	0.00%	100.00%	0.00%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	100.00%	0.00%	0.00%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	2,122,935,426	30.12	70,475,051	19,563,690	47.42	412,576	0	0	0	35,767,206	2.99	11,951,628
LDT1	218,913,939	25.99	8,421,863	47,790	24.32	1,965	0	0	0	814,963	2.99	272,320
LDT2	739,047,779	23.60	31,312,454	4,735,295	34.32	137,975	0	0	0	3,739,499	2.99	1,249,555
MDV	495,029,954	19.21	25,772,212	10,981,780	26.02	422,030	0	0	0	1,129,270	2.99	377,346
LHD1	59,990,618	10.48	5,723,693	39,279,479	21.02	1,868,989	0	0	0	0	0.00	0
LHD2	10,045,032	9.11	1,102,582	14,927,991	18.96	787,142	0	0	0	0	0.00	0
MHD	18,157,989	5.02	3,614,966	76,932,710	10.30	7,467,865	0	0	0	0	0.00	0
HHD	40,793	4.12	9,906	50,452,860	6.47	7,798,867	1,407,775	2.19	642,071	0	0.00	0
OBUS	970,450	5.00	194,025	981,353	8.58	114,373	0	0	0	0	0.00	0
UBUS	859,541	3.68	233,833	0	0.00	0	3,708,128	3.97	934,200	0	0.00	0
MCY	17,689,702	37.21	475,359	0	0.00	0	0	0	0	0	0.00	0
SBUS	885,149	9.01	98,230	1,802,671	7.33	245,941	0	0	0	0	0.00	0
MH	2,875,436	5.07	567,466	1,239,162	10.28	120,520	0	0	0	0	0.00	0
All Other Buses	0	0	0	1,217,803	9.98	122,070	0	0	0	0	0.00	0
Motor Coach	0	0	0	755,930	6.33	119,395	0	0	0	0	0.00	0
PTO	0	0	0	1,344,865	4.86	276,875	0	0	0	0	0.00	0
	3,687,441,808		**148,001,638**	**224,263,378**		**19,896,581**	**5,115,903**		**1,576,272**	**41,450,939**		**13,850,850**

Existing Year 2045: Full VMT

Vehicle type	Fleet percent	VMT
LDA	56.21%	2,224,789,893
LDT1	6.32%	250,259,751
LDT2	17.62%	697,383,002
MDV	11.31%	447,727,884
LHD1	2.48%	98,040,318
LHD2	0.73%	28,755,750
MHD	2.67%	105,638,199
HHD	1.75%	69,249,077
OBUS	0.04%	1,739,695
UBUS	0.12%	4,692,181
MCY	0.48%	18,846,443
SBUS	0.08%	3,053,067
MH	0.09%	3,617,743
All Other Buses	0.04%	1,647,979
Motor Coach	0.02%	928,316
PTO	0.05%	1,902,731
	100%	3,958,272,028

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	92.54%	1.15%	0.00%	6.30%	
LDT1	96.09%	0.01%	0.00%	3.90%	
LDT2	95.84%	0.99%	0.00%	3.16%	
MDV	93.03%	3.37%	0.00%	3.60%	
LHD1	46.27%	53.73%	0.00%	0.00%	
LHD2	28.00%	72.00%	0.00%	0.00%	
MHD	8.89%	91.11%	0.00%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.12%	95.89%	3.99%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	40.31%	59.69%	0.00%	0.00%	<<OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	18.82%	0.00%	81.18%	0.00%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	47.04%	52.96%	0.00%	0.00%	
MH	68.78%	31.22%	0.00%	0.00%	
All Other Buses	0.00%	100.00%	0.00%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	100.00%	0.00%	0.00%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	2,058,918,309	42.90	47,995,773	25,663,149	65.39	392,436	0	0	0	140,208,435	3.71	37,751,805
LDT1	240,466,745	36.95	6,507,698	33,177	34.48	962	0	0	0	9,759,828	3.71	2,627,881
LDT2	668,398,842	37.37	17,886,907	6,913,309	49.21	140,486	0	0	0	22,070,851	3.71	5,942,684
MDV	416,522,040	30.68	13,576,742	15,075,255	38.01	396,636	0	0	0	16,130,589	3.71	4,343,240
LHD1	45,359,047	13.18	3,442,181	52,681,271	26.89	1,959,034	0	0	0	0	0.00	0
LHD2	8,050,303	11.46	702,499	20,705,447	24.16	856,965	0	0	0	0	0.00	0
MHD	9,395,785	6.46	1,454,110	96,242,414	14.28	6,738,651	0	0	0	0	0.00	0
HHD	85,945	5.63	15,256	66,401,918	10.04	6,613,068	2,761,214	2.93	942,282	0	0.00	0
OBUS	701,238	6.47	108,357	1,038,456	11.49	90,382	0	0	0	0	0.00	0
UBUS	882,971	4.98	177,335	0	0.00	0	3,809,210	3.86	986,175	0	0.00	0
MCY	18,846,443	36.61	514,793	0	0.00	0	0	0	0	0	0.00	0
SBUS	1,436,238	11.04	130,129	1,616,828	10.50	153,959	0	0	0	0	0.00	0
MH	2,488,213	6.56	379,445	1,129,530	12.89	87,598	0	0	0	0	0.00	0
All Other Buses	0	0	0	1,647,979	13.08	125,946	0	0	0	0	0.00	0
Motor Coach	0	0	0	928,316	8.66	107,222	0	0	0	0	0.00	0
PTO	0	0	0	1,902,731	6.71	283,449	0	0	0	0	0.00	0
	3,471,552,120		**92,891,225**	**291,979,782**		**17,946,794**	**6,570,424**		**1,928,457**	**188,169,702**		**50,665,611**

Project Horizon Year 2045: Full VMT

Vehicle type	Fleet percent	VMT
LDA	56.21%	2,246,601,646
LDT1	6.32%	252,713,288
LDT2	17.62%	704,220,118
MDV	11.31%	452,117,391
LHD1	2.48%	99,001,501
LHD2	0.73%	29,037,670
MHD	2.67%	106,673,872
HHD	1.75%	69,927,992
OBUS	0.04%	1,756,751
UBUS	0.12%	4,738,183
MCY	0.48%	19,031,212
SBUS	0.08%	3,082,999
MH	0.09%	3,653,211
All Other Buses	0.04%	1,664,136
Motor Coach	0.02%	937,417
PTO	0.05%	1,921,386
	100.00%	3,997,078,773

Vehicle type	Gas percent	Diesel percent	CNG percent	Electricity percent	
LDA	92.54%	1.15%	0.00%	6.30%	
LDT1	96.09%	0.01%	0.00%	3.90%	
LDT2	95.84%	0.99%	0.00%	3.16%	
MDV	93.03%	3.37%	0.00%	3.60%	
LHD1	46.27%	53.73%	0.00%	0.00%	
LHD2	28.00%	72.00%	0.00%	0.00%	
MHD	8.89%	91.11%	0.00%	0.00%	<< Equal to T6 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
HHD	0.12%	95.89%	3.99%	0.00%	<< Equal to T7 (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
OBUS	40.31%	59.69%	0.00%	0.00%	<< OBUS (https://www.arb.ca.gov/msei/downloads/emfac2014/emfac2014-vol3-technical-documentation-052015.pdf)
UBUS	18.82%	0.00%	81.18%	0.00%	
MCY	100.00%	0.00%	0.00%	0.00%	
SBUS	47.04%	52.96%	0.00%	0.00%	
MH	68.78%	31.22%	0.00%	0.00%	
All Other Buses	0.00%	100.00%	0.00%	0.00%	
Motor Coach	0.00%	100.00%	0.00%	0.00%	
PTO	0.00%	100.00%	0.00%	0.00%	

Vehicle type	Gasoline			Diesel			CNG			Electricity		
	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	mpg	Gallons	VMT	m/kWh	kWh
LDA	2,079,103,864	42.90	48,466,321	25,914,749	65.39	396,284	0	0	0	141,583,033	3.71	38,121,922
LDT1	242,824,272	36.95	6,571,499	33,503	34.48	972	0	0	0	9,855,513	3.71	2,653,645
LDT2	674,951,799	37.37	18,062,270	6,981,087	49.21	141,863	0	0	0	22,287,232	3.71	6,000,946
MDV	420,605,606	30.68	13,709,848	15,223,052	38.01	400,525	0	0	0	16,288,732	3.71	4,385,821
LHD1	45,803,745	13.18	3,475,928	53,197,756	26.89	1,978,240	0	0	0	0	0.00	0
LHD2	8,129,228	11.46	709,387	20,908,442	24.16	865,366	0	0	0	0	0.00	0
MHD	9,487,901	6.46	1,468,366	97,185,971	14.28	6,804,717	0	0	0	0	0.00	0
HHD	86,787	5.63	15,406	67,052,920	10.04	6,677,902	2,788,285	2.93	951,520	0	0.00	0
OBUS	708,113	6.47	109,419	1,048,637	11.49	91,268	0	0	0	0	0.00	0
UBUS	891,628	4.98	179,074	0	0.00	0	3,846,555	3.86	995,844	0	0.00	0
MCY	19,031,212	36.61	519,840	0	0.00	0	0	0	0	0	0.00	0
SBUS	1,450,319	11.04	131,405	1,632,680	10.50	155,468	0	0	0	0	0.00	0
MH	2,512,607	6.56	383,165	1,140,604	12.89	88,457	0	0	0	0	0.00	0
All Other Buses	0	0	0	1,664,136	13.08	127,181	0	0	0	0	0.00	0
Motor Coach	0	0	0	937,417	8.66	108,273	0	0	0	0	0.00	0
PTO	0	0	0	1,921,386	6.71	286,228	0	0	0	0	0.00	0
	3,505,587,082		**93,801,926**	**294,842,340**		**18,122,744**	**6,634,840**		**1,947,363**	**190,014,511**		**51,162,334**

EMFAC Fuel Usage: Year 2020

Vehicle type	Gasoline			Diesel			Natural Gas			Electricity
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day
All other buses	0	0	0.00	28,077	2,814	9.98	0	0	0.00	0
LDA	48,945,590	1,624,846	30.12	451,053	9,512	47.42	0	0	0.00	824,635
LDT1	5,047,196	194,171	25.99	1,102	45	24.32	0	0	0.00	18,789
LDT2	17,039,204	721,928	23.60	109,175	3,181	34.32	0	0	0.00	86,216
LHD1	1,383,121	131,963	10.48	905,613	43,091	21.02	0	0	0.00	0
LHD2	231,594	25,421	9.11	344,174	18,148	18.96	0	0	0.00	0
MCY	407,847	10,960	37.21	0	0	0.00	0	0	0.00	0
MDV	11,413,222	594,194	19.21	253,192	9,730	26.02	0	0	0.00	26,036
MH	66,295	13,083	5.07	28,570	2,779	10.28	0	0	0.00	0
Motor coach	0	0	0.00	17,428	2,753	6.33	0	0	0.00	0
OBUS	45,000	8,997	5.00	0	0	0.00	0	0	0.00	0
PTO	0	0	0.00	31,007	6,384	4.86	0	0	0.00	0
SBUS	20,408	2,265	9.01	41,562	5,670	7.33	0	0	0.00	0
T6	418,644	83,345	5.02	1,773,731	172,176	10.30	0	0	0.00	0
T7	941	228	4.12	1,163,222	179,808	6.47	32,457	14,803	2.19	0
UBUS	19,817	5,391	3.68	0	0	0.00	85,493	21,539	3.97	0
Total	**85,038,879**	**3,416,793**	**24.89**	**5,147,905**	**456,091**	**11.29**	**117,950**	**36,342**	**3.25**	**955,677**

EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2020
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
Orange (SC)	2020	All Other Buses	Aggregated	Aggregated	DSL	481.2016837	28077.19843	4042.094143	2.814388095
Orange (SC)	2020	LDA	Aggregated	Aggregated	GAS	1247860.077	48945590.41	5912594.532	1624.845919
Orange (SC)	2020	LDA	Aggregated	Aggregated	DSL	11164.90346	451052.9772	53022.62326	9.512191554
Orange (SC)	2020	LDA	Aggregated	Aggregated	ELEC	21148.18246	824635.0752	105742.2469	0
Orange (SC)	2020	LDT1	Aggregated	Aggregated	GAS	134019.271	5047196.379	619698.5138	194.1712644
Orange (SC)	2020	LDT1	Aggregated	Aggregated	DSL	55.81897815	1101.830055	186.0090014	0.045307405
Orange (SC)	2020	LDT1	Aggregated	Aggregated	ELEC	490.3524677	18789.48359	2431.492246	0
Orange (SC)	2020	LDT2	Aggregated	Aggregated	GAS	447357.5819	17039204.03	2097730.136	721.9280003
Orange (SC)	2020	LDT2	Aggregated	Aggregated	DSL	2427.17569	109175.1539	12027.12038	3.181091028
Orange (SC)	2020	LDT2	Aggregated	Aggregated	ELEC	2543.998796	86216.46483	12903.12737	0
Orange (SC)	2020	LHD1	Aggregated	Aggregated	GAS	36819.26046	1383120.831	548552.1202	131.9632743
Orange (SC)	2020	LHD1	Aggregated	Aggregated	DSL	21629.92474	905612.7101	272077.2427	43.09068986
Orange (SC)	2020	LHD2	Aggregated	Aggregated	GAS	6427.4198	231594.4301	95758.97816	25.42072092
Orange (SC)	2020	LHD2	Aggregated	Aggregated	DSL	8343.636776	344174.0824	104952.4543	18.14803591

Orange (SC)	2020 MCY	Aggregated	Aggregated	GAS	55868.87126	407847.0245	111737.7425	10.9596883
Orange (SC)	2020 MDV	Aggregated	Aggregated	GAS	312579.7151	11413222.04	1449101.786	594.1942936
Orange (SC)	2020 MDV	Aggregated	Aggregated	DSL	6028.951683	253191.7258	29628.60119	9.730157513
Orange (SC)	2020 MDV	Aggregated	Aggregated	ELEC	735.8961127	26036.03016	3783.732455	0
Orange (SC)	2020 MH	Aggregated	Aggregated	GAS	7043.392017	66294.96462	704.6209374	13.08327083
Orange (SC)	2020 MH	Aggregated	Aggregated	DSL	2901.594303	28569.64554	290.1594303	2.778662443
Orange (SC)	2020 Motor Coach	Aggregated	Aggregated	DSL	136.4898537	17428.42872	1992.751864	2.752736362
Orange (SC)	2020 OBUS	Aggregated	Aggregated	GAS	995.681945	45000.03288	19921.60436	8.996982408
Orange (SC)	2020 PTO	Aggregated	Aggregated	DSL	0	31006.68851	0	6.383529602
Orange (SC)	2020 SBUS	Aggregated	Aggregated	GAS	477.5371807	20407.65759	1910.148723	2.264752129
Orange (SC)	2020 SBUS	Aggregated	Aggregated	DSL	1330.411773	41561.69254	15352.76741	5.670310587
Orange (SC)	2020 T6 Ag	Aggregated	Aggregated	DSL	1.07	8.275469859	4.708	0.001066262
Orange (SC)	2020 T6 CAIRP heavy	Aggregated	Aggregated	DSL	88.66874812	17668.64125	1294.563723	1.577008329
Orange (SC)	2020 T6 CAIRP small	Aggregated	Aggregated	DSL	45.34272879	2389.999147	662.0038403	0.226832642
Orange (SC)	2020 T6 instate construction heavy	Aggregated	Aggregated	DSL	396.2486598	26940.21685	1791.424785	2.743247107
Orange (SC)	2020 T6 instate construction small	Aggregated	Aggregated	DSL	2797.82418	142828.4512	12648.85434	14.31071495
Orange (SC)	2020 T6 instate heavy	Aggregated	Aggregated	DSL	4232.18802	597325.6124	48838.86298	55.593513
Orange (SC)	2020 T6 instate small	Aggregated	Aggregated	DSL	18616.48143	955904.6099	214831.6146	94.35518326
Orange (SC)	2020 T6 OOS heavy	Aggregated	Aggregated	DSL	50.42051047	10072.46003	736.1394529	0.898555975
Orange (SC)	2020 T6 OOS small	Aggregated	Aggregated	DSL	26.8094145	1405.945609	391.4174517	0.133395337
Orange (SC)	2020 T6 Public	Aggregated	Aggregated	DSL	896.5189033	13585.52472	2719.440671	1.739272559
Orange (SC)	2020 T6 utility	Aggregated	Aggregated	DSL	335.5972108	5601.520977	3859.367924	0.597456493
Orange (SC)	2020 T6TS	Aggregated	Aggregated	GAS	7554.979106	418643.6762	151160.022	83.34527002
Orange (SC)	2020 T7 Ag	Aggregated	Aggregated	DSL	1	8.027370796	4.4	0.001553111
Orange (SC)	2020 T7 CAIRP	Aggregated	Aggregated	DSL	936.2960241	169499.5167	13669.92195	24.91503552
Orange (SC)	2020 T7 CAIRP construction	Aggregated	Aggregated	DSL	105.2121264	19351.39179	475.659933	2.689514666
Orange (SC)	2020 T7 NNOOS	Aggregated	Aggregated	DSL	1023.780474	206641.313	14947.19492	29.39860655
Orange (SC)	2020 T7 NOOS	Aggregated	Aggregated	DSL	368.0303383	66594.15025	5373.242939	10.02337714
Orange (SC)	2020 T7 POLA	Aggregated	Aggregated	DSL	1274.10332	155914.1289	9683.185233	25.79021242
Orange (SC)	2020 T7 Public	Aggregated	Aggregated	DSL	1031.473951	20897.43447	3128.804315	3.707980098
Orange (SC)	2020 T7 Single	Aggregated	Aggregated	DSL	2158.378481	156155.881	24907.38842	23.85165432
Orange (SC)	2020 T7 single construction	Aggregated	Aggregated	DSL	680.6801442	48007.24372	3077.328467	7.411667011
Orange (SC)	2020 T7 SWCV	Aggregated	Aggregated	DSL	366.6327907	14980.0218	1429.867884	7.333542571
Orange (SC)	2020 T7 SWCV	Aggregated	Aggregated	NG	797.4174081	32457.1177	3109.927892	14.80335493
Orange (SC)	2020 T7 tractor	Aggregated	Aggregated	DSL	1919.762893	264239.798	24380.98875	38.33414036
Orange (SC)	2020 T7 tractor construction	Aggregated	Aggregated	DSL	563.5221687	39601.74947	2547.661815	6.132328946
Orange (SC)	2020 T7 utility	Aggregated	Aggregated	DSL	65.59670634	1331.254316	754.3621229	0.218093255
Orange (SC)	2020 T7IS	Aggregated	Aggregated	GAS	10.17819751	940.5118702	203.6453757	0.228390326
Orange (SC)	2020 UBUS	Aggregated	Aggregated	GAS	209.7645784	19817.2437	839.0583135	5.391173952
Orange (SC)	2020 UBUS	Aggregated	Aggregated	DSL	0	0	0	0
Orange (SC)	2020 UBUS	Aggregated	Aggregated	NG	738.1509692	85493.1979	2952.603877	21.53856767

EMFAC Fuel Usage: Year 2045

Vehicle type	Gasoline			Diesel			Natural Gas			Electricity
	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day	Gallons/day	Miles/gallon	VMT/day
All other buses	0	0	0.00	42,508	3,249	13.08	0	0	0.00	0
LDA	53,107,647	1,238,001	42.90	661,954	10,122	65.39	0	0	0.00	3,616,530
LDT1	6,202,589	167,859	36.95	856	25	34.48	0	0	0.00	251,745
LDT2	17,240,650	461,374	37.37	178,322	3,624	49.21	0	0	0.00	569,295
LHD1	1,169,989	88,787	13.18	1,358,858	50,531	26.89	0	0	0.00	0
LHD2	207,649	18,120	11.46	534,075	22,105	24.16	0	0	0.00	0
MCY	486,124	13,279	36.61	0	0	0.00	0	0	0.00	0
MDV	10,743,751	350,198	30.68	388,850	10,231	38.01	0	0	0.00	416,072
MH	64,181	9,787	6.56	29,135	2,259	12.89	0	0	0.00	0
Motor coach	0	0	0.00	23,945	2,766	8.66	0	0	0.00	0
OBUS	44,874	6,934	6.47	0	0	0.00	0	0	0.00	0
PTO	0	0	0.00	49,079	7,311	6.71	0	0	0.00	0
SBUS	37,046	3,357	11.04	41,704	3,971	10.50	0	0	0.00	0
T6	242,354	37,507	6.46	2,482,473	173,816	14.28	0	0	0.00	0
T7	2,217	394	5.63	1,712,768	170,577	10.04	71,223	24,305	2.93	0
UBUS	22,775	4,574	4.98	0	0	0.00	98,255	25,437	3.86	0
Total	**89,571,847**	**2,400,171**	**37.32**	**7,504,528**	**460,588**	**16.29**	**169,477**	**49,743**	**3.41**	**4,853,641**



EMFAC2017 (v1.0.2) Emissions Inventory
Region Type: Sub-Area
Region: Orange (SC)
Calendar Year: 2045
Season: Annual
Vehicle Classification: EMFAC2011 Categories
Units: miles/day for VMT, trips/day for Trips, tons/day for Emissions, 1000 gallons/day for Fuel Consumption. Note 'day' in the unit is operation day.

Region	Calendar Year	Vehicle Category	Model Year	Speed	Fuel	Population	VMT	Trips	Fuel_Consumption
Orange (SC)	2045	All Other Buses	Aggregated	Aggregated	DSL	818.3493021	42507.89751	6874.134138	3.248647956
Orange (SC)	2045	LDA	Aggregated	Aggregated	GAS	1636194.504	53107647.21	7711235.754	1238.000825
Orange (SC)	2045	LDA	Aggregated	Aggregated	DSL	20249.77724	661954.1192	95726.782	10.12248623
Orange (SC)	2045	LDA	Aggregated	Aggregated	ELEC	107201.6929	3616530.129	508992.1903	0
Orange (SC)	2045	LDT1	Aggregated	Aggregated	GAS	203050.6572	6202588.527	931544.7599	167.8592685
Orange (SC)	2045	LDT1	Aggregated	Aggregated	DSL	27.49576857	855.7776777	127.4386435	0.024820205
Orange (SC)	2045	LDT1	Aggregated	Aggregated	ELEC	7805.199848	251744.5689	36492.5545	0
Orange (SC)	2045	LDT2	Aggregated	Aggregated	GAS	543994.5324	17240649.99	2532417.189	461.3740928
Orange (SC)	2045	LDT2	Aggregated	Aggregated	DSL	5562.678232	178321.5884	26072.26861	3.623683049
Orange (SC)	2045	LDT2	Aggregated	Aggregated	ELEC	24807.64973	569294.539	117101.2432	0
Orange (SC)	2045	LHD1	Aggregated	Aggregated	GAS	36156.57729	1169989.23	538679.1284	88.78745874
Orange (SC)	2045	LHD1	Aggregated	Aggregated	DSL	42936.83556	1358858.366	540091.3768	50.53123896
Orange (SC)	2045	LHD2	Aggregated	Aggregated	GAS	6724.123408	207649.1575	100179.4198	18.12023428
Orange (SC)	2045	LHD2	Aggregated	Aggregated	DSL	17568.0703	534075.3782	220984.2237	22.10451024

Orange (SC)	2045 MCY	Aggregated	Aggregated	GAS	88830.95641	486124.3002	177661.9128	13.278552
Orange (SC)	2045 MDV	Aggregated	Aggregated	GAS	349758.5501	10743750.96	1614120.932	350.1978763
Orange (SC)	2045 MDV	Aggregated	Aggregated	DSL	12471.899	388850.4635	58097.45105	10.2308234
Orange (SC)	2045 MDV	Aggregated	Aggregated	ELEC	18242.6852	416071.6903	85925.7018	0
Orange (SC)	2045 MH	Aggregated	Aggregated	GAS	7034.7461	64180.84958	703.7559999	9.787379628
Orange (SC)	2045 MH	Aggregated	Aggregated	DSL	3666.748524	29135.04654	366.6748524	2.259491538
Orange (SC)	2045 Motor Coach	Aggregated	Aggregated	DSL	191.6045363	23944.93064	2797.426231	2.765668758
Orange (SC)	2045 OBUS	Aggregated	Aggregated	GAS	1230.496706	44873.60704	24619.7781	6.933946691
Orange (SC)	2045 PTO	Aggregated	Aggregated	DSL	0	49078.97011	0	7.311279784
Orange (SC)	2045 SBUS	Aggregated	Aggregated	GAS	1034.566392	37046.26844	4138.265569	3.356535149
Orange (SC)	2045 SBUS	Aggregated	Aggregated	DSL	1313.474593	41704.39765	15157.31469	3.97120875
Orange (SC)	2045 T6 CAIRP heavy	Aggregated	Aggregated	DSL	151.6117831	24739.70225	2213.532033	1.574897241
Orange (SC)	2045 T6 CAIRP small	Aggregated	Aggregated	DSL	77.32875483	3249.911743	1128.999821	0.232127663
Orange (SC)	2045 T6 instate construction heavy	Aggregated	Aggregated	DSL	374.3960544	25067.48408	1692.630006	1.909392646
Orange (SC)	2045 T6 instate construction small	Aggregated	Aggregated	DSL	2687.483284	132899.8183	12150.00744	9.564885549
Orange (SC)	2045 T6 instate heavy	Aggregated	Aggregated	DSL	9653.871186	973552.1842	111404.335	65.10501027
Orange (SC)	2045 T6 instate small	Aggregated	Aggregated	DSL	28791.47359	1287713.62	332249.6135	92.7506813
Orange (SC)	2045 T6 OOS heavy	Aggregated	Aggregated	DSL	85.31694752	14016.41424	1245.627434	0.892046638
Orange (SC)	2045 T6 OOS small	Aggregated	Aggregated	DSL	47.5100307	1967.829648	693.6464482	0.140834373
Orange (SC)	2045 T6 Public	Aggregated	Aggregated	DSL	810.1383561	12560.15941	2457.419678	1.123344315
Orange (SC)	2045 T6 utility	Aggregated	Aggregated	DSL	402.4400938	6705.41012	4628.061079	0.523254404
Orange (SC)	2045 T6TS	Aggregated	Aggregated	GAS	5946.324567	242354.4684	118974.0619	37.50724359
Orange (SC)	2045 T7 Ag	Aggregated	Aggregated	DSL	1.153447948	3.727198184	5.075170971	0.000825644
Orange (SC)	2045 T7 CAIRP	Aggregated	Aggregated	DSL	1117.357567	232474.8666	16313.42048	22.45263832
Orange (SC)	2045 T7 CAIRP construction	Aggregated	Aggregated	DSL	103.1096509	18006.19157	466.1547227	1.774774016
Orange (SC)	2045 T7 NNOOS	Aggregated	Aggregated	DSL	1739.696845	283420.9407	25399.57393	28.90977627
Orange (SC)	2045 T7 NOOS	Aggregated	Aggregated	DSL	444.0093396	91341.91531	6482.536359	9.040158647
Orange (SC)	2045 T7 POLA	Aggregated	Aggregated	DSL	1892.379198	394088.7622	14382.0819	38.7175325
Orange (SC)	2045 T7 Public	Aggregated	Aggregated	DSL	1180.837213	23922.76883	3581.872875	2.785239921
Orange (SC)	2045 T7 Single	Aggregated	Aggregated	DSL	3056.670196	247171.5035	35273.55027	26.44915825
Orange (SC)	2045 T7 single construction	Aggregated	Aggregated	DSL	585.6235719	44670.0494	2647.5814	4.725313295
Orange (SC)	2045 T7 SWCV	Aggregated	Aggregated	DSL	27.99965973	1144.02073	109.1986729	0.556569617
Orange (SC)	2045 T7 SWCV	Aggregated	Aggregated	NG	1746.830476	71222.63589	6812.638855	24.30516728
Orange (SC)	2045 T7 tractor	Aggregated	Aggregated	DSL	2714.449827	338075.7044	34473.51281	31.16293497
Orange (SC)	2045 T7 tractor construction	Aggregated	Aggregated	DSL	496.4153679	36848.85796	2244.274578	3.826351357
Orange (SC)	2045 T7 utility	Aggregated	Aggregated	DSL	78.8520692	1598.818533	906.7987958	0.175900282
Orange (SC)	2045 T7IS	Aggregated	Aggregated	GAS	21.48676659	2216.850881	429.9072258	0.393525037
Orange (SC)	2045 UBUS	Aggregated	Aggregated	GAS	241.0757015	22775.32253	964.302806	4.574174268
Orange (SC)	2045 UBUS	Aggregated	Aggregated	DSL	0	0	0	0
Orange (SC)	2045 UBUS	Aggregated	Aggregated	NG	848.333232	98254.59007	3393.332928	25.43736412

Electric Vehicle Energy Consumption Assumptions

Appendix C: Evidence Used to Define the Average Number of KWH Required to Displace a Gallong of Gasoline

Table A 3: Evidence from U.S. Department of Energy and U.S. Environmental Protection Agency's fuel economy website[32]

Vehicle	Model year	Electric consumption	Gasoline fuel economy	Number of kWh that are equivalent to 1 gallon
Ford Fusion Energi & Ford C-Max Energi	2013	0.34 kWh per mile	43 mpg	14.6
Chevrolet Volt	2013	0.35 kWh per mile	37 mpg	12.9
Chevrolet Volt	2012	0.36 kWh per mile	37 mpg	13.3
Fisker Karma	2012	0.62 kWh per mile	20 mpg	12.4
Toyota Prius	2013	0.29 kWh per mile & 0.2 gal	50 mpg	13.1
Average for five models	-	-	-	13.3 +/- 0.8

Table A 5: Average power consumption per mile traveled over time for different PEV categories

Year range	2012- 2020	2020-2030	2030-2040	2040-2050	2050
Efficiency improvement per year	0.3%	0.8%	0.9%	0.9%	
Year	2012	2020	2030	2040	2050
Relative energy efficiency	1.000	0.976	0.901	0.823	0.752

https://www.fhwa.dot.gov/environment/climate_change/mitigation/publications_and_tools/ev_deployment/page08.cfm

Electric Consumption Estimated Average

Vehicle	Electric Consumption (kWh/mi)	One Gal Equivalent
Ford Fusion & Ford C-Max MY 2013	0.34	14.6
Chevy Volt MY 2013	0.35	12.9
Chevy Volt MY 2012	0.36	13.3
Estimated Average	**0.34**	**13.3**

Forecasted Consumption

Year	Electric Consumption (kWh/mi)
2013	0.34
2014	0.34
2015	0.34
2016	0.34
2017	0.34
2018	0.34
2019	0.34
2020	0.33
2021	0.33
2022	0.33
2023	0.33
2024	0.32
2025	0.32
2026	0.32
2027	0.32
2028	0.31
2029	0.31
2030	0.31
2031	0.31
2032	0.30
2033	0.30
2034	0.30
2035	0.29
2036	0.29
2037	0.29
2038	0.29
2039	0.28
2040	0.28
2041	0.28
2042	0.28
2043	0.27
2044	0.27
2045	0.27

Global warming potentials

	CO_2	CH_4	N_2O
AR2	1	21	310
AR4	1	25	298
AR5	1	28	265

CO_2 to CO_2e	1.05263158	<< Use only for on-road vehicle calculations
Grams to metric tons	1,000,000	
MWh to kWh	1000	<< Also GWh to MWh
GWh to kWh	1,000,000	
Metric tons to pounds	2,204.6	
Metric tons to kg	1,000	<< Also kg to grams
kg to pounds	2.20462	
Acre foot to gallons	325,851.428	
Acre to square foot	43,560	
Year to months	12	
Year to days	365	<< Use except in circumstances below
Year to days	347	<< Use only for transportation emissions
Year to days	365.25	<< Use only for water and wastewater emissions
Ton to pounds	2,000	
Mile to feet	5,280	
Square mile to acres	640	
Million gallons to gallons	1,000,000	

Appendix E-b Archeological Resources Technical Report

Appendices

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Archaeological Resources Technical Report for the City of Santa Ana General Plan Update, Orange County, California

MAY 2020

PREPARED FOR

PlaceWorks

PREPARED BY

SWCA Environmental Consultants

ARCHAEOLOGICAL RESOURCES TECHNICAL REPORT FOR THE CITY OF SANTA ANA GENERAL PLAN UPDATE, ORANGE COUNTY, CALIFORNIA

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Keywords: Records Search, Sacred Lands File Search, General Plan, Orange County, City of Santa Ana, Existing Conditions

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EXECUTIVE SUMMARY

Purpose and Scope: In support of the forthcoming City of Santa Ana General Plan Update, PlaceWorks retained SWCA Environmental Consultants (SWCA) to summarize the existing conditions of archaeological resources within the General Plan area, and to provide mitigation measures for potential impacts. The General Plan area includes the entirety of the City of Santa Ana, totaling approximately 17,472 acres (27.3 square miles [70.7 km^2]). Methods include background research, an archaeological resources records search, and a literature review.

Dates of Investigation: SWCA conducted a California Historical Resources Information System (CHRIS) records search at the South Central Coastal Information Center, located at the California State University, Fullerton, on February 19, 2019. SWCA also requested a Sacred Lands File Search from the California Native American Heritage Commission (NAHC) on February 22, 2019, and received the results on March 1, 2019.

Summary of Findings: The CHRIS records search indicates that eight previously-recorded archaeological resources were identified within the General Plan area: four of which are prehistoric, three are historic and one is a multi-component resource. Of these resources, two—CA-ORA-300 and CA-ORA-353—contain, and are on the vicinity of, known prehistoric burials. The vicinity surrounding these resources should be considered highly sensitive. Coordination with the NAHC also indicates that there are tribal cultural resources within the General Plan area. A review of historic and ethnographic maps indicates that there is a moderate likelihood for encountering intact subsurface prehistoric and historic archaeological resources. While almost the entirety of the General Plan area has been extensively developed, redevelopment within the City may expose previously unknown resources. With planning and the implementation of the proposed cultural resources mitigation measures, impacts to archaeological resources can be reduced to less than significant.

Mitigation Measures CUL-1 through CUL-4 (below) were developed to reduce potential individual and cumulative impacts associated with future development and redevelopment. Mitigation Measure CUL-1 requires an archaeological resources assessment be conducted for future development projects to identify any known archaeological resources and sensitivity of the site. Mitigation Measures CUL-2 through CUL-4 detail the next steps required should the archaeological resources assessment identify known resources or determine the site to have high or moderate resource sensitivity. Upon compliance with Mitigation Measures CUL-1 through CUL-4, individual and cumulative impacts to archaeological resources would be reduced to less than significant levels.

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Appendix A. Native American Heritage Commission Sacred Lands Files Search Results

INTRODUCTION

In support of the forthcoming City of Santa Ana General Plan Update, PlaceWorks retained SWCA Environmental Consultants (SWCA) to summarize the existing conditions of cultural resources within all unincorporated lands that are subject to the City of Santa Ana land use jurisdiction. The General Plan area occupies the entirety of the City of Santa Ana (City), Orange County, California. Methods include background research, a cultural resources records search and literature review, and Sacred Lands File search. Cultural Resources Project Manager and Archaeologist Alyssa Newcomb, M.S., Registered Professional Archaeologist (RPA), managed the study, conducted file searches, and coauthored this report. SWCA Archaeologists Amber Johnson, B.A., also contributed to the study and report. SWCA Geographic Information Systems (GIS) Specialist John Walls created the maps for the report, and SWCA Technical Editor Ruthe Smith, M.S., edited and formatted the document. SWCA Cultural Resources Program Director Heather Gibson, Ph.D., RPA, provided quality assurance/quality control.

Project Description

The proposed project is a comprehensive update to the City of Santa Ana's General Plan (1982). The City's General Plan was last updated in 1982, with some updates to the City's Land Use Element, Circulation Element, Urban Design Element, and Economic Development in 1998. In March of 2014, the City Council adopted the Santa Ana Strategic Plan, identifying the need for a comprehensive update to the City's Existing General Plan. The General Plan is the City's principal policy and planning document guiding the development, conservation, and enhancement of Santa Ana. It contains a comprehensive collection of goals and policies related to the physical development of the City, and the General Plan Update is intended to result in a total of 11 elements to guide the physical development, quality of life, economic health, and sustainability of the Santa Ana community.

The City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.

Project Location

The City of Santa Ana is located in the southwest portion of California, bordered by Anaheim to the north, Garden Grove to the west, Huntington Beach and Newport Beach to the southwest, and Irvine to the southeast (Figure 1). As shown in Table 1, the City is plotted in numerous Townships, Ranges, and Sections, as depicted on the U.S. Geological Survey (USGS) Anaheim, Orange, Newport Beach, and Tustin 7.5 minute quadrangles (Figure 2). Encompassing approximately 27.3 square miles (70.7 km^2), Santa Ana is the County Seat and second largest city in Orange County, and eleventh largest in California (Figure 3). The Santa Ana River runs northeast-southwest through the western side of the city. Interstate 5 (I-5), a major north-south route through California, passes through the northern portion of Santa Ana. Another major interstate, Interstate 405 (I-405), is located just south of the City's limits and serves as a major north-south connector between Greater Los Angeles, Orange County, and San Diego County.

Table 1. Locational Information

Quadrangle (7.5')	Township	Range	Sections
Anaheim, CA	T5S	R10W	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 25, 26, 27, 28, 33, 34, 35, 36,
Anaheim, CA	T4S	R10W	25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36
Orange, CA	T4S	R9W	5, 6, 7, 8, 27, 28, 29, 30, 31, 32, 33, 34
Orange, CA	T5S	R9W	3, 4, 5, 6, 7, 8, 9, 10
Newport Beach, CA	T5S	R10W	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 32, 33, 34, 35, 36
Newport Beach, CA	T6S	R10W	1, 2, 3, 4, 5,
Tustin, CA	T5S	R9W	15, 16, 17, 18, 19, 20, 21, 22, 28, 29 30, 31, 32, 33
Tustin, CA	T6S	R9W	4, 5, 627



Figure 1. General Plan area.

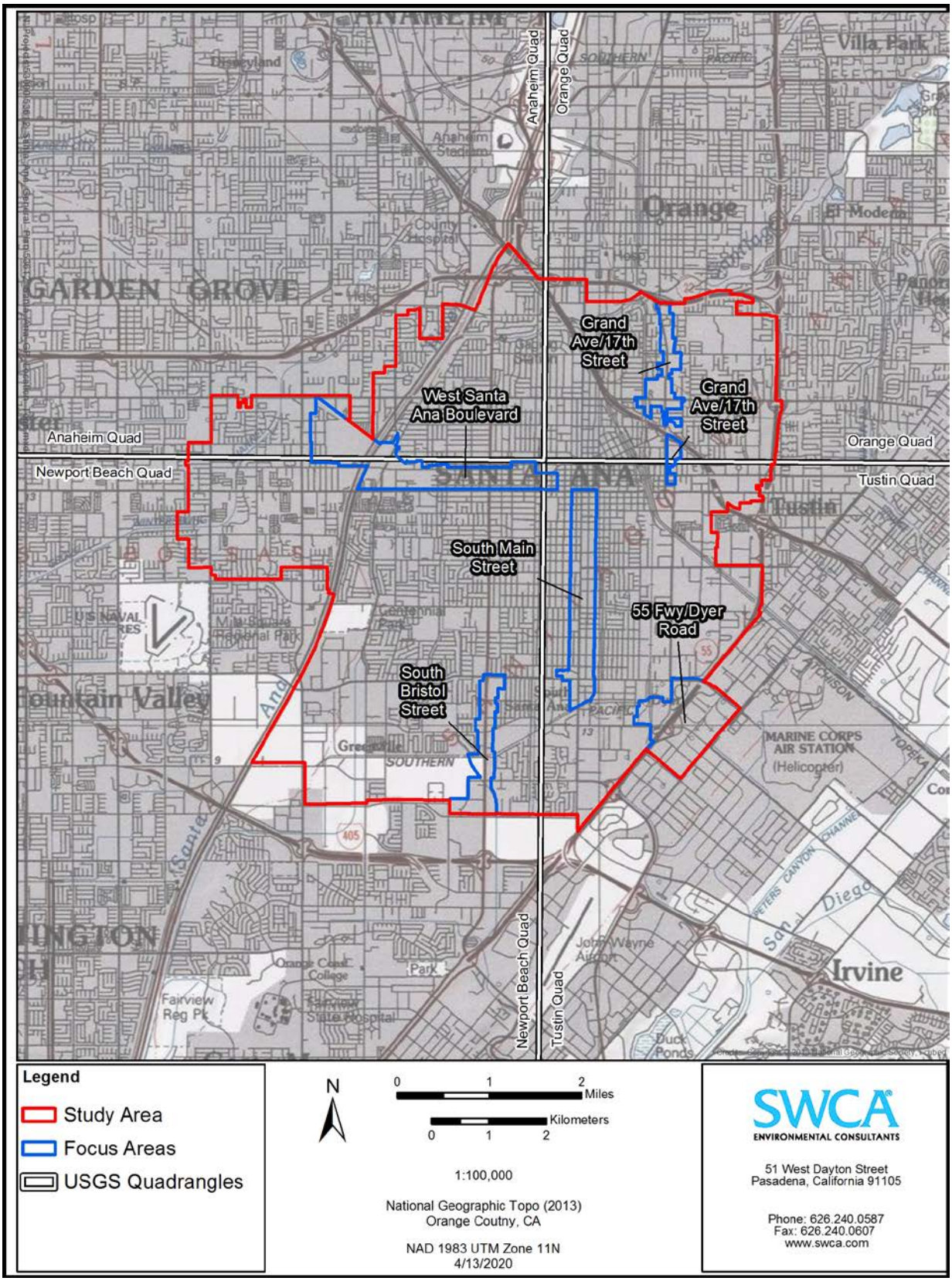


Figure 2. Location of General Plan area.

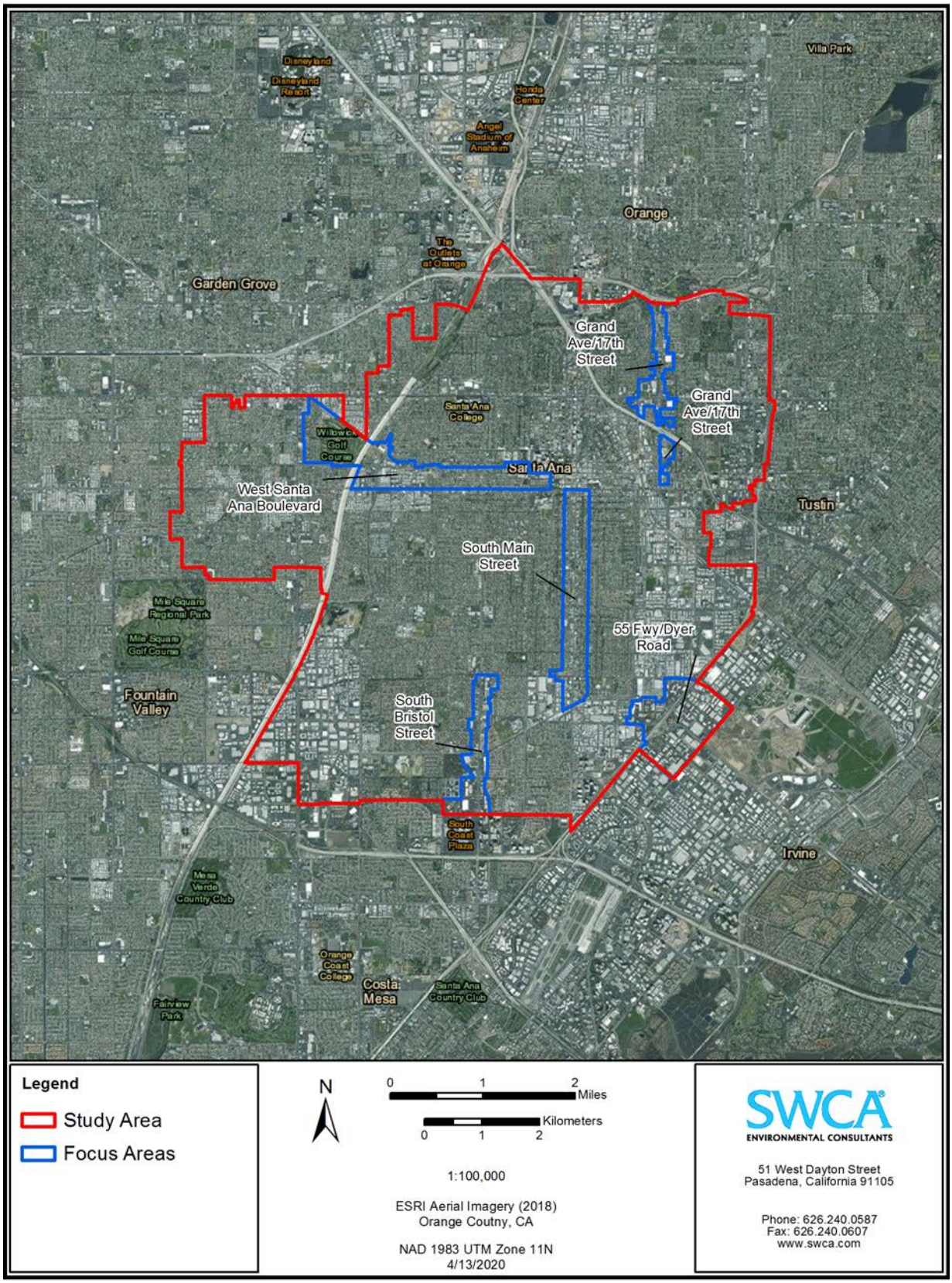


Figure 3. Overview of General Plan area.

REGULATORY SETTING

A complex network of federal, state, and local regulations governs the cultural resources of California. This section is intended as an overview of these regulations rather than an in-depth review. This section reviews the federal, state, and local regulations and policies that may be pertinent to the update of the City's General Plan.

Federal Regulations

National Historic Preservation Act of 1966

Enacted in 1966 and amended most recently in 2014, the National Historic Preservation Act (NHPA; 54 United States Code [USC] 300101 et seq.) instituted a multifaceted program, administered by the Secretary of the Interior, to encourage sound preservation policies of the nation's cultural resources at the federal, state, and local levels. The NHPA authorized the expansion and maintenance of the National Register of Historic Places (NRHP), established the position of State Historic Preservation Officer, and provided for the designation of State Review Boards. The NHPA also set up a mechanism to certify local governments to carry out the goals of the NHPA, assisted Native American tribes to preserve their cultural heritage, and created the Advisory Council on Historic Preservation (ACHP).

NATIONAL REGISTER OF HISTORIC PLACES

The National Register of Historic Places was established by the NHPA of 1966 as "an authoritative guide to be used by Federal, State, and local governments, private groups and citizens to identify the Nation's cultural resources and to indicate what properties should be considered for protection from destruction or impairment" (36 Code of Federal Regulations [CFR] part 60.2). The NRHP recognizes properties that are significant at the national, state, and local levels. To be eligible for listing in the NRHP, a resource must be significant in American history, architecture, archaeology, engineering, or culture. Districts, sites, buildings, structures, and objects of potential significance must also possess integrity of location, design, setting, materials, workmanship, feeling, and association.

Significance

A property is eligible for the NRHP if it is significant under one or more of the following criteria:

- **Criterion A:** It is associated with events that have made a significant contribution to the broad patterns of our history;
- **Criterion B:** It is associated with the lives of persons who are significant in our past;
- **Criterion C:** It embodies the distinctive characteristics of a type, period, or method of construction, or represents the work of a master, or possesses high artistic values, or represents a significant and distinguishable entity whose components may lack individual distinction; and/or
- **Criterion D:** It has yielded, or may be likely to yield, information important in prehistory or history. Ordinarily cemeteries, birthplaces, or graves of historic figures, properties owned by religious institutions or used for religious purposes, structures that have been moved from their original locations, reconstructed historic buildings, and properties that are primarily commemorative in nature, are not considered eligible for listing in the NRHP, unless they satisfy certain conditions. In general, a resource must be 50 years of age to be considered for the NRHP, unless it satisfies a standard of exceptional importance.

Integrity

In addition to meeting these criteria, a property must retain historic integrity, which is defined in National Register Bulletin 15 as the "ability of a property to convey its significance" (National Park Service 1990). In order to assess integrity, the National Park Service recognizes seven aspects or qualities that, considered together, define historic integrity. To retain integrity, a property must possess several, if not all, of these seven qualities, which are defined in the following manner in National Register Bulletin 15:

- **Location:** the place where the historic property was constructed or the place where the historic event occurred;
- **Design:** the combination of elements that create the form, plan, space, structure, and style of a property;
- **Setting:** the physical environment of a historic property;
- **Materials:** the physical elements that were combined or deposited during a particular period of time and in a particular pattern or configuration to form a historic property;
- **Workmanship:** the physical evidence of the crafts of a particular culture or people during any given period in history or prehistory;
- **Feeling:** a property's expression of the aesthetic or historic sense of a particular period of time; and/or
- **Association:** the direct link between an important historic event or person and a historic property.

Native American Graves Protection and Repatriation Act

The Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 (25 USC 3001 et seq.) protects human remains, funerary objects, sacred objects, and items of cultural patrimony of indigenous peoples on federal lands. NAGPRA stipulates priorities for assigning ownership or control of such cultural items excavated or discovered on federal or tribal lands, or in the possession and control of an agency that has received federal funding.

NAGPRA also provides for the repatriation of human remains and associated items previously collected from federal lands and in the possession or control of a federal agency or federally funded repository. Implementing regulations are codified in 43 CFR Part 10. In addition to defining procedures for dealing with previously collected human remains and associated items, these regulations outline procedures for negotiating plans of action or comprehensive agreements for treatment of human remains and associated items encountered in intentional excavations, or inadvertent discoveries on federal or tribal lands.

National Historic Landmarks Program

The National Historic Landmarks Program was established to preserve, protect, and maintain U.S. National Historic Landmarks (NHLs). The NHL Program is "a list of nationally significant historic places designated by the Secretary of the Interior because they possess exceptional value or quality in illustrating or interpreting the heritage" (National Park Service [NPS] 2018) of the U.S. The difference between the NHL Program and the NRHP is that the NHL Program contains properties that are important to the entire nation, rather than properties that can be important to local, state, or federal levels.

Antiquities Act of 1906

The Antiquities Act of 1906 (PL 59-209; 34 Statute 225; 16 USC 431-433) was the first federal law to provide protection of historic and prehistoric resources located on federal land. This act prohibits any excavation on public land without permission of the appropriate department secretary. The Antiquities Act authorizes the Secretaries of the Interior, Agriculture, and Army to grant permission to reputable institutions to conduct research (including excavation) to increase knowledge and the permanent preservation of antiquities in public museums. This act authorizes the President to declare areas of federal lands as national monuments. Preservation of American Antiquities (43 CFR Part 3) implements the Antiquities Act, defining jurisdiction over cultural resources on federal land and the permit process for excavations.

State Regulations

The California Office of Historic Preservation (OHP), a division of the California Department of Parks and Recreation, is responsible for carrying out the duties described in the California Public Resources Code (PRC) and maintaining the California Historic Resources Inventory and California Register of Historical Resources (CRHR). The state-level regulatory framework also includes the California Environmental Quality Act (CEQA), which requires the identification and mitigation of substantial adverse impacts that may affect the significance of eligible historical and archaeological resources.

California Register of Historical Resources

Created in 1992 and implemented in 1998, the CRHR is "an authoritative guide in California to be used by state and local agencies, private groups, and citizens to identify the state's historical resources and to indicate what properties are to be protected, to the extent prudent and feasible, from substantial adverse change" (PRC Sections 21083.2 and 21084.1). Certain properties, including those listed in or formally determined eligible for listing in the NRHP and California Historical Landmarks numbered 770 and higher, are automatically included in the CRHR. Other properties recognized under the California Points of Historical Interest program, identified as significant in historical resources surveys, or designated by local landmarks programs may be nominated for inclusion in the CRHR. According to PRC Section 5024.1(c), a resource, either an individual property or a contributor to a historic district, may be listed in the CRHR if the State Historical Resources Commission determines that it meets one or more of the following criteria, which are modeled on NRHP criteria:

- **Criterion 1:** It is associated with events that have made a significant contribution to the broad patterns of California's history and cultural heritage.
- **Criterion 2:** It is associated with the lives of persons important in our past.
- **Criterion 3:** It 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.
- **Criterion 4:** It has yielded, or may be likely to yield, information important in history or prehistory.

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity does not meet NRHP criteria may still be eligible for listing in the CRHR.

California Environmental Quality Act

CEQA requires a lead agency to analyze whether historic and/or archaeological resources may be adversely affected by a proposed project. Under CEQA, a "project that may cause a substantial adverse change in the significance of a historic resource is a project that may have a significant effect on the environment" (PRC Section 21084.1). Answering this question is a two-part process: first, the determination must be made as to whether the proposed project involves cultural resources. Second, if cultural resources are present, the proposed project must be analyzed for a potential "substantial adverse change in the significance" of the resource.

HISTORICAL RESOURCES

According to State CEQA Guidelines Section 15064.5, for the purposes of CEQA, historical resources are:

- A resource listed in, or formally determined eligible…for listing in the California Register of Historical Resources (PRC 5024.1, Title 14 California Code of Regulations [CCR], Section 4850 et seq.).
- A resource included in a local register of historical resources, as defined in Section 5020.1(k) of the Public Resources Code or identified as significant in a historic resources survey meeting the requirements of Section 5024.1(g) of the Public Resources Code.
- Any object, building, structure, site, area, place, record, or manuscript that the lead agency determines to be eligible for national, state, or local landmark listing; generally, a resource shall be considered by the lead agency to be historically significant (and therefore a historic resource under CEQA) if the resource meets the criteria for listing on the California Register (as defined in PRC Section 5024.1, Title 14 CCR, Section 4852).

Resources nominated to the CRHR must retain enough of their historic character or appearance to convey the reasons for their significance. Resources whose historic integrity (as defined above) does not meet NRHP criteria may still be eligible for listing in the CRHR.

According to CEQA, the fact that a resource is not listed in or determined eligible for listing in the CRHR or is not included in a local register or survey shall not preclude the lead agency from determining that the resource may be a historical resource (PRC Section 5024.1). Pursuant to CEQA, a project with an effect that may cause a substantial adverse change in the significance of a historical resource may have a significant effect on the environment (State CEQA Guidelines, Section 15064.5[b]).

Substantial Adverse Change and Indirect Impacts to Historical Resources

State CEQA Guidelines specify that a "substantial adverse change in the significance of an historical resource means physical demolition, destruction, relocation, or alteration of the resource or its immediate surroundings such that the significance of an historical resource would be materially impaired" (State CEQA Guidelines, Section 15064.5). Material impairment occurs when a project alters in an adverse manner or demolishes "those physical characteristics of an historical resource that convey its historical significance and that justify its inclusion" or eligibility for inclusion in the NRHP, CRHR, or local register. In addition, pursuant to State CEQA Guidelines Section 15126.2, the "direct and indirect significant effects of the project on the environment shall be clearly identified and described, giving due consideration to both the short-term and long-term effects."

The following guides and requirements are of particular relevance to this study's analysis of indirect impacts to historic resources. Pursuant to State CEQA Guidelines (Section 15378), study of a project

under CEQA requires consideration of "the whole of an action, which has the potential for resulting in either a direct physical change in the environment, or a reasonably foreseeable indirect physical change in the environment." State CEQA Guidelines (Section 15064[d]) further define direct and indirect impacts:

1. A direct physical change in the environment is a physical change in the environment which is caused by and immediately related to the project.
2. An indirect physical change in the environment is a physical change in the environment which is not immediately related to the project, but which is caused indirectly by the project. If a direct physical change in the environment in turn causes another change in the environment, then the other change is an indirect physical change in the environment.
3. An indirect physical change is to be considered only if that change is a reasonably foreseeable impact which may be caused by the project.

ARCHAEOLOGICAL RESOURCES

In terms of archaeological resources, PRC Section 21083.2(g) defines a unique archaeological resource as an archaeological artifact, object, or site about which it can be clearly demonstrated that without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:

1. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information.
2. Has a special and particular quality such as being the oldest of its type or the best available example of its type.
3. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

If it can be demonstrated that a proposed project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (PRC Sections 21083.2[a], [b], and [c]). CEQA notes if an archaeological resource is neither a unique archaeological resource nor a historical resource, the effects of the project on those resources shall not be considered to be a significant effect on the environment (State CEQA Guidelines Section 15064.5[c][4]).

CALIFORNIA STATE SENATE BILL 18

Signed into law in 2004, Senate Bill (SB) 18 requires that cities and counties notify and consult with California Native American tribes about proposed local land use planning decisions for the purpose of protecting traditional tribal cultural sites. Cities and counties must provide general and specific plan amendment proposals to California Native American tribes that the California Native American Heritage Commission (NAHC) has identified as having traditional lands located within the city's boundaries. If requested by the Native American tribes, the city must also conduct consultations with the tribes prior to adopting or amending their general and specific plans.

CALIFORNIA STATE ASSEMBLY BILL 52

Assembly Bill 52 of 2014 (AB 52) amended PRC Section 5097.94 and added PRC Sections 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2, and 21084.3.

Consultation with Native Americans

AB 52 formalizes the lead agency–tribal consultation process, requiring the lead agency to initiate consultation with California Native American groups that are traditionally and culturally affiliated with the project, including tribes that may not be federally recognized. Lead agencies are required to begin consultation prior to the release of a negative declaration, mitigated negative declaration, or environmental impact report.

Tribal Cultural Resources

Section 4 of AB 52 adds Sections 21074(a) and (b) to the PRC, which address tribal cultural resources and cultural landscapes. Section 21074(a) defines tribal cultural resources as one of the following:

1) Sites, features, places, cultural landscapes, sacred places, and objects with cultural value to a California Native American tribe that are either of the following:
   A. Included or determined to be eligible for inclusion in the California Register of Historical Resources.
   B. Included in a local register of historical resources as defined in subdivision (k) of Section 5020.1.
2) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Section 5024.1. In applying the criteria set forth in subdivision (c) of Section 5024.1 for the purposes of this paragraph, the lead agency shall consider the significance of the resource to a California Native American tribe.

Section 1(a)(9) of AB 52 establishes that "a substantial adverse change to a tribal cultural resource has a significant effect on the environment." Effects on tribal cultural resources should be considered under CEQA. Section 6 of AB 52 adds Section 21080.3.2 to the PRC, which states that parties may propose mitigation measures "capable of avoiding or substantially lessening potential significant impacts to a tribal cultural resource or alternatives that would avoid significant impacts to a tribal cultural resource." Further, if a California Native American tribe requests consultation regarding project alternatives, mitigation measures, or significant effects to tribal cultural resources, the consultation shall include those topics (PRC Section 21080.3.2[a]). The environmental document and the mitigation monitoring and reporting program (where applicable) shall include any mitigation measures that are adopted (PRC Section 21082.3[a]).

Treatment of Human Remains

The disposition of burials falls first under the general prohibition on disturbing or removing human remains under California Health and Safety Code (CHSC) Section 7050.5. More specifically, remains suspected to be Native American are treated under CEQA at CCR Section 15064.5; PRC Section 5097.98 illustrates the process to be followed in the event that remains are discovered. If human remains are discovered during construction, no further disturbance to the site shall occur, and the County Coroner must be notified (CCR 15064.5 and PRC 5097.98).

CALIFORNIA PUBLIC RESOURCE CODE SECTION 5097.98

The General Plan is subject to California PRC Section 5097.98, which states that if a county coroner notifies the NAHC that human remains are Native American and outside the coroner's jurisdiction per CHSC Section 7050.5, the NAHC must determine and notify a most likely descendant (MLD). The MLD shall complete the inspection of the site within 48 hours of notification and may recommend scientific

removal and nondestructive analysis of human remains and items associated with Native American burials.

CALIFORNIA HEALTH AND SAFETY CODE SECTION 7050.5

This code section requires that further excavation or disturbance of land, upon discovery of human remains outside of a dedicated cemetery, cease until a county coroner makes a report. It requires a county coroner to contact the NAHC within 24 hours if the coroner determines that the remains are not subject to his or her authority and if the coroner recognizes the remains to be those of a Native American.

HISTORIC PRESERVATION

The Santa Ana Historic Resources Commission was established to recognize and preserve historic structures important to the heritage of the City. The Program promotes the identification, evaluation, rehabilitation, adaptive use, and restoration of historic structures. In 1998, the City adopted Chapter 30 of the Santa Ana Municipal Code to establish the "Santa Ana Register of Historical Properties," and created a Historic Resources Commission to oversee Santa Ana's Historic Preservation Program. The City of Santa Ana has two National Register Districts: Downtown Santa Ana and French Park. Any improvements or alterations to a property on the Santa Ana Register of Historic Properties, as well as those contributing properties located in a historic district, must meet the Secretary of Interior Standards for Rehabilitation and will require a Certificate of Appropriateness. Major alterations, relocations or demolitions are considered for approval by the Historic Resources Commission.

ENVIRONMENTAL SETTING

The City of Santa Ana covers a total surface area of 27.3 square miles (70.7 km^2) and has an elevation of between 83 feet (25.3 m) and 150 feet (45.7 m) above mean sea level. It consists of mixed residential and light commercial developments, with little to no open space areas containing native vegetation and animal communities. The City is located on a sprawling floodplain, and is bounded on all sides by development, including the cities of Garden Grove, Orange, Irvine, and Costa Mesa. Transecting the City of Santa Ana running northeast to southwest is the Santa Ana River, a 96-mile long river located entirely within California, originating in the San Bernardino Mountains and draining into the Pacific Ocean in Orange County. The Santa Ana Mountains are located approximately ten miles (15.3 km) to the east. The Santa Ana Mountains are a disconnected, 61-mile (98.2-km) western segment of the California Peninsular Ranges, extending southeastward from the Whittier Fault in the Los Angeles Basin to the Santa Margarita River. The Peninsular Ranges represent the northernmost extent of mountains making up the Baja California peninsula. Sierra Peak marks the northernmost summit of the Santa Ana Mountains, reaching an elevation of 3,045 feet (928 m). Saddleback Ridge, made up of Modjeska Peak at 5,496 feet (1,675 m) and Santiago Peak at 5,689 feet (1,734 m), is the highest summit in the range.

Prior to the development of the area, the native vegetation of the area was characterized by valley grasslands, coastal sage scrub, chaparral, and southern coast woodland communities. The drought-adapted coastal sage scrub habitats of Southern California were dominated by California sagebrush (*Artemisia californica*) and buckwheat (*Eriogonum fasciculatum*), coast brittle-brush (*Encelia californica*), monkeyflower (*Mimulus* spp.), poison oak (*Toxicodendron diversiloba*) and true sages such as black (*Salvia mellifera*) and purple sages (*Salvia leucophylla*). Further upland, where lower chaparral communities predominate, chamise (*Adenostoma fasciculatum*) and California lilacs (*Ceanothus* spp.) flourished, particularly on south-facing slopes, while California scrub oak (*Quercus berberidifolia*), holly-leaf redberry (*Rhamnus ilicifolia*), and holly-leaf cherry (*Prunus ilicifolia*) were common on north-facing slopes. These communities provided habitat for a wide range of animal species, with reptiles representing one of most conspicuous resident groups. Among them were the side-blotched (*Uta stansburiana*) and western fence lizards (*Sceloporus occidentalis*), as well as the California mountain kingsnake (*Lampropeltis zonata*) and the long-nosed snake (*Chionactis occipitalis*). Birds native to the region include the western scrub jay (*Aphelocoma californica*), California quail (*Callipepla californica*), and the great-horned owl (*Bubo virginianus*). The coyote (*Canis latrans*), gray fox (*Urocyon cinereoargenteus*), bobcat (*Lynx rufus*), ringtail (*Bassariscus astutus*), and pinyon mouse (*Peromyscus truei*) make up some of the most abundant mammal species from the region (Schoenherr 1992).

CULTURAL SETTING

Prehistoric Overview

Numerous chronological sequences have been devised to understand cultural changes for various areas within southern California over the past century. Building on early studies and focusing on data synthesis, Wallace (1955, 1978) developed a prehistoric chronology for the southern California coastal region that is still widely used today and is applicable to coastal and many inland areas. Four periods are presented in Wallace's prehistoric sequence: Early Man, Milling Stone, Intermediate, and Late Prehistoric. As noted by Moratto (1984:159), Wallace's (1955) synthesis lacked chronological precision due to the lack of absolute dates at the time of its creation, but remains generally valid today.

In addition to Wallace's classic summary, a regional synthesis developed by Warren (1968) will be referred to in the following discussion. This synthesis is supported by a larger archaeological database for

southern California, which includes the advent and increased use of radiocarbon dating after the 1950s. Using the concepts of cultural ecology and cultural tradition, Warren (1968) proposed a series of six prehistoric traditions. Three of these traditions, the San Dieguito Tradition, Encinitas Tradition, and Campbell Tradition, correlate with Wallace's Early Man, Milling Stone, and Intermediate. The Chumash Tradition, Takic Tradition (formerly "Shoshonean"), and Yuman Tradition are represented within Wallace's Late Prehistoric period. As noted further, these ecologically based traditions are applicable to specific regions within southern California.

Some revisions have been made to Wallace's 1955 synthesis using radiocarbon dates and projectile point assemblages (e.g., Koerper and Drover 1983; Mason and Peterson 1994; Koerper et al. 2002). The summary of prehistoric chronological sequences for southern California coastal and near-coastal areas presented below is a composite of information in Wallace (1955) and Warren (1968), as well as more recent studies, including Koerper and Drover (1983). The chronology formulated by Koerper and Drover (1983) is based on the results of their excavations at a multi-component village site (CA-ORA-119-A) near the University of California, Irvine in Orange County. Diagnostic artifacts, particularly projectile points, and other cultural material produced evidence at CA-ORA-119-A from the late Milling Stone, Intermediate, Late Prehistoric, and early Historic periods.

Early Man Period/San Dieguito/Paleo-Coastal (ca. 10,000–6000 B.C.)

When Wallace defined the Early Man period in the mid-1950s, there was little evidence of human presence on the southern California coast prior to 6000 B.C. Archaeological work in the intervening years has identified numerous older sites dating prior to 10,000 years ago, including ones on the coast and Channel Islands (e.g., Erlandson 1991; Rick et al. 2001:609; Johnson et al. 2002; Moratto 1984). The earliest accepted dates for occupation are from two of the northern Channel Islands, located off the coast from Santa Barbara. On San Miguel Island, Daisy Cave clearly establishes the presence of people in this area about 10,000 years ago (Erlandson 1991:105). On Santa Rosa Island, human remains have been dated from the Arlington Springs site to approximately 13,000 years ago (Johnson et al. 2002).

In what is now Orange County, there are sites dating from 9,000–10,000 years ago (Macko 1998a:41; Mason and Peterson 1994:55-57; Sawyer 2006). Known sites dating to the Early Man period are rare in western Riverside County. One exception is the Elsinore site (CA-RIV-2798-B) that has deposits dating as early as 6630 cal B.C. (Grenda 1997:260).

Recent data from coastal, as well as inland, sites during this period indicate that the economy was a diverse mixture of hunting and gathering, with a major emphasis on aquatic resources in many coastal areas (e.g., Jones et al. 2002) and on Pleistocene lakeshores in eastern San Diego County (see Moratto 1984:90-92). A Paleo-Coastal Tradition was proposed and recently referenced to highlight the distinctive marine and littoral focus identified within the southern California coastal archaeological record prior to the emergence of the Encinitas Tradition during the succeeding Milling Stone period (Mason and Peterson 1994:57-58; Moratto 1984:104). At coastal sites, there is abundant evidence that marine resources such as fish, marine mammals, and shellfish were exploited during the Paleo-Coastal period.

At near-coastal and inland sites, it appears that an emphasis on hunting may have been greater during the Early Man period than in later periods, although few Clovis-like or Folsom-like fluted points have been found in southern California (e.g., Erlandson et al. 1987; Dillon 2002). In Riverside County, only one isolated fluted point has been identified on the surface of a site in the Pinto Basin in the central part of the county (Dillon 2002:113). Common elements in many San Dieguito Tradition sites include leaf-shaped bifacial projectile points and knives, stemmed or shouldered projectile points (e.g., Silver Lake and Lake Mojave series), scrapers, engraving tools, and crescents (Warren 1967:174-177; Warren and True 1961:251-254). Use of the atlatl (spear-throwing stick) during this period facilitated launching spears with

greater power and distance. Subsistence patterns shifted around 6000 B.C. coincident with the gradual desiccation associated with the onset of the Altithermal, a warm and dry period that lasted for about 3,000 years. After 6000 B.C., a greater emphasis was placed on plant foods and small animals.

Milling Stone Period (ca. 6000–3000/1000 B.C.)

The Milling Stone period of Wallace (1955, 1978) and Encinitas Tradition of Warren (1968) are characterized by an ecological adaptation to collecting, and by the dominance of the principal ground stone implements generally associated with the horizontal motion of grinding small seeds; namely, milling stones (metates, slabs) and handstones (manos, mullers), which are typically shaped. Milling stones occur in large numbers for the first time, and are even more numerous near the end of this period. As testified by their toolkits and shell middens in coastal sites, people during this period practiced a mixed food procurement strategy. Subsistence patterns varied somewhat as groups became better adapted to their regional or local environments.

Milling Stone period sites are common in the southern California coastal region between Santa Barbara and San Diego, and at many inland locations including the Prado Basin in western Riverside County and the Pauma Valley in northeastern San Diego County (e.g., True 1958; Herring 1968; Langenwalter and Brock 1985; Sawyer and Brock 1999; Sutton 1993). Wallace (1955, 1978) and Warren (1968) relied on several key coastal sites to characterize the Milling Stone period and Encinitas Tradition, respectively. These include the Oak Grove Complex in the Santa Barbara region, Little Sycamore in southwestern Ventura County, Topanga Canyon in the Santa Monica Mountains, and at La Jolla in San Diego County. The Encinitas Tradition was proposed to extend southward into San Diego County where it apparently continued alongside the following Campbell Tradition, which occurred primarily in the Santa Barbara-Ventura County region beginning around 3000 B.C.

Of the numerous Milling Stone period sites identified in the region, the most well-known is the Irvine site (CA-ORA-64), which has occupation levels dating between circa 6000–4000 B.C. (Drover et al. 1983; Macko 1998b). Along coastal Orange County, Koerper and Drover (1983:11) mark the transition at the end of the Milling Stone around 1000 B.C., while Wallace's mid-1950s scheme has the period ending at 3000 B.C. Based on radiocarbon dates from the Newport Coast Archaeological Project (NCAP) project, Mason and Peterson (1994) propose a timeline for the Milling Stone similar to that advanced by Koerper and Drover. The chronological schemes advanced for coastal Orange County also apply to many southern California near-coastal and inland areas, including much of western Riverside County.

During the Milling Stone period and Encinitas Tradition, stone chopping, scraping, and cutting tools were abundant, and generally made from locally available raw material. Projectile points, which are rather large and generally leaf-shaped, and bone tools such as awls were generally rare. The large points are associated with the spear, and probably with an atlatl. Items made from shell, including beads, pendants, and abalone dishes, are generally rare as well. Evidence of weaving or basketry is present at a few sites. Kowta (1969) attributes the presence of numerous scraper-planes in Milling Stone sites to the preparation of agave or yucca for food or fiber. The mortar and pestle, associated with the vertical motion of pounding foods, such as acorns, were introduced during the Milling Stone period, but are not common.

Two types of artifacts that are considered diagnostic of the Milling Stone period are the cogged stone and discoidal, most of which have been found within sites dating between 4000–1000 B.C. (Moratto 1984:149). The cogged stone is a ground stone object that has gear-like teeth on the perimeter and is produced from a variety of materials. The function of cogged stones is unknown, but they have been attributed ritualistic or ceremonial uses by several scholars (Eberhart 1961:367; Dixon 1968:64-65). Similar to cogged stones, discoidals are found in the archaeological record subsequent to the introduction of the cogged stone. Cogged stones and discoidals were often purposefully buried or "cached." They are

most common in sites along the coastal drainages from southern Ventura County southward and are particularly abundant at some Orange County sites, although a few specimens have been found inland at Cajon Pass (Dixon 1968:63; Moratto 1984:149). Discoidals and cogged stones have been found together at some Orange County sites, such as CA-ORA-83/86/144 (Van Bueren et al. 1989:772), CA-ORA-950 (Ron Bissell, personal communication 1999), and Los Cerritos Ranch (Dixon 1975 in Moratto 1984:150).

Koerper and Drover (1983) suggest that Milling Stone period sites reflect migratory settlement patterns of hunters and gatherers who used marine resources during the winter and inland resources the remainder of the year. More recent research indicates that residential bases or camps were moved to resources in a seasonal round (de Barros 1996; Mason et al. 1997; Koerper et al. 2002), or that some sites were occupied year-round with portions of the village population leaving at certain times of the year to exploit available resources (Cottrell and Del Chario 1981). Regardless of settlement system, it is clear that subsistence strategies during the Milling Stone period included hunting small and large terrestrial mammals, marine mammals, and birds; collecting shellfish and other shore species; extensive use of seed and plant products; the processing of yucca and agave; and near-shore fishing with barbs or gorges (Reinman 1964; Kowta 1969). As evidenced by the abundant milling equipment found at these sites throughout the region, the processing of small seeds was an important component of their subsistence practices.

Characteristic mortuary practices during the Milling Stone period or Encinitas Tradition include extended and loosely flexed burials interred beneath cobble or milling stone cairns. Some burials contain red ochre and few grave goods, such as shell beads and milling stones. “Killed” milling stones, exhibiting holes, may occur in the cairns. Secondary burials are common in the Los Angeles County area, while flexed burials oriented along a north-south axis are common in Orange and San Diego Counties. Evidence of wattle-and-daub structures and walls have been identified at some sites in the San Joaquin Hills and Newport Coast area spanning all cultural periods (Mason et al. 1991, 1992, 1993; Koerper 1995; Strudwick 2004; Sawyer 2006).

A potentially unique trait of the Milling Stone period, isolated to a small region of coastal Orange County, is the presence of a rudimentary ceramic industry involving the creation of fired clay effigies, figurines, and small crude thick-walled pottery vessels (Drover 1971, 1975; Drover et al. 1983; Macko 1998b; Sawyer and Koerper 2006). The figurines have been found at the Irvine site (CA-ORA-64) on Newport Bay, and a collapsed rockshelter site (CA-ORA-1405-B) within Muddy Canyon.

Intermediate Period (ca. 3000/1000 B.C.–A.D. 500/650)

Wallace’s Intermediate period and Warren’s Campbell Tradition in Santa Barbara, Ventura, and parts of Los Angeles Counties date from approximately 3000 B.C. to A.D. 500 (Wallace 1955; Warren 1968). This era is characterized by a shift toward a hunting and maritime subsistence strategy along with a wider use of plant foods. The Campbell Tradition (Warren 1968) incorporates David B. Rogers’ (1929) Hunting Culture and related expressions along the Santa Barbara coast. In the San Diego region, the Encinitas Tradition (Warren 1968) and the La Jolla Culture (Moriarty 1966; Rogers 1939, 1945) persist with little change during this time.

In Orange County, researchers have estimated that the Intermediate period began around 1000 B.C. and lasted until circa A.D. 650 (3000–1300 B.P.) (Koerper and Drover 1983:11; Mason and Peterson 1994). A more recent evaluation, based on some 1,300 calibrated radiocarbon dates from sites in Orange County, suggests a date of 1400 B.C. for the start of the Intermediate, marked by single-piece circular fishhooks and coinciding with the transition from the Middle to Late Holocene (Koerper et al. 2002:67–68). Another researcher sees the Intermediate not as a cultural period, but as a transition between the Milling Stone and the later Late Prehistoric period, based on his investigations at sites in the Bonita Mesa area near upper Newport Bay (Peterson 2000). This idea may simply reflect subregional or area-specific trends

at sites in and around Newport Bay rather than a more general depiction of the cultural period dynamics in Orange County and the greater southern California region.

During the Intermediate period, there was a pronounced trend toward greater adaptation to regional or local resources. For example, the remains of fish, land mammals, and marine mammals are increasingly abundant and diverse in sites along the California coast in the referenced region. Related chipped stone tools suitable for hunting are more abundant and diversified, and shell fishhooks became part of the toolkit during this period. Larger knives, a variety of flake scrapers, and drill-like implements are common in deposits dating to this period. Projectile points include large side-notched, stemmed, and lanceolate or leaf-shaped forms. Koerper and Drover (1983) consider Gypsum Cave and Elko series points, which have a wide distribution in the Great Basin and Mojave deserts between circa 2000 B.C. and A.D. 500, to be diagnostic of this period. Bone tools, including awls, were more numerous than in the preceding period, and the use of asphaltum adhesive was common as well.

Mortars and pestles became more common during this period, gradually replacing manos and metates as milling stone implements. In addition, hopper mortars and stone bowls, including steatite vessels, appear to have entered the toolkit at this time. This shift appears to be a correlate of a diversification in subsistence resources. Many archaeologists believe this change in milling stones signals a shift away from the processing and consuming of hard seed resources to the increasing importance of the acorn (e.g., Glassow et al. 1988; True 1993). It has been argued that mortars and pestles may have been used initially to process roots (e.g., tubers, bulbs, and corms associated with marshland plants), with acorn processing beginning at a later point in prehistory (Glassow 1997:86) and continuing to European contact.

Characteristic mortuary practices during the Intermediate period include fully flexed burials placed face down or face up and oriented toward the north or west (Warren 1968:2–3). Red ochre is common, and abalone shell dishes infrequent. Interments sometimes occur beneath cairns or broken artifacts. Shell, bone and stone ornaments, including charmstones, were more common than in the preceding Encinitas Tradition. Some later sites include olive shell (*Olivella* spp.) and steatite beads, mortars with flat bases and flaring sides, and a few small points. The broad distribution of steatite from the Channel Islands and obsidian from distant inland regions, among other items, attest to the growth of trade, particularly during the later part of this period.

Late Prehistoric Period (ca. A.D. 500/650–A.D. 1769)

Wallace (1955, 1978) places the beginning of the Late Prehistoric period around A.D. 500. In Orange County, the start of this period is recognized at a slightly later date, circa A.D. 650 (Koerper and Drover 1983; Mason and Peterson 1994). In all chronological schemes for southern California, the Late Prehistoric period lasts until European contact occurred in A.D. 1769.

During the Late Prehistoric period, there was an increase in the use of plant food resources in addition to an increase in land and marine mammal hunting. There was a concomitant increase in the diversity and complexity of material culture during this period, demonstrated by more classes of artifacts. The recovery of a greater number of small, finely chipped projectile points, usually stemless with convex or concave bases, suggests an increased utilization of the bow and arrow rather than the atlatl and dart for hunting. In Orange County, Cottonwood series triangular projectile points in particular are diagnostic of this period (Koerper and Drover 1983). Other items include steatite cooking vessels and containers, the increased presence of smaller bone and shell circular fishhooks, perforated stones, arrow shaft straighteners made of steatite, a variety of bone tools, and personal ornaments made from shell, bone, and stone. There is also an increased use of asphaltum for waterproofing and as an adhesive.

Late Prehistoric period sites contain beautiful and complex objects of utility, art, and decoration. Ornaments include drilled whole Venus clam (*Chione* spp.) and drilled abalone. Steatite effigies become more common, with scallop (*Pecten* spp. and *Argopecten* spp.) shell rattles common in middens. In Orange County for example, scallop shell rattles are concentrated in the Late Prehistoric midden at CA-ORA-119A, and other time sensitive artifacts including abalone ornaments and drilled Venus clam shells are present (Koerper and Drover 1983:19-20). Much of the rock art found today in the Chumash sphere is thought to date to this period (Whitley 2000:41). Mortuary customs were elaborate, including cremation and interment, with abundant grave goods.

By A.D. 1000, fired clay smoking pipes and ceramic vessels began to appear at some sites (Meighan 1954; Warren 1984). The scarcity of pottery in coastal and near-coastal sites implies ceramic technology was not well developed in that area, or that ceramics were obtained by trade with neighboring groups to the south and east. The lack of widespread pottery manufacture is usually attributed to the high quality of tightly woven and watertight basketry that functioned in the same capacity as ceramic vessels.

Another feature typical of Late Prehistoric period occupation is an increase in the frequency of obsidian imported from the Obsidian Butte source in Imperial County. Obsidian Butte was exploited after circa A.D. 1000 after its exposure by the receding waters of Holocene Lake Cahuilla (Wilke 1978). A Late Prehistoric period component of the Elsinore site (CA-RIV-2798-A) produced two flakes that originated from Obsidian Butte (Grenda 1997:255). Although about 16 percent of the debitage at the Peppertree site (CA-RIV-463) at Perris Reservoir is obsidian, no sourcing study was done (Wilke 1974:61). The site contains a late Intermediate to Late Prehistoric period component and it is assumed that most of the obsidian originated from Obsidian Butte. In the earlier Milling Stone and Intermediate periods, most of the obsidian found at sites within Orange County and many inland areas came from northern sources, primarily the Coso volcanic field. This also appears to be the case within Prado Basin and other interior areas that have yielded obsidian (e.g., Grenda 1995:59; Taşkiran 1997:46). The presence of Grimes Canyon (Ventura County) fused shale at southern California archaeological sites is also thought to be typical of the Late Prehistoric period (Demcak 1981; Hall 1988).

During this period, there was an increase in population size accompanied by the advent of larger, more permanent villages (Wallace 1955:223). Large populations and, in places, high population densities, are characteristic, with some coastal and near-coastal settlements containing as many as 1,500 people. Many of the larger settlements were permanent villages where people resided year-round. The populations of these villages may have also increased seasonally.

In Warren's (1968) cultural ecological scheme, the period between A.D. 500 and European contact is divided into three regional patterns. The Chumash Tradition is present mainly in the region of Santa Barbara and Ventura Counties; the Takic or Numic Tradition in the Los Angeles, Orange, and western Riverside Counties region; and the Yuman Tradition in the San Diego region. The seemingly abrupt changes in material culture, burial practices, and subsistence focus at the beginning of the Late Prehistoric period are considered to be the result of a migration to the coast of peoples from inland desert regions to the east. In addition to the small triangular and triangular side-notched points similar to those found in the desert regions in the Great Basin and Lower Colorado River, Colorado River pottery and the introduction of cremation in the archaeological record are diagnostic of the Yuman Tradition in the San Diego region. This combination certainly suggests a strong influence from the Colorado Desert region.

In Los Angeles, Orange, and western Riverside Counties, similar changes (introduction of cremation, pottery, and small triangular arrow points) are thought to have resulted from Takic migration to the coast from inland desert regions. This Takic or Numic Tradition was formerly referred to as the "Shoshonean wedge" or "Shoshonean intrusion" (Warren 1968). This terminology, used originally to describe a Uto-Aztecan language group, is generally no longer employed in order to avoid confusion with ethnohistoric

and modern Shoshonean groups who spoke Numic languages (Heizer 1978:5; Shipley 1978:88, 90). Modern Gabrielino/Tongva, Juaneño, and Luiseño in this region are considered to be the descendants of the prehistoric Uto-Aztecan, Takic-speaking populations that settled along the California coast during this period, or perhaps somewhat earlier.

Ethnographic Overview

Ethnographic boundaries in this part of southern California are loosely defined because of the highly mobile nature of desert and mountain settlement strategies and the variety of alternatives presented by previous researchers. According to available ethnographic maps (Bean and Smith 1978:570; Kroeber 1925; Sutton et al. 2007:232), the City of Santa Ana falls within the traditional territory of the Gabrielino.

Gabrielino

The General Plan Area lies within an area historically occupied by the Gabrielino (Bean and Smith 1978:538; Kroeber 1925:Plate 57). The name Gabrielino (sometimes spelled Gabrieleno or Gabrieleño) denotes those people who were administered by the Spanish from Mission San Gabriel. By the same token, Native Americans in the sphere of influence of Mission San Fernando were historically referred to as Fernandeño (Kroeber 1925). This group is now considered to be a regional dialect of the Gabrielino language, along with the Santa Catalina Island and San Nicolas Island dialects (Bean and Smith 1978). In the post-Contact period, Mission San Gabriel included natives of the greater Los Angeles area, as well as members of surrounding groups such as Kitanemuk, Serrano, and Cahuilla. There is little evidence that the people we call Gabrielino had a broad term for their group; rather, they identified themselves as an inhabitant of a specific community through the use of locational suffixes (e.g., a resident of Yaanga was called a Yabit, much the same way that a resident of New York is called a New Yorker) (Dakin 1978:222).

Native words that have been suggested as labels for the broader group of Native Americans in the Los Angeles region include Tongva (or Tong-v) and Kizh (Kij or Kichereno); although there is evidence that these terms originally referred to local places or smaller groups of people within the larger group that we now call Gabrielino (Heizer 1968). The term Gabrielino, which combines the most commonly used group names, is used in the remainder of this study to designate native people of the Los Angeles Basin and their descendants.

Gabrielino lands encompassed the greater Los Angeles Basin and three Channel Islands: San Clemente, San Nicolas, and Santa Catalina. Their mainland territory was bounded on the north by the Chumash at Topanga Creek, the Serrano at the San Gabriel Mountains in the east, and the Juaneño on the south at Aliso Creek (Bean and Smith 1978:538; Kroeber 1925:636).

The Gabrielino language, as well as that of the neighboring Juaneño/Luiseño, Tatataviam/Alliklik, and Serrano, belongs to the Takic branch of the Uto-Aztecan language family, which can be traced to the Great Basin area (Mithun 2004). This language family's origin differs substantially from that of the Chumash to the north and the Ipai, Tipai, and Kumeyaay farther south. The language of the Ipai, Tipai, and Kumeyaay is derived from the California-Delta branch of the Yuman-Cochimi language family, which originated in the American Southwest (Mithun 2004:577). The Chumash language is unlike both the Yuman-Cochimi and Uto-Aztecan families, and may represent a separate lineage (Mithun 2004:390). Linguistic analysis suggests that Takic-speaking immigrants from the Great Basin area began moving into southern California around 500 B.C. (Kroeber 1925:579). This migration may have displaced both Chumashan- and Yuman-speaking peoples, but the timing and extent of the migrations and their impact on indigenous peoples is not well understood. The Gabrielino language consisted of two main dialects, Eastern and Western; the Western included much of the coast and the Channel Island population (King

2004). Lands of the Western group encompassed much of the western Los Angeles Basin and San Fernando Valley, northward along the coast to the Palos Verdes Peninsula (McCawley 1996:47).

Gabrielino society was organized along patrilineal non-localized clans, a characteristic Takic pattern. Clans consisted of several lineages, each with their own ceremonial leader. The chief, or tómyaar, always came from the primary lineage of the clan/village. One or two clans generally made up the population of a village. Even though the Gabrielino did not have a distinctly stratified society, there were two general classes of individuals: elites and commoners. The elites consisted of primary lineage members, other lineage leaders (who maintained a separate ceremonial language), the wealthy, and the elite families of the various villages who commonly married among themselves. The commoner class contained those from "fairly well-to-do and long-established lineages" (Bean and Smith 1978:543). A third, lower class consisted of slaves taken in war and individuals, unrelated to the inhabitants, who drifted into the village.

The Gabrielino established large, permanent villages in the fertile lowlands along rivers and streams, and in sheltered areas along the coast, stretching from the foothills of the San Gabriel Mountains to the Pacific Ocean. A total tribal population has been estimated of at least 5,000 (Bean and Smith 1978:540), but recent ethnohistoric work suggests that a number approaching 10,000 seems more likely (O'Neil 2002). Several Gabrielino villages appear to have served as trade centers, due in large part to their centralized geographic position in relation to the southern Channel Islands and to other tribes. These villages maintained particularly large populations and hosted annual trade fairs that would bring their population to 1,000 or more for the duration of the event (McCawley 1996:113–114).

Houses constructed by the Gabrielino could hold up to 50 people and were large, circular, domed structures made of willow poles thatched with tule (Bean and Smith 1978). Other structures served as sweathouses, menstrual huts, ceremonial enclosures, and probably communal granaries. Cleared fields for races and games such as lacrosse and pole throwing were created adjacent to Gabrielino villages (McCawley 1996:27).

The Gabrielino subsistence economy was centered on gathering and hunting. The surrounding environment was rich and varied, and the tribe exploited mountains, foothills, valleys, and deserts as well as riparian, estuarine, and open and rocky coastal eco-niches. As with most native Californians, acorns were the staple food (an established industry by the time of the early Intermediate period). Acorns were supplemented by the roots, leaves, seeds, and fruits of a wide variety of flora (e.g., cactus, yucca, sages, and agave). Fresh and saltwater fish, shellfish, birds, reptiles, and insects as well as large and small mammals were also consumed (Bean and Smith 1978:546; Kroeber 1925:631–632; McCawley 1996:119–123, 128–131).

A wide variety of tools and implements was employed by the Gabrielino to gather and collect food resources. These included the bow and arrow, traps, nets, blinds, throwing sticks and slings, spears, harpoons, and hooks. Many plant foods were collected with woven seed beaters, several forms of burden baskets, carrying nets, and sharpened digging sticks, sometimes with stone weights fitted onto them. Groups residing near the ocean used ocean-going plank canoes (known as a ti'at) and tule balsa canoes for fishing, travel, and trade between the mainland and the Channel Islands. The ocean-going canoes were capable of holding six to 14 people and were also used for travel and trade between the mainland and the Channel Islands. The tule balsa canoes were used for near-shore fishing (Blackburn 1963; McCawley 1996:117-127).

Gabrielino people processed food with a variety of tools, including portable and bedrock mortars, pestles, basket hopper mortars, manos and metates, hammer stones and anvils, woven strainers and winnowers, leaching baskets and bowls, woven parching trays, knives, bone saws, and wooden drying racks. Food was consumed from a number of woven and carved wood vessels. The ground meal and unprocessed hard seeds were stored in large, finely woven baskets, and the unprocessed acorns were stored in large

granaries woven of willow branches and raised off the ground on platforms. Santa Catalina Island steatite was used to make comals, ollas, and cooking vessels that would not crack after repeated firings. In addition to cooking vessels, steatite was used to make effigies, ornaments, and arrow straighteners (Blackburn 1963; Kroeber 1925:631-639; McCawley 1996:129-138).

The Gabrielino participated in an extensive exchange network, trading coastal goods for inland resources. They exported Santa Catalina Island steatite products, roots, seal and otter skins, fish and shellfish, red ochre, and lead ore to neighboring tribes, as well as people as far away as the Colorado River. In exchange they received ceramic goods, deer skin shirts, obsidian, acorns, and other items. This burgeoning trade was facilitated by the use of craft specialists, a standard medium of exchange (Olivella bead currency), and the regular destruction of valuables in ceremonies that maintained a high demand for these goods (McCawley 1996:112-115).

At the time of Spanish contact, the basis of Gabrielino religious life was the Chinigchinich cult, which centered on the last of a series of heroic mythological figures. Chinigchinich gave instruction on laws and institutions, and also taught the people how to dance, the primary religious act for this society. He later withdrew into heaven, where he rewarded the faithful and punished those who disobeyed his laws (Kroeber 1925:637–638). The Chinigchinich religion seems to have been relatively new when the Spanish arrived. It was spreading south into the Southern Takic groups even as Christian missions were being built, and may represent a mixture of native and Christian belief and practices (McCawley 1996:143–144).

Deceased Gabrielino were either buried or cremated, with inhumation reportedly being more common on the Channel Islands and the neighboring mainland coast, and cremation predominating on the remainder of the coast and in the interior (Harrington 1942; McCawley 1996:157). Remains were buried in distinct burial areas, either associated with villages (Altschul et al. 2007:34-42) or without apparent village association (Applied Earthworks 1999; Frazier 2000:169-176). Cremation ashes have been found in archaeological contexts buried within stone bowls and in shell dishes (Ashby and Winterbourne 1966), as well as scattered among broken ground stone implements (Altschul et al. 2007; Cleland et al. 2007). Archaeological data such as these correspond with ethnographic descriptions of an elaborate mourning ceremony that included a wide variety of offerings, including seeds, stone grinding tools, otter skins, baskets, wood tools, shell beads, bone and shell ornaments, and projectile points and knives (Boscana 1846:314). Offerings varied with the sex and status of the deceased (Dakin 1978:234-235; Johnston 1962:52-54; McCawley 1996:155-165). At the behest of the Spanish missionaries, cremation essentially ceased during the post-Contact period (McCawley 1996:157). For inhumations, the deceased was wrapped in a covering, bound head to foot, with hands crooked upon their breast (Dakin 1978:234). Archaeological examples of human remains in the Gabrielino region dating to the Late Prehistoric and protohistoric periods are dominated by flexed or extended inhumations, with a smaller number of cremations. Grave goods associated with burials/cremations varied in quantity and content and included projectile points, beads, steatite objects, and asphaltum (Frazier 2000:175). Well-preserved burial features have evidence of wrappings of net, hide blanket or cape, or a mat of tule reeds or sea grass (McCawley 1996:157). At least one formal grave marker, an elaborately etched sandstone slab, was reported in 1885 at a site between Los Angeles and the coast, near San Pedro (Blackburn 1963:35).

A review of a number of historic and ethnographic maps was conducted to further identify the archaeological sensitivity of the City of Santa Ana General Plan area. An ethnographic map showing Native American settlements used for the recruitment of neophytes to the San Fernando and San Gabriel Missions based on King (2004:21) shows the General Plan area including the village of Pajebet (Figure 4). A review of the Kirkman (1937) pictorial and historical map of Orange County does not depict any Native American villages within the General Plan area, but a village is noted both to the northeast and southwest along the Santa Ana River (Figure 5) The Santa Ana River was known as Wanaawna by the

Gabrielino, and the settlement of Pasbengna was recorded as being along the Santa Ana River in the vicinity of the City of Santa Ana (McCawley 1996:60; see also Taylor 1864). It is likely that the village of Pajebet from the King (2004) map was in actuality Pasbengna, and Pasbengna is the unnamed village marked to the north of the General Plan area on the Kirkman (1937) map. The village mapped to the south of the General Plan area may be the village of Lukúpa, meaning "silvery," which was situated on a knoll in the region over the Santa Ana River floodplain (McCawley 1996:71). Lukúpa is believed to be the Newland House Site (CA-ORA-183), which was excavated in the 1930s. The Camino (Nuevo) Real is also mapped by Kirkman (1937) as transecting the General Plan area, and the town of "Oranga" is mapped at the northern border.



Figure 4. General Plan area plotted on King's (2004:21) map showing the approximate location of Native American villages using names listed in Mission-period registers.

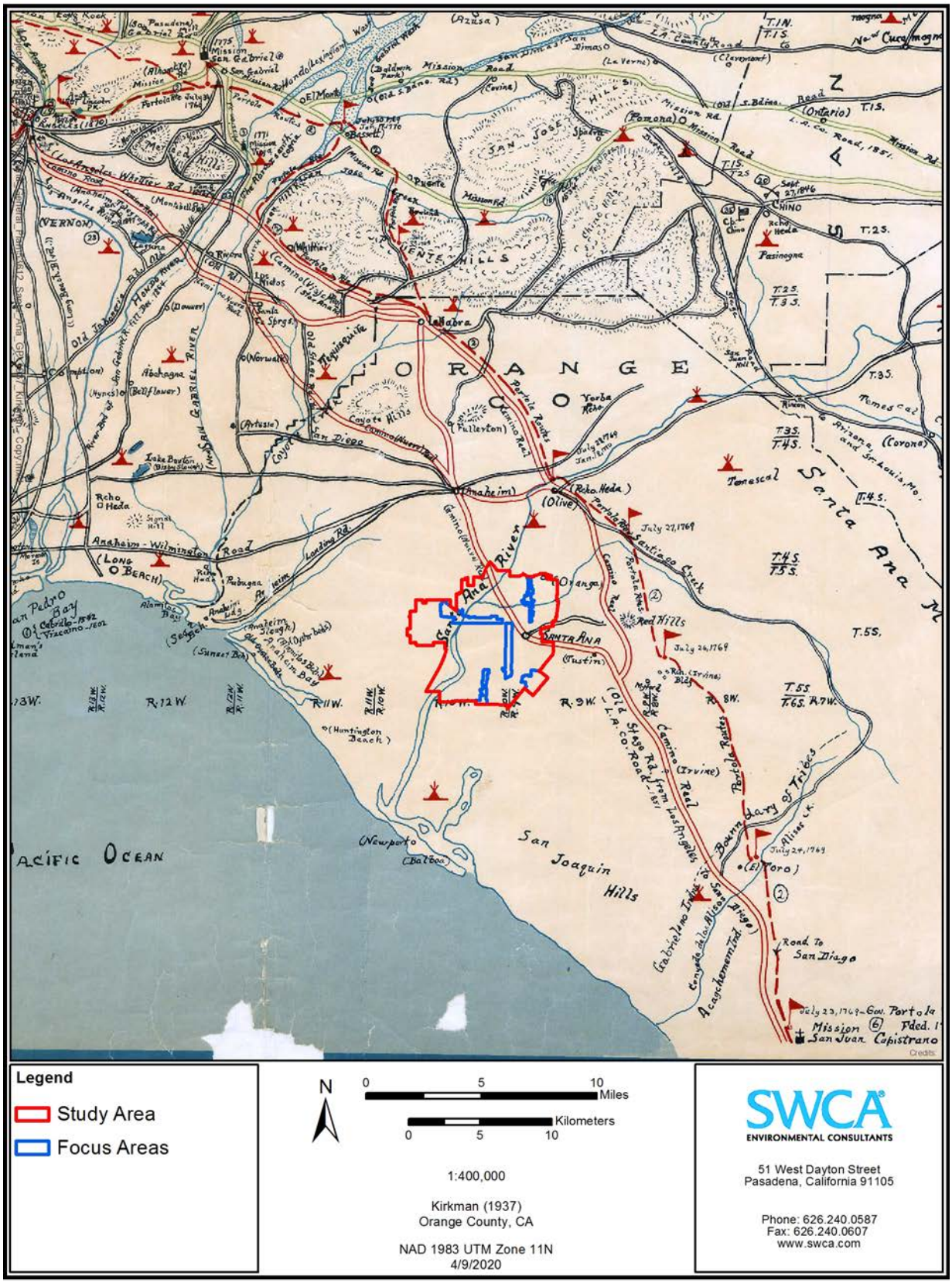


Figure 5. General Plan area plotted on the Kirkman's (1937) pictorial and historical map of Orange County.

Historic Overview

Post-Contact history for the state of California is generally divided into three periods: the Spanish Period (1769–1822), Mexican Period (1822–1848), and American Period (1848–present). Although Spanish, Russian, and British explorers visited the area for brief periods between 1529 and 1769, the Spanish Period in California begins with the establishment in 1769 of a settlement at San Diego and the founding of Mission San Diego de Alcalá, the first of 21 missions constructed between 1769 and 1823. Independence from Spain in 1821 marks the beginning of the Mexican Period, and the signing of the Treaty of Guadalupe Hidalgo in 1848, ending the Mexican-American War, signals the beginning of the American Period when California became a territory of the United States.

Spanish Period (1769–1822)

Spanish explorers made sailing expeditions along the coast of southern California between the mid-1500s and mid-1700s. In search of the legendary Northwest Passage, Juan Rodríquez Cabríllo stopped in 1542 at present-day San Diego Bay. With his crew, Cabríllo explored the shorelines of present Catalina Island as well as San Pedro and Santa Monica Bays. Much of the present California and Oregon coastline was mapped and recorded in the next half-century by Spanish naval officer Sebastián Vizcaíno. Vizcaíno's crew also landed on Santa Catalina Island and at San Pedro and Santa Monica Bays, giving each location its long-standing name. The Spanish crown laid claim to California based on the surveys conducted by Cabríllo and Vizcaíno (Bancroft 1885:96–99; Gumprecht 1999:35).

More than 200 years passed before Spain began the colonization and inland exploration of Alta California. The 1769 overland expedition by Captain Gaspar de Portolá marks the beginning of California's Historic period, occurring just after the King of Spain installed the Franciscan Order to direct religious and colonization matters in assigned territories of the Americas. With a band of 64 soldiers, missionaries, Baja (lower) California Native Americans, and Mexican civilians, Portolá established the Presidio of San Diego, a fortified military outpost, as the first Spanish settlement in Alta California. In July of 1769, while Portolá was exploring southern California, Franciscan Fr. Junípero Serra founded Mission San Diego de Alcalá at Presidio Hill, the first of the 21 missions that would be established in Alta California by the Spanish and the Franciscan Order between 1769 and 1833.

The Portolá expedition first reached the present-day boundaries of Orange County in July 1769, thereby becoming the first Europeans to visit the area (Smith 1965). They named the area *El Valle de Santa Ana* or "The Valley of Santa Ana." Six years later, Friar Junípero Serra returned to the valley to establish a Catholic mission, which was dedicated the following year. The Mission San Juan Capistrano became Orange County's first permanent Euro-American settlement, becoming fully operational by 1776.

Mexican Period (1822–1848)

A major emphasis during the Spanish Period in California was the construction of missions and associated presidios to integrate the Native American population into Christianity and communal enterprise. Incentives were also provided to bring settlers to pueblos or towns, but just three pueblos were established during the Spanish Period, only two of which were successful and remain as California cities (San José and Los Angeles). Several factors kept growth within Alta California to a minimum, including the threat of foreign invasion, political dissatisfaction, and unrest among the indigenous population. After more than a decade of intermittent rebellion and warfare, New Spain (Mexico and the California territory) won independence from Spain in 1821. In 1822, the Mexican legislative body in California ended isolationist policies designed to protect the Spanish monopoly on trade, and decreed California ports open to foreign merchants (Dallas 1955:14).

Extensive land grants were established in the interior during the Mexican Period, in part to increase the population inland from the more settled coastal areas where the Spanish had first concentrated their colonization efforts. Nine ranchos were granted between 1837 and 1846 in the future Orange County (Middlebrook 2005). Among the first ranchos deeded within the future Orange County were Manuel Nieto's Rancho Las Bolsas (partially in future Los Angeles County), granted by Spanish Governor Pedro Fages in 1784, and the Rancho Santiago de Santa Ana, granted by Governor José Joaquín Arrillaga to José Antonio Yorba and Juan Pablo Peralta in 1810 (Hallan-Gibson 1986). The secularization of the missions following Mexico's independence from Spain resulted in the subdivision of former mission lands and establishment of many additional ranchos.

During the supremacy of the ranchos (1834–1848), landowners largely focused on the cattle industry and devoted large tracts to grazing. Cattle hides became a primary southern California export, providing a commodity to trade for goods from the east and other areas in the United States and Mexico. The number of nonnative inhabitants increased during this period because of the influx of explorers, trappers, and ranchers associated with the land grants. The rising California population contributed to the introduction and rise of diseases foreign to the Native American population, who had no associated immunities.

American Period (1848–Present)

War in 1846 between Mexico and the United States precipitated the Battle of Chino, a clash between resident Californios and Americans in the San Bernardino area. The Mexican-American War ended with the Treaty of Guadalupe Hidalgo in 1848, ushering California into its American Period.

California officially became a state with the Compromise of 1850, which also designated Utah and New Mexico (with present-day Arizona) as U.S. Territories (Waugh 2003). Horticulture and livestock, based primarily on cattle as the currency and staple of the rancho system, continued to dominate the southern California economy through 1850s. The Gold Rush commenced in 1848, and with the influx of people seeking gold, cattle were no longer desired mainly for their hides, but also as a source of meat and other goods. During the 1850s cattle boom, rancho vaqueros drove large herds from southern to northern California to feed that region's burgeoning mining and commercial boom. Cattle were at first driven along major trails or roads such as the Gila Trail or Southern Overland Trail, then were transported by trains where available. The cattle boom ended for southern California as neighbor states and territories drove herds to northern California at reduced prices. Operation of the huge ranchos became increasingly difficult, and droughts severely reduced their productivity (Cleland 2005:102–103).

Many of the ranchos in the area now known as Orange County remained intact after the U.S. took possession of California; however, a severe drought in the 1860s resulted in many of the ranchos being sold. Many of the lands in this area were consolidated into extensive properties owned by Richard O'Neil, Sr., James Irvine, and others. Silver was discovered in the Santa Ana Mountains in 1887. This drew additional settlers to the region, which was already experiencing a real estate boom based on quality agricultural land (Dumke 1944).

The first towns laid out in the Santa Ana Valley, Anaheim (1857), Santa Ana (1870), and Orange (1870), all experienced rapid growth during the boom years of the late 1880s. Land promoters, or "boomers," moved into the area publicizing new settlements with stories of the bountifulness and beauty of the state. The well-watered Downey Plain of the immediate region was widely advertised as excellent for farming. New towns also appeared along new segments of the Atchison, Topeka & Santa Fe Railroad and the Southern Pacific Railroad (SPRR) (Dumke 1944). On March 11, 1889, the County of Orange was created, occupying 780 square miles (2020 km^2) of former Los Angeles County lands. Euro-American land use patterns differed considerably from those of the Mexicans and Spaniards. Their farms and dairies focused on intensive exploitation of the land, contrasting sharply with the passive exploitation characteristic of the

ranchos. Within a decade the county was occupied by several populous American agricultural communities. The hills continued to be used for ranching, although orchards and vineyards were also planted on their slopes.

The population of Orange County grew throughout the twentieth century, yet the county retained its agricultural character. Anaheim, Fullerton and La Habra started as agricultural shipping centers surrounded by cultivated fields. The post-World War II era brought a new wave of growth, transforming most of the fields into suburban housing tracts. Several large freeway construction projects connected Orange County with the rest of the state including the Santa Ana Freeway (I-5), which passed through Anaheim in the 1956, and the Riverside Freeway (State Highway 91), which passed through Fullerton in 1963. Orange County became increasingly residential and by the 1980s was developed with numerous master planned communities, such as Irvine, including most of south county. Today the county is identified with amusement parks, including Disneyland and Knott's Berry Farm, as well as its 40 miles (64.4 km) of beaches. Despite weathering a bankruptcy in the 1990s, Orange County remains a desirable and upscale place to live with a mild Mediterranean climate.

History of the City of Santa Ana

The valley where Santa Ana is located was explored by Spaniard Franciscan Gaspar de Portolá in 1769. The area and adjacent river was named Santa Ana in honor of Saint Anne. In 1801, Juan Pablo Grijalva acquired a land grant to develop for cattle grazing and agriculture, which he named Rancho Santiago de Santa Ana. The Santa Ana River created an ideal place for more ranching, and the area grew into an agricultural center, eventually extending from the foothills of the Santa Ana mountains to the ocean (Encyclopedia Britannica 2019) In 1869, William H. Spurgeon purchased land from the Grijalva family and presented a formal town plan**,** keeping Santa Ana as the town name. Spurgeon worked out deals with Southern Pacific Railroad to extend their line to Santa Ana, offering $10,000 and 90 acres of land on the eastern side of the town. This in turn allowed farm produce to be transported up towards Los Angeles. The line was constructed mostly by Chinese laborers, and service from Santa Ana began in December of 1877 (Brigandi 2019). Pacific Electric extended their southern interurban rail line into Santa Ana in 1904. Their "Red Cars" could be seen entering the West Santa Ana Branch at Fourth Street and Santa Ana Boulevard. After World War II, passenger service declined as people returned to their automobiles (Copeland 1997). Service discontinued to Santa Ana and was pushed back to Bellflower in 1950, and in 1958 the entire route was finally suspended.

Historic maps depict the General Plan area within the Rancho Santa Ana and Rancho Las Bolsas Land Grants (Figure 6-Figure 7). The Rancho Santa Ana Land Grant is located on the eastern side of the Santa Ana River, and is made up of several different parcels of varying acreages. The largest parcel is noted as belonging to James McFadden, totaling 4,576 acres (1851.8 ha). The City of Santa Ana boundary incorporates approximately three quarters of the parcel, and covers the southern portion of the General Plan area. The next largest parcel at 2,455 acres (993.5 ha) is located entirely within the City boundary, and is noted as belonging to F.W. Koll. The Koll parcel, along with a 1,865 acre (754.7 ha) parcel belonging to Asencion Sepulveda de Mott, makes up the center portion of the General Plan area. The northern portion of the General Plan area is made up of 25 smaller parcels ranging in size from 649 acres (262.6 ha) to 25 acres (10.1 ha). The Rancho Santa Ana Land Grant maps do indict some structures and features of note. Within Township 5 South, Range 10 West, Section 24 of the F.W. Koll parcel, two houses, "House of Johnson" and "House of F. Koll," are mapped south of the "Road to San Joaquin" and to the north of an unnamed spring. The "House of Coyote Sepulveda" is mapped within Township 5 South, Range 10 West, Section 23 of the Asencion Sepulveda de Mott parcel, and the "House of Jóse Sepulveda" is mapped within Section 14 southeast of an unnamed spring. Within Township 5 South, Range 10 West, Section 11 of the Julian Chaves parcel, the house of Julian Chaves is mapped adjacent to the "Road to Santa Ana" and to the southwest of the "Old House" within Section 12 of the Jacob Ross

parcel. Within the southern portion of the 180 acre parcel of James McFadden, an “Adobe house” is mapped within Township 5 South, Range 10 West, Section 1, south of Santiago Creek. The Las Bolsas Land Grant makes up the entirety of the portion of the General Plan area to the west of the Santa Ana River, and is noted as belonging to “Ramon Yorba et al.” The Las Bolsas Land Grant map does not identify any structures within the General Plan area, though a number of cottonwood trees are noted along the river.

Additional historic maps depict numerous segments of utility and transportation infrastructure as well established housing tracts around the time of the establishment of the City of Santa Ana. An irrigation map of the area from 1888 depicts a number of irrigation ditches within Santa Ana, including with the “Chapman Tract” (Figure 8). Two additional housing tracts are present within the General Plan area, including the “Williams Tract” and the “Ruffel and Fletcher Tract.” A segment of the SPRR is mapped traveling northwest-southeast through the core of the City of Santa Ana. Another railway labeled “Santa Ana, Fairview, and Newport Rail” travels roughly north from the southern boundary of the General Plan area into the core of the City without connecting to the SPRR. A number of features depicted as a small circle and labeled “A.W.” were mapped through the General Plan area, and may represent well features. The construction of the Santa Ana, Fairview, and Newport Rail was completed in 1891 and was a passenger rail line to connect downtown Santa Ana to the Newport Beach wharf (now Newport Pier) (Los Angeles Times 2015). The line became obsolete at the introduction of the Pacific Electric Line to the area. The General Plan area includes the original Santa Ana Red Line, and roughly follows the route of the Santa Ana, Fairview, and Newport Rail, though does not extend as far south (Figure 9).

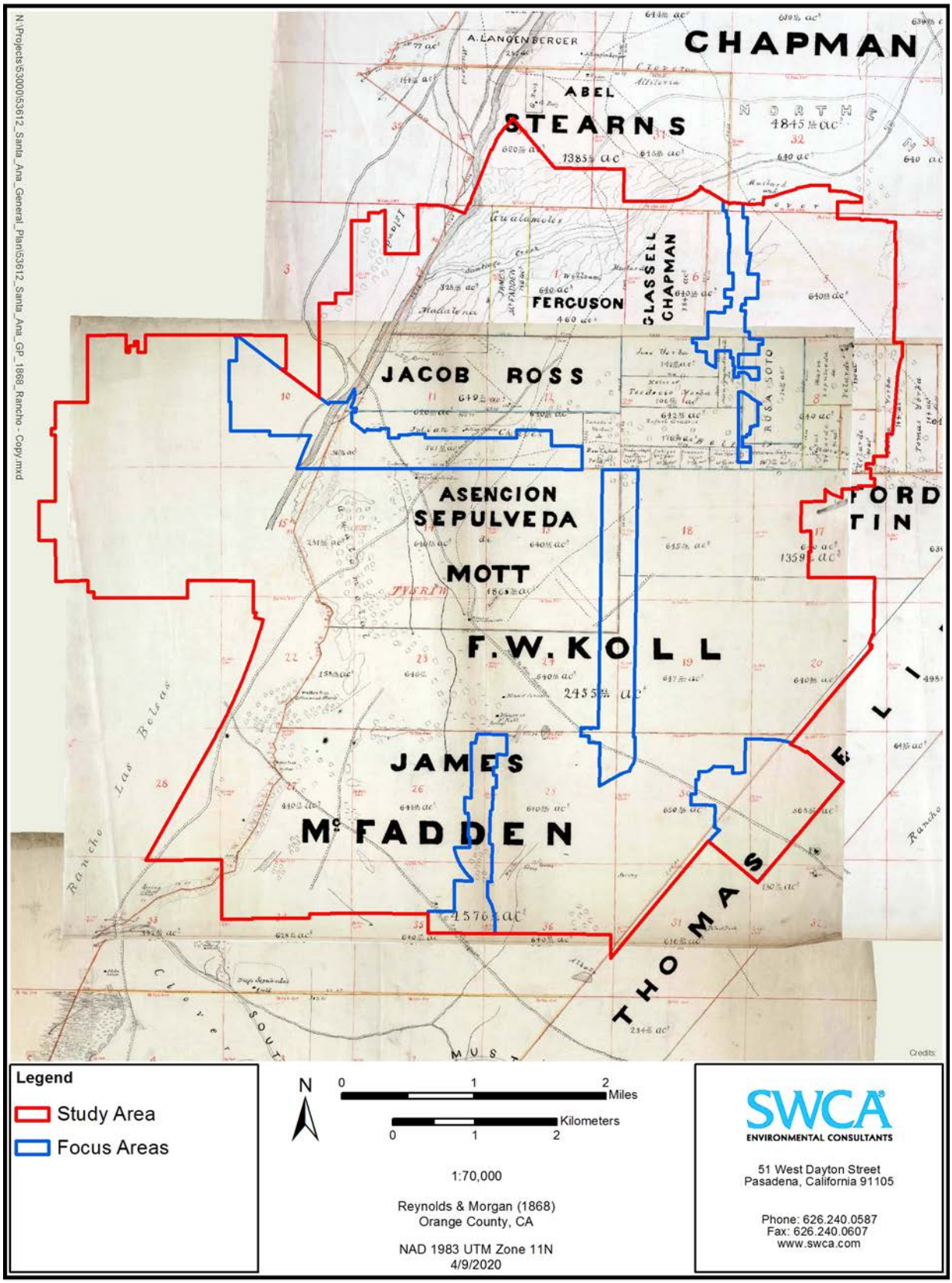


Figure 6. General Plan area plotted on the Rancho Santa Ana Land Grant, circa 1868.

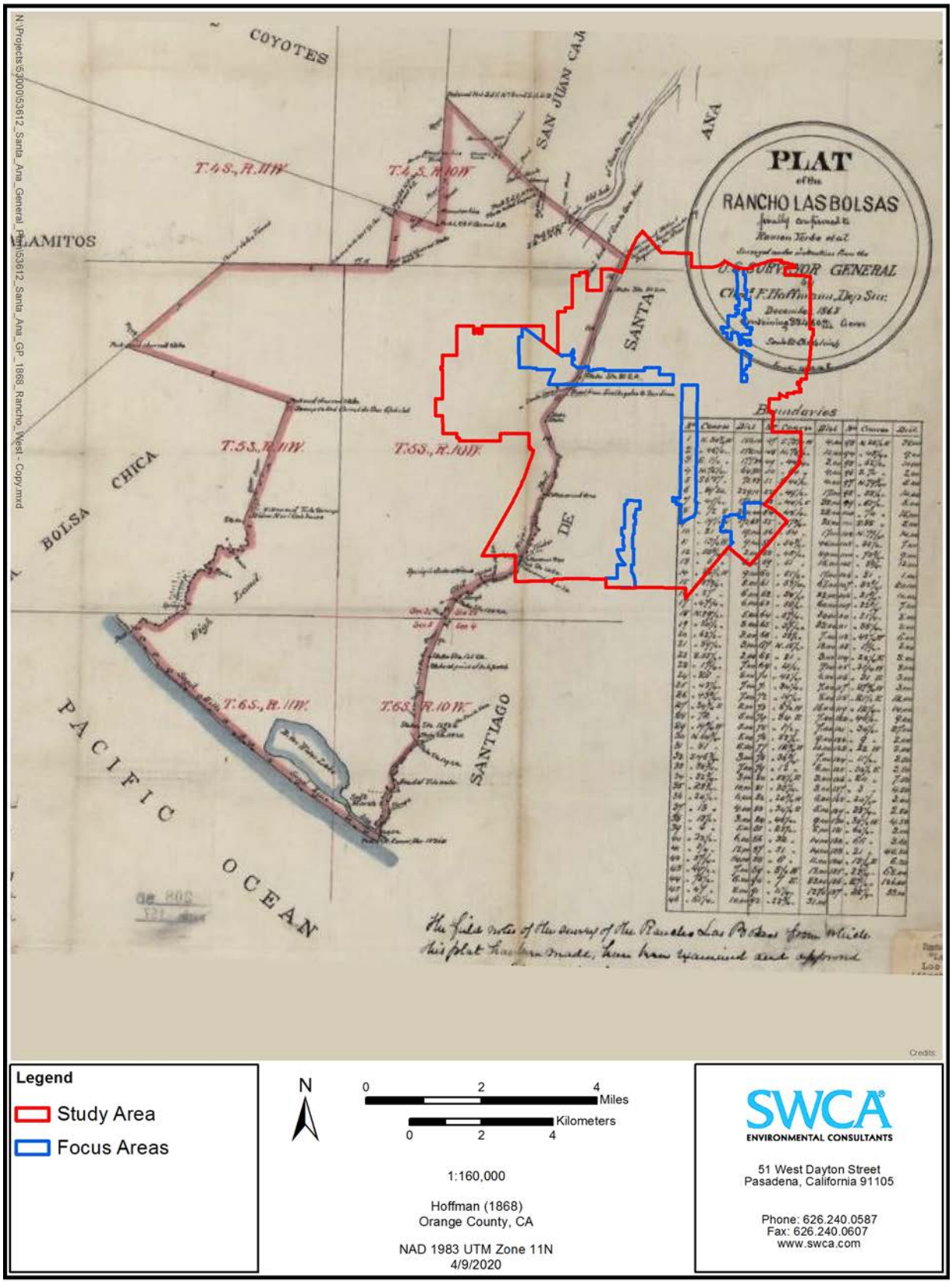


Figure 7. General Plan area plotted on the Rancho Las Bolsas Land Grant, circa 1868.

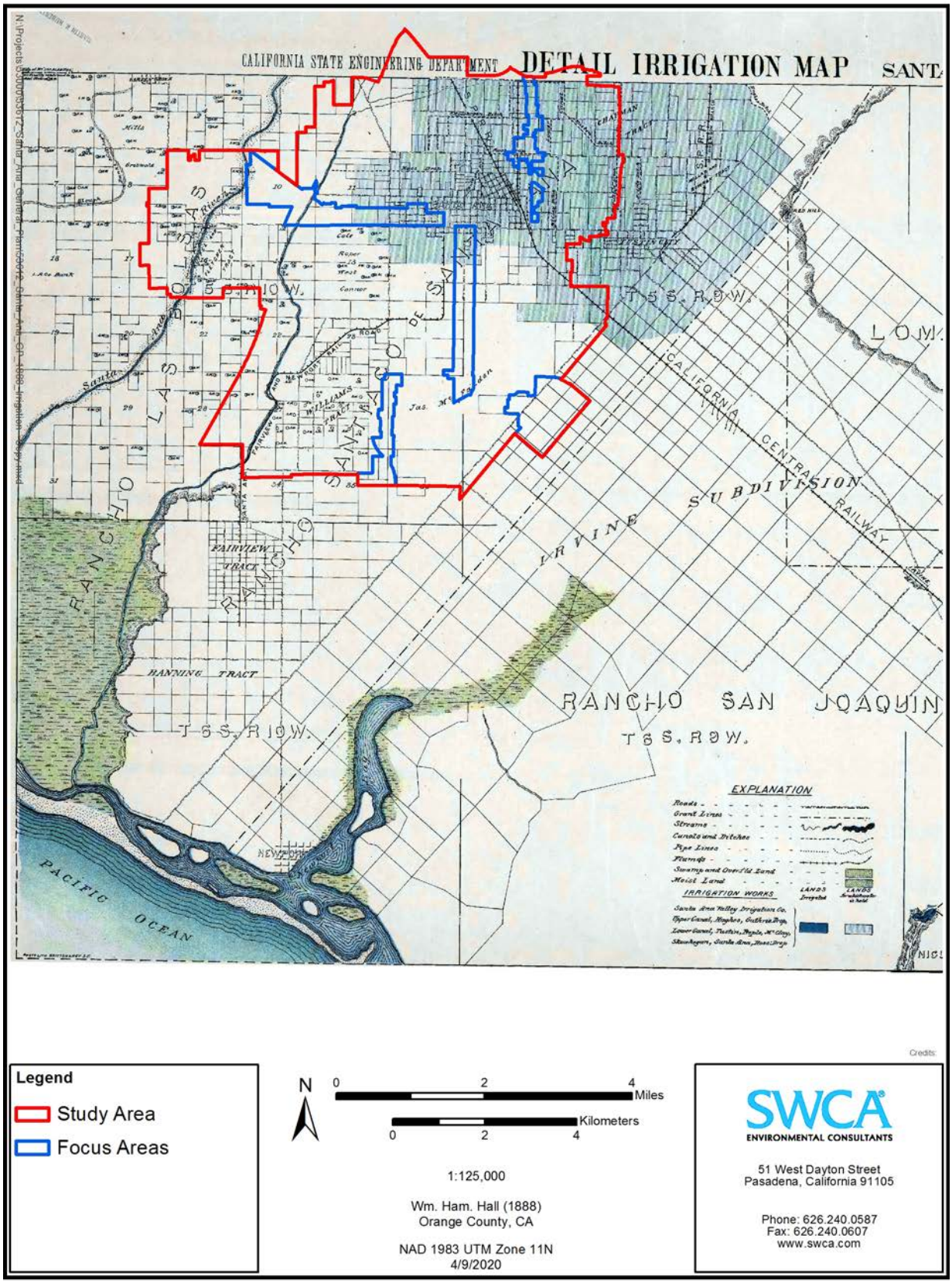


Figure 8. General Plan area plotted on Santa Ana irrigation map (Hall 1888).

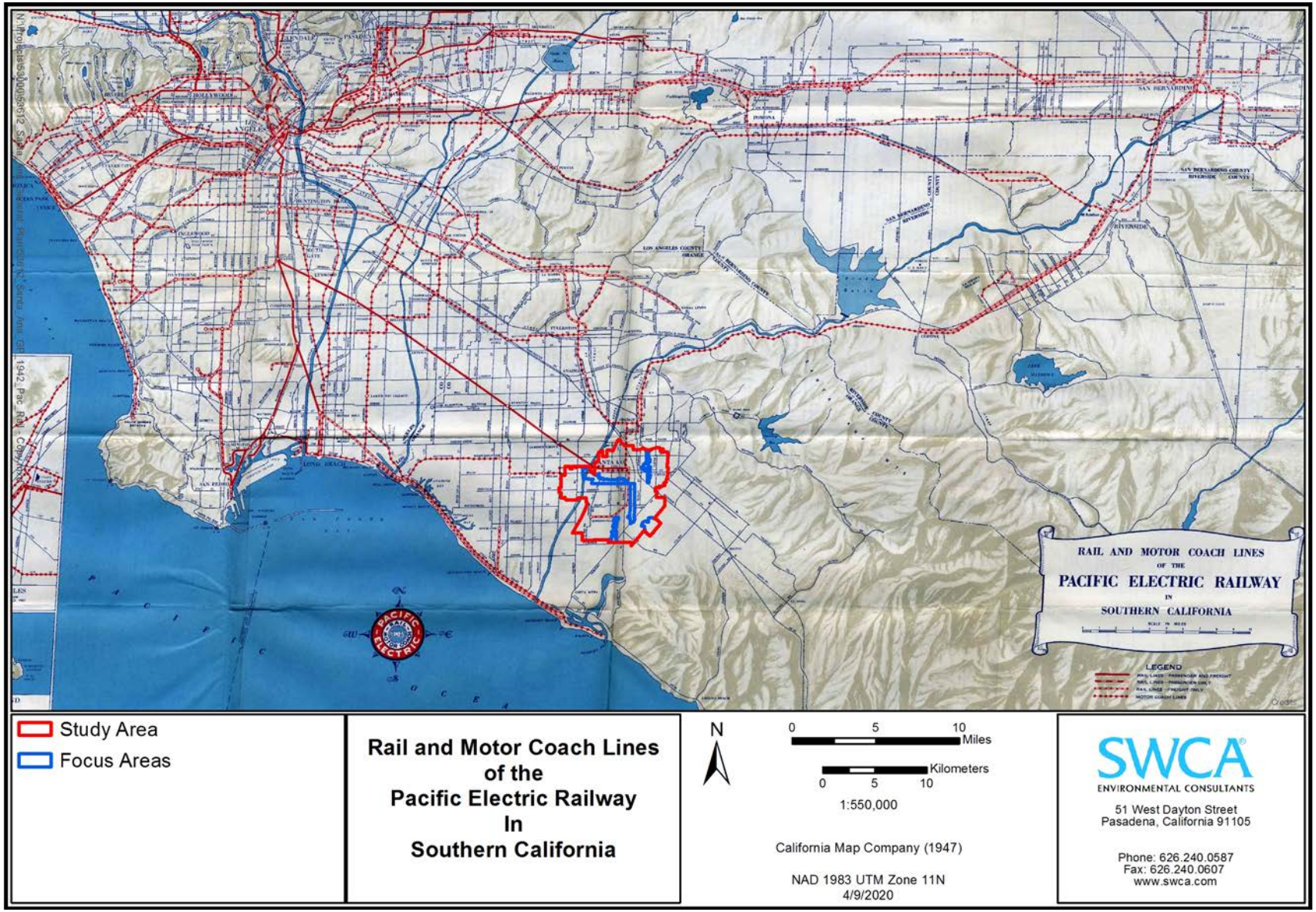


Figure 9. General Plan area plotted on the Southern California Pacific Electric Railway map (California Map Company 1947).

METHODS

This technical report is based on a desktop review of available literature, historic topographic maps, historic aerial photographs, and records and database searches containing information on archaeological and tribal cultural resources. Data sources include the California Historical Resources Information System, California State databases, and map searches encompassing the General Plan area to provide regional context, and ensure thorough review of potential archaeological and tribal cultural resources within the General Plan area.

The California OHP's system for managing information on archaeological and historic built environment resources and previous studies is known as the California Historical Resources Information System (CHRIS). The CHRIS records are administered through various Archaeological Information Centers responsible for one or more counties. Records for Orange County are managed through the South Central Coastal Information Center (SCCIC), located on the campus of California State University, Fullerton. On February 19, 2019, SWCA archaeologist Amber Johnson, B.A. conducted a records search of the CHRIS at the SCCIC. The search included any previously recorded archaeological resources within a 0.5-mile radius of the General Plan area. Historic built resources, or buildings, structures, and objects that are 45 years or older, were not included in the records search, as they are being addressed in a separate technical report. The results of the records search are presented below.

Additional Background Research

In addition to the CHRIS records search, SWCA conducted a review of all available historic USGS 7.5- and 15-minute quadrangle maps depicting the City of Santa Ana. SWCA also reviewed property-specific historical and ethnographic context research to identify information relevant to the General Plan Area. Archival research focused on a variety of primary and secondary materials relating to the history and development of the City of Santa Ana. Some of the sources consulted included historical maps, aerial and ground photographs, building permits, ethnographic reports, soil reports, and other environmental data.

NAHC Sacred Lands File Search

On February 22, 2019, SWCA requested a search of the Sacred Lands File (SLF) from the NAHC. On March 1, 2019, the NAHC provided the results of the SLF search, as well as a consultation list of tribal governments with traditional lands or cultural places located within the General Plan area. To assist with formal government-to-government consultation with NAHC-listed tribes pursuant to SB 18 and AB 52, this list will be provided to the City.

EXISTING CONDITIONS

Archaeological Resources

The CHRIS records search indicates that 23 archaeological resources were previously recorded within 0.5 mile (0.8 km) of the General Plan area. Of these resources, eight archaeological resources were located within the General Plan area; these include four prehistoric sites, one multicomponent site, and three historic isolates (Table 2). The prehistoric sites include habitation debris sites and lithic scatters. Site CA-ORA-300 (P-30-000300) was recorded in 1971 during the construction of an apartment complex, and the site components identified included five prehistoric burials, a prehistoric midden deposit, and some historic materials associated with a historic walnut grove and a historic residence. Site CA-ORA-301 (P-30-000301) was also recorded in 1971, and consisted of a subsurface lithic deposit, up to 6 feet (1.8 m) below the surface. The site is noted as being completely paved over. Site CA-ORA-353 (P-30-000353) was recorded in 1972, and is located adjacent to CA-ORA-300. The site was recorded as a prehistoric lithic scatter, and the area has been partially developed for housing. Site CA-ORA-392 (P-30-000392) was recorded in 1973 after the development of a housing project, with shell midden visible on the surface around the existing homes. The record notes that lithic artifacts were recovered by the local residents. None of these sites have been updated since their initial recordation, and it is possible that intact subsurface deposits are still present within the site boundaries. The area surrounding CA-ORA-300 and 353 should be considered particularly sensitive due to the previous discovery of Native American burials. Site CA-ORA-1514 (P-30-001514) was recorded in 1999 and consisted of a prehistoric shell scatter with no other associated artifacts. The site was noted to be a disturbed surface scatter in an open lot with buildings in the surrounding area, and no determination of a subsurface component. It is possible that intact subsurface deposits are still present within the site boundary.

While the review of these ethnographic and historic maps do not indicate the presence of any specific Native American archaeological resources, the proximity of mapped locations of these settlements in the vicinity of the General Plan indicate a high sensitivity. The presence of the Santa Ana River, a permanent water source that connects the closest mapped Native American villages, and numerous springs mapped throughout the area on the rancho plat maps indicates that there is likely a high sensitivity for Native American archaeological resources throughout the General Plan area. This is supported by the identification of several prehistoric sites composed of habitation debris and lithic materials. A number of historic features, including structures related to the ranchos, 19th century housing tracts, irrigation features, and heavy and light rail lines, are mapped within the General Plan area. While it is unlikely that some of those features are currently intact, remains of the structures and related subsurface components, such as refuse dumps, privies, etc., may still be present. The irrigation features that were decommissioned may have accumulated residential and commercial refuse prior to being filled in, a common practice observed archaeologically. For the decommissioned light rail features, segments of rail ties may still be intact beneath current road surfaces and remains of features related to the rail line, such as signal foundations, refuse deposits, and depot foundations, may still be present. While confirmation of the continued presence of the structures within the historic housing tracts was not conducted, it is likely that historic deposits related to the historic residences may still be present. Due to these factors, the overall sensitivity of the General Plan area for historic archaeological resources is high.

Table 2. Previously Recorded Cultural Resources within 0.5 mile (0.8 km) of the General Plan Area.

Primary No.	Trinomial	Temporal Affiliation	Resource Type	Resource Description	Recorded by and Year Recorded	Relationship to General Plan Area	NRHP/CRHR Eligibility
P-30-000300	CA-ORA-300H	Multicomponent	Site	Shell midden, lithic scatter, habitation debris, burials, historic refuse materials	Sperry, P. 1971	Within*	Unknown
P-30-000301	CA-ORA-301	Prehistoric	Site	Lithic scatter	Sperry, P. 1971	Within*	Unknown
P-30-000353	CA-ORA-353	Prehistoric	Site	Lithic scatter, habitation debris	Sperry, P. 1972	Within*	Unknown
P-30-000392	CA-ORA-392	Prehistoric	Site	Lithic scatter, habitation debris	Sperry, P. 1973	Within*	Unknown
P-30-001151	CA-ORA-1151H	Historic	Site	Historic refuse trash, walls, standing structures, hearths	Mason, V. 1987, 1988	Outside (within 0.5 mile)	Unknown
P-30-001510	CA-ORA-1510	Prehistoric	Site	Lithic scatter, cairns/rock feature, hearth/pit, habitation debris	King, G. 1999	Outside (within 0.5 mile)	Unknown
P-30-001514	CA-ORA-1514	Prehistoric	Site	Habitation debris (shell)	Duke, C., and Lopez, M. 1999	Within*	Unknown
P-30-001617	CA-ORA-1617	Prehistoric	Site	Habitation debris (shell)	McCormick, S. 2003	Outside (within 0.5 mile)	Unknown
P-30-001629	CA-ORA-1629H	Historic	Site	Historic refuse dump	Herman, R. 2003	Outside (within 0.5 mile)	Unknown
P-30-001725	CA-ORA-1725	Prehistoric	Site	Lithic scatter, caches	Aron, G. 2008	Outside (within 0.5 mile)	Unknown
P-30-001726	CA-ORA-1726H	Historic	Site	Historic refuse dump, well/cistern	Aron, G. 2013	Outside (within 0.5 mile)	Unknown
P-30-100192	-	Historic	Other	Isolated broken metal arrow-shaped object	Aron, G. 2013	Outside (within 0.5 mile)	Not Eligible
P-30-100193	-	Historic	Other	Isolated broken metal arrow-shaped object	Aron, G. 2013	Outside (within 0.5 mile)	Not Eligible
P-30-100194	-	Prehistoric	Other	Isolated bifacial mano	Armstrong, S. 2013	Outside (within 0.5 mile)	Not Eligible
P-30-100195	-	Prehistoric	Other	Isolated bifacial mano	Armstrong, S. 2013	Outside (within 0.5 mile)	Not Eligible
P-30-100196	-	Prehistoric	Other	Isolated bifacial mano (2 pieces)	Aron, G. 2013	Outside (within 0.5 mile)	Not Eligible
P-30-100199	-	Prehistoric	Other	Isolated metate fragment	Aron, G. 2013	Outside (within 0.5 mile)	Not Eligible
P-30-100200	-	Unknown	Other	Isolated metate fragment	Aron, G. 2013	Outside (within 0.5 mile)	Not Eligible

Primary No.	Trinomial	Temporal Affiliation	Resource Type	Resource Description	Recorded by and Year Recorded	Relationship to General Plan Area	NRHP/CRHR Eligibility
P-30-100337	-	Prehistoric	Other	Isolated unifacially flaked, grey limestone core	Sikes, N.E. 2003	Outside (within 0.5 mile)	Not Eligible
P-30-100341	-	Historic	Other	Isolated blue and white porcelain sherd	Hermann, R. 2003	Outside (within 0.5 mile)	Not Eligible
P-30-100342	-	Historic	Other	Two isolated ceramic sherds	Tennyson, M. 2002	Within*	Not Eligible
P-30-100343	-	Historic	Other	Isolated white ceramic sherd	Tennyson, M. 2002	Within*	Not Eligible
P-30-100344	-	Historic	Other	Isolated glass bottle	Tennyson, M. 2002	Within*	Not Eligible

*Within the General Plan Area but not within the Focus Areas.

Sacred Lands File Search

Tribal cultural resources can include archaeological sites, built environment resources, locations of events or ceremonies, resource procurement areas, and natural landscape features with special significance to one or more indigenous groups. SWCA received a response to the SLF search request by electronic mail from the NAHC on March 1, 2019. The SLF returned positive results, indicating that known tribal resources are located within the General Plan area. So that a meaningful consultation with interested Native American groups can be completed, this list will be forwarded to the City of Santa Ana, where all records of this consultation should be kept on file. Confidential Appendix C contains the list of tribal governments and SLF results.

POTENTIAL IMPACTS AND MITIGATION MEASURES

CEQA (Section 21084.1) requires that a lead agency determine whether a project may have a significant effect on cultural resources. Impacts to significant cultural resources that affect the characteristics of the resource that qualify it for the NRHP or adversely alter the significance of a resource listed on, or eligible for, the CRHR are considered a significant effect on the environment.

If it can be demonstrated that a project will cause damage to a unique archaeological resource, the lead agency may require reasonable efforts be made to permit any or all of these resources to be preserved in place or left in an undisturbed state. To the extent that they cannot be left undisturbed, mitigation measures are required (Section 21083.2[a], [b], and [c]).

Development of previously undeveloped areas, and redevelopment of previously developed areas have the potential to impact archaeological resources. Surface-level and subsurface archaeological sites and deposits can be affected by ground-disturbing activities associated with most types of construction.

Thresholds of Significance

The City of Santa Ana General Plan provides a framework within which future development projects can be considered. The potential for future proposed projects to result in impacts associated with cultural resources is based on the CEQA thresholds of significance outlined in Appendix G of the State CEQA Guidelines:

- Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5?
- Would the project disturb any human remains, including those interred outside of formal cemeteries?
- Is the project site in or near an area containing known archaeological resources or containing features (drainage course, spring, knoll, rock outcroppings, or oak trees) that indicate potential archaeological sensitivity?

The purpose of this analysis is to identify any potential archaeological resources within or adjacent to the General Plan area, and to assist the lead agency in determining whether such resources meet the official definitions of archaeological and tribal cultural resources, as provided in the PRC, in particular CEQA.

Archaeological Resources

A significant prehistoric archaeological impact would occur if grading and construction activities result in a substantial adverse change to archaeological resources determined to be "unique" or "historic." "Unique" resources are defined in PRC Section 21083.2; "historic" resources are defined in PRC Section 21084.1 and CEQA Guidelines Section 15126.4.

PRC Section 21083.2(g) states:

> As used in this section, "unique archaeological resource" means an archaeological artifact, object, or site about which it can be clearly demonstrated that, without merely adding to the current body of knowledge, there is a high probability that it meets any of the following criteria:
>
> A. Contains information needed to answer important scientific research questions and that there is a demonstrable public interest in that information;
>
> B. Has a special and particular quality, such as being the oldest of its type or the best available example of its type; or
>
> C. Is directly associated with a scientifically recognized important prehistoric or historic event or person.

CEQA Significance Criteria

Appendix G of the California Environmental Quality Act (CEQA) Guidelines contains the Initial Study Environmental Checklist, which includes questions relating to tribal and cultural resources. The issues presented in the Initial Study Environmental Checklist have been utilized as thresholds of significance in this section. Accordingly, a project may create a significant environmental impact if it would:

Archaeological Resources

- Cause a substantial adverse change in the significance of an archaeological resource pursuant to CEQA Guidelines Section 15064.5;
- Disturb any human remains, including those interred outside of dedicated cemeteries (as explained in Section 9.0, Effects Found Not to Be Significant, further analysis of this topic is not required in this EIR).

Tribal Cultural Resources

- Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code Section 5020.1(k); or
- A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resources Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American Tribe.

Based on these standards/criteria, the effects of the proposed project have been categorized as either a "less than significant impact" or a "potentially significant impact." If a potentially significant impact cannot be reduced to a less than significant level through the application of mitigation, it is categorized as

a significant and unavoidable impact. The standards used to evaluate the significance of impacts are often qualitative rather than quantitative because appropriate quantitative standards are either not available for many types of impacts or are not applicable for some types of projects.

Archaeological Resources

Under CEQA, archaeological resources may meet the definition of a historical resource or unique archaeological resource. Substantial adverse change to the significance of a historical resource is defined as physical demolition, destruction, alteration, or relocation of the resource or immediate surroundings such that its significance would be materially impaired. CEQA states that when a project would cause damage to a unique archaeological resource, reasonable efforts must be made to preserve the resource in place or leave it in an undisturbed state. Mitigation measures are required to the extent that the resource could be damaged or destroyed by a project. Implementation of the mitigation measures presented below would mitigate to the greatest extent feasible the potential for future projects to affect archaeological resources.

Individual and Cumulative Impacts to Archaeological Resources

Development involving ground disturbance within the General Plan area has the potential to impact known and unknown archaeological resources. Typically, surface-level and subsurface archaeological sites and deposits can be affected by ground-disturbing activities associated with most types of construction. Based on literature review and records searches, eight archaeological resources have been previously recorded within the General Plan area, including four prehistoric sites, one multicomponent site, and three historic isolates. The General Plan area includes many locations that would have been favorable for prehistoric Native American occupation. While most of the General Plan area has been developed over the course of the twentieth century, buried resources may remain in areas where developments such as parking lots, parks, or structures with shallow foundations have required only minimal ground disturbance. A review of historic and ethnographic maps indicates that is a moderate likelihood that intact subsurface archaeological resources would be encountered during redevelopment.

Archaeological resources impacts are site specific, but more intensive development can result in cumulative impacts on a regional level and should be considered in addition to individual project impacts on individual sites. A Phase I Cultural Resources Study would be required for all projects before ground disturbances and demolition activities are permitted to occur, as determined by the respective lead agency. The study would identify resources on the affected project sites that are, or appear to be, eligible for listing on the NRHP or CRHR. Such studies would also recommend mitigation measures to protect and preserve archaeological and tribal cultural resources.

As such, Mitigation Measures CUL-1 through CUL-4 (below) were developed to reduce potential individual and cumulative impacts associated with future development and redevelopment. Mitigation Measure CUL-1 requires an archaeological resources assessment be conducted for future development projects to identify any known archaeological resources and sensitivity of the site. Mitigation Measures CUL-2 through CUL-4 detail the next steps required should the archaeological resources assessment identify known resources or determine the site to have high or moderate resource sensitivity. Upon compliance with Mitigation Measures CUL-1 through CUL-4, individual and cumulative impacts to archaeological resources would be reduced to less than significant levels. +

- **CULTURAL RESOURCES MITIGATION MEASURE 1 (CUL-1)**

To ensure identification and preservation of archaeological resources and avoid significant impacts to those resources within the City of Santa Ana, all proposed projects shall be screened by the City to determine whether an Archaeological Resources Assessment study is required. Screening shall consider the type of project and whether ground disturbance will occur. Ground disturbance includes, but is not limited to, activities such as grading, excavation, trenching, boring, or demolition that extend below the current grade. If there will be no ground disturbance, then an Archaeological Resources Assessment shall not be required. If there will be ground disturbance, prior to issuance of any permits required to conduct ground disturbing activities, the City shall require an Archaeological Resources Assessment be conducted under the supervision of an archaeologist that meets the Secretary of the Interior's (SOI) Professionally Qualified Standards (PQS) in either prehistoric or historic archaeology.

Assessments shall include a CHRIS records search at the SCCIC and of the SLF maintained by the NAHC. The records searches will determine if the proposed project area has been previously surveyed for archaeological resources, identify and characterize the results of previous cultural resource surveys, and disclose any cultural resources that have been recorded and/or evaluated. If unpaved surfaces are present within the project area, and the entire project area has not been previously surveyed within the past 10 years, a Phase I pedestrian survey shall be undertaken in proposed project areas to locate any surface cultural materials that may be present. By performing a records search, consultation with the NAHC, and a Phase I survey, a qualified archaeologist will be able to classify the project area as having high, medium, or low sensitivity for archaeological resources.

- **CULTURAL RESOURCES MITIGATION MEASURE 2 (CUL-2)**

If potentially significant archaeological resources are identified through an archaeological resources assessment, and impacts to these resources cannot be avoided, a Phase II Testing and Evaluation investigation shall be performed by an archaeologist who meets the PQS prior to any construction-related ground-disturbing activities to determine significance. If resources determined significant or unique through Phase II testing, and site avoidance is not possible, appropriate site-specific mitigation measures shall be established and undertaken. These might include a Phase III data recovery program implemented by a qualified archaeologist and performed in accordance with the OHP's *Archaeological Resource Management Reports (ARMR): Recommended Contents and Format* (OHP 1990) and *Guidelines for Archaeological Research Designs* (OHP 1991).

- **CULTURAL RESOURCES MITIGATION MEASURE 3 (CUL-3)**

If the archaeological assessment did not identify potentially significant archaeological resources within the proposed project area but indicated the area to be highly sensitive for archaeological resources, a qualified archaeologist shall monitor all ground-disturbing construction and pre-construction activities in areas with previously undisturbed soil. The archaeologist shall inform all construction personnel prior to construction activities of the proper procedures in the event of an archaeological discovery. The training shall be held in conjunction with the project's initial on-site safety meeting, and shall explain the importance and legal basis for the protection of significant archaeological resources. In the event that archaeological resources (artifacts or features) are exposed during ground-disturbing activities, construction activities in the immediate vicinity of the discovery shall be halted while the resources are evaluated for significance by an archaeologist who meets the PQS and tribal consultation shall be conducted, in the case of a tribal resource.. If the discovery proves to be significant, the long-term disposition of any collected materials should be

determined in consultation with the affiliated tribe(s), where relevant; this could include curation with a recognized scientific or educational repository, transfer to the tribe, or respectful reinternment in an area designated by the tribe.

- **CULTURAL RESOURCES MITIGATION MEASURE 4 (CUL-4)**

If potentially significant archaeological resources are not identified through an Archaeological Resources Assessment but a project site is identified as having moderate sensitivity for archaeological resources (Mitigation Measure CUL-1), an archaeologist who meets the SOI PQS shall be retained on an on-call basis. The archaeologist shall inform all construction personnel prior to construction activities about the proper procedures in the event of an archaeological discovery. The pre-construction training shall be held in conjunction with the project's initial on-site safety meeting and shall explain the importance and legal basis for the protection of significant archaeological resources. In the event that archaeological resources (artifacts or features) are exposed during ground-disturbing activities, construction activities in the immediate vicinity of the discovery shall be halted while the on-call archaeologist is contacted. The resource shall be evaluated for significance by an archaeologist who meets the SOI PQS, and tribal consultation shall be conducted, in the case of a tribal resource. If the discovery proves to be significant, the long-term disposition of any collected materials should be determined in consultation with the affiliated tribe(s), where relevant; this could include curation with a recognized scientific or educational repository, transfer to the tribe, or respectful reinternment in an area designated by the tribe.

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Appendix A

Native American Heritage Commission Sacred Lands Files Search Results

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Appendix G-a Geological Background Technical Report

Appendices

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May 2020

GEOLOGICAL BACKGROUND TECHNICAL REPORT FOR THE GENERAL PLAN UPDATE

City of Santa Ana

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1. Introduction

1.1 INTRODUCTION

Ensuring public safety is a fundamental goal for any municipality, including Santa Ana. All the benefits and public goods that Santa Ana residents and businesses enjoy are difficult to achieve when health and safety could be compromised. Potential risks to health, life, and property involve man-made and natural hazards. Santa Ana, like much of southern California, is subject to many geologic hazards.

To provide a foundation for the goals, policies, and programs for the General Plan update and the environmental setting for the Environmental Impact Report, this report explores the various geologic hazards in Santa Ana. The key objective is to identify and evaluate geologic hazards that can impact the health, safety, and social well-being of a community.

This report includes an overview of the following hazards in Santa Ana:

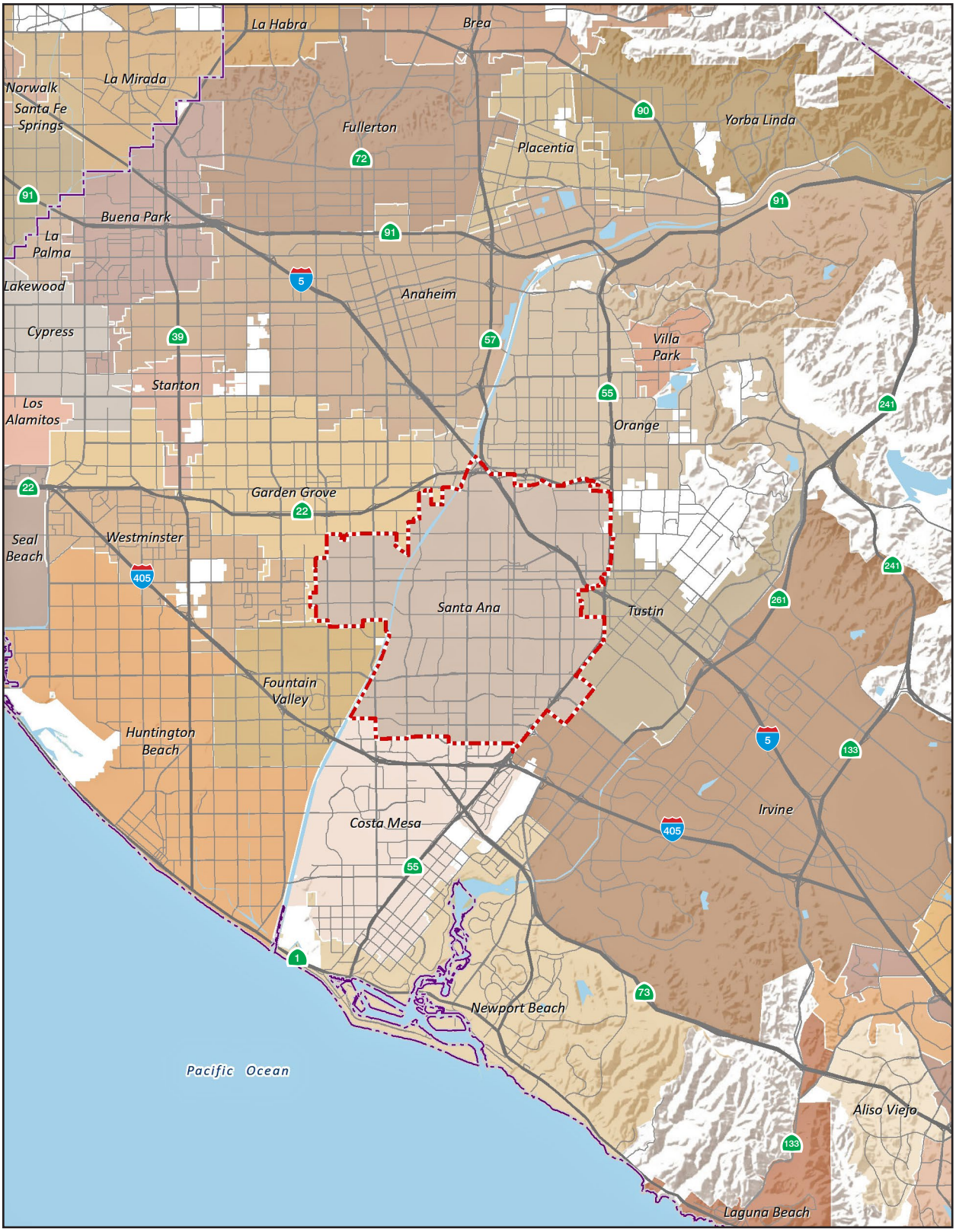
» Seismic and geologic hazards, including surface or nonsurface rupture, shaking, liquefaction, landslides, soil hazards, and other similar hazards.

Data and information for this chapter were compiled from a wide variety of state and federal agencies. State agencies include the California Department of Conservation, California Geological Survey, Office of Emergency Services, Department of Water Resources, and others. Federal resources include the Federal Emergency Management Agency, among several others. The analysis contained herein relies on secondary research; no fieldwork was conducted.

1. Introduction

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Figure 1 - Regional Location



Source: ESRI, 2019

1. Introduction

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2. Geologic and Seismic Hazards

This section describes the geologic and seismic hazards in Santa Ana, including the various state and local regulations affecting these hazards and then detailing specific geologic and seismic hazards present in Santa Ana.

2.1 REGULATORY FRAMEWORK

Santa Ana's regulatory framework for geologic and seismic hazards includes state law, the general plan, and municipal code requirements. These primary regulations are described as follows.

Alquist-Priolo Earthquake Fault Zone

The Alquist-Priolo (AP) Earthquake Fault Zoning Act of 1972 was intended to mitigate the hazard of surface fault rupture by prohibiting the location of structures for human occupancy across the trace of an active fault. The act delineates "Earthquake Fault Zones" along faults that are "sufficiently active" and "well defined." The act also requires that cities and counties withhold development permits for sites within an earthquake fault zone until geologic investigations demonstrate that the sites are not threatened by surface displacement from future faulting. Pursuant to this act, structures for human occupancy are not allowed within 50 feet of the trace of an active fault. As described later, no AP zones are delineated in Santa Ana.

Seismic Hazard Mapping Act

Earthquakes can cause significant damage even if surface ruptures do not occur. The Seismic Hazard Mapping Act (SHMA) of 1990 was intended to protect the public from the hazards of nonsurface fault rupture from earthquakes, including strong ground shaking, liquefaction, seismically induced landslides, or other ground failure. The California Geological Survey prepares and provides local governments with seismic hazard zone maps that identify areas susceptible to nonsurface fault hazards. SHMA requires responsible agencies to approve projects within seismic hazard zones only after a site-specific investigation to determine if the hazard is present, and the inclusion, if a hazard is found, of appropriate mitigation(s). Orange County has been issued maps showing nonsurface fault hazards, discussed later in this chapter.

California Building Code

Every public agency enforcing building regulations must adopt the provisions of the California Building Code (CBC), which is Title 24, Part 2 of the California Code of Regulations. The most recent version is the 2016 CBC (effective January 1, 2017). The CBC is updated every three years and provides minimum standards to protect property and public safety by regulating the design and construction of excavations, foundations, building frames, retaining walls, and other building elements to mitigate the effects of seismic shaking and adverse soil conditions. The CBC also contains provisions for earthquake safety based on factors including occupancy type, the types of soil and rock onsite, and the strength of ground shaking with specified

probability of occurring at a site. A city may adopt more restrictive codes than state law based on conditions in their community.

Government Codes for Specific Building Types

While the CBC regulates the design and construction of most buildings and structures in a community, certain facilities have additional requirements from state and federal agencies. These include hospitals, schools, essential facilities, and lifeline infrastructure, listed below.

Acute care hospitals. These facilities are required to meet the standards of the Alquist Hospital Seismic Act.

Public schools. Public schools that are being constructed or rehabilitated are required to comply with standards under the Field Act, Division of State Architectural standards, and California Education Code § 17317.

Essential facilities. Essential facilities (police, fire, emergency community facilities, etc.) must comply with the additional standards and requirements of the Essential Services Building Seismic Safety Act.

Lifeline infrastructure. Bridges, utilities, dams/reservoirs, and other infrastructure must adhere to regulations of the Department of Water Resources, Department of Transportation, and Public Utilities Commission.

"Mobile Home Parks" and the "Special Occupancy Parks Act"

Mobile homes are prefabricated homes placed on piers, jackstands, or masonry block foundations. Floors and roofs are usually plywood, and outside surfaces are covered with sheet metal. Severe damage can occur when mobile homes fall off their supports, severing utility lines and piercing the floor with jack stands. The California Health and Safety Code governs mobile homes and special occupancy parks. In 2011, regulations were adopted that address park construction, maintenance, use, occupancy, and design. However, the amendments do not require earthquake-resistant bracing systems. Because the city has nearly 4,000 mobile homes (many of which are occupied by seniors), and mobile homes generally fare poorly in earthquakes, ensuring the safety of mobile home occupants is a concern.

California General Plan Law and OPR General Plan Guidelines

State law (Government Code § 65302) requires cities to adopt a comprehensive long-term general plan that includes a safety element. The safety element is intended to provide guidance for protecting the community from any unreasonable risks associated with the effects of seismically induced surface rupture, ground shaking, ground failure, tsunami, seiche, and dam failure; slope instability leading to mudslides and landslides; subsidence; liquefaction; and other seismic hazards identified by the Public Resources Code §§ 2691 et. seq. and other geologic hazards known to the legislative body. The seismic safety element must also include mapping of known seismic and geologic hazards from the California Geological Survey and a series of responsive goals, policies, and implementation programs to improve public safety.

Santa Ana General Plan

The 1982 Santa Ana General Plan has two goals that address seismic hazards. Goal 1 is established to "provide a safe environment for all Santa Ana residents and workers." Goal 2 is established to "minimize the effects of natural disasters." These goals are supported by three specific policies addressing seismic hazards. Specific measures in the General Plan include, but are not limited to, the following:

- Enforce seismic design provisions of the Uniform Building Code.
- Identify all unreinforced masonry buildings.
- Develop seismic standards specifically addressed to architecturally or culturally significant older buildings.
- Develop a risk assessment and strategy for location and seismic protection of key communication, command/control and emergency medical facilities.

Santa Ana Municipal Code

The Santa Ana Municipal Code and other City development policies and procedures provide guidance on addressing specific geologic and seismic hazards in Santa Ana. Among others, these include the following:

Chapter 8, Buildings and Structures. These codes address grading standards, excavation, and fills. This also includes compliance with regulations for unreinforced masonry structures in accordance with "Unreinforced Masonry Law," found in California Government Code §§ 8875 et seq.

The City of Santa Ana Building Official may place additional requirements upon the construction of infrastructure, buildings, and other improvements based on the findings from plan check, soils testing, and geotechnical investigations.

2.2 EXISTING CONDITIONS

This section describes the local geologic setting and associated seismic and geologic hazards associated with the City's location, topography, soils, and faulting.

Geologic Setting

The City of Santa Ana is located on the southern portion of the Downey Plain, which is a broad alluvial plain that covers the northwestern portion of Orange County (Yerkes et al. 1965). Santa Ana is situated within the Peninsular Ranges Geomorphic Province. This geomorphic province encompasses an area that extends approximately 900 miles from the Transverse Ranges and the Los Angeles Basin to the southern tip of Baja California. The province varies in width from approximately 30 to 100 miles depending on location. In general, the province consists of a northwest-southeast oriented complex of blocks separated by similarly trending faults.

Santa Ana is underlain by Holocene and Pleistocene alluvial deposits and early Pleistocene marine deposits (Morton 2004). Below these deposits lies Miocene and late Cretaceous sedimentary rocks. The Santa Ana Mountains rising to 5,700 feet above sea level are located to the northeast and east of the City, and the San

2. Geologic and Seismic Hazards

Joaquin Hills are located to the southeast (Google Earth Pro 2019). The Santa Ana River flows through the western portion of the City on its way to the Pacific Ocean, to the southwest. Santa Ana is generally flat with a gentle slope toward the southwest (USGS 2015a; 2015b; 2015c; 2015d).

The Peninsular Ranges Geomorphic Province is traversed by a group of subparallel and fault zones trending roughly northwest. Major active fault systems—San Andreas, San Jacinto, Whittier-Elsinore, and Newport-Inglewood fault zones—form a regional tectonic framework consisting primarily of right-lateral, strike-slip movement (Jennings & Bryant 2010). Santa Ana is situated between two major active fault zones—the Whittier-Elsinore Fault Zone to the northeast and the Newport-Inglewood Fault to the southwest. Other potentially active faults located near the City of Santa Ana include the Elysian Park blind thrust, Chino-Central Avenue, San Joaquin Hills blind thrust, San Jose, Cucamonga, Sierra Madre, and Palos Verdes faults (CGS 2019; Cao et al 2003).

The Richter Scale is used to describe the magnitude (M) of an earthquake. Each one-point increase in magnitude (M) represents a 10-fold increase in earthquake wave size and a 30-fold increase in energy release (strength). For example, an M8 earthquake produces 10 times the ground motion amplitude of an M7 earthquake, 100 times that of an M6 quake, and 1,000 times the motion of a magnitude 5. However, the M8 earthquake is 27,000 times stronger than an M5 quake. Typically, earthquakes of M5 or greater are considered strong earthquakes capable of producing damage.

Table 1 provides a summary of the key faults that could produce significant earthquakes (exceeding M5) that would most impact Santa Ana. The table also includes the maximum associated magnitudes of earthquakes along each fault. Figure 1 follows, showing the location of fault hazards and their proximity to Santa Ana.

Table 1 Earthquake Faults near Santa Ana

Fault	Description of Earthquake Fault Zone	Maximum Hazard
Newport-Inglewood	The Newport-Inglewood Fault Zone consists of a series of disconnected, northwest-trending fault segments which extend from Los Angeles, through Long Beach and Torrance, to Newport Beach and offshore south past Oceanside. Although no major rupture has occurred since the 1933 Long Beach quake (6.4 M), the fault is considered active and is zoned under the Alquist-Priolo Earthquake Fault Zone Act. The fault is located about four miles from the City.	M 7.1
Whittier Fault Zone	The Whittier Fault Zone extends from Whittier Narrows in Los Angeles County, southeasterly to Santa Ana Canyon where it merges with the Elsinore Fault Zone. The Whittier Fault Zone is located about nine miles from the northern edge of the City. The Whittier Fault is active and is zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 6.8

Table 1 Earthquake Faults near Santa Ana

Fault	Description of Earthquake Fault Zone	Maximum Hazard
Elsinore Glen Ivy Segment	The Glen Ivy segment of the Elsinore Fault Zone is located about twelve miles from the City. Dominant movement along this fault is right-lateral strike-slip. The Glen Ivy segment is zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 6.8
San Joaquin Hills Blind Thrust	Located at depth about a mile southeast of the City, the San Joaquin Hills Blind Thrust Fault is approximately 17 miles long and is characterized by reverse dip-slip movement. This fault is responsible for the uplift of the San Joaquin Hills. The San Joaquin Hills Blind Thrust Fault is considered active and is not zoned under the Alquist-Priolo Earthquake Zone Act.	M 6.6
Chino-Central Avenue	The Chino-Central Avenue Fault branches away from the Elsinore (Glen Ivy) Fault and extends northwest 13 miles through the Prado Basin and into the Puente Hills. Dominant movement along the fault is right-lateral reverse oblique slip. The Chino Fault is about 14 miles northeast of the City and is zoned under the Alquist-Priolo Earthquake Zone Act.	M 6.7
Puente Hills Blind Thrust	Located at depth about ten miles northwest of the City, the Puente Hills Blind Thrust Fault is approximately 27 miles long and is characterized by reverse dip-slip movement. The Puente Hills Blind Thrust Fault is considered active and is no zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 7.1
Upper Elysian Park Blind Thrust	The Upper Elysian Park Blind Thrust Fault is located at depth about ten miles north of the City. The fault is approximately 12 miles long and is characterized by reverse dip-slip movement. The Upper Elysian Park Blind Thrust Fault is considered active and is not zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 6.4
San Jose	The San Jose Fault is 12 miles long, extending southwest and west from near the mouth of San Antonio Canyon on the southern front of the San Gabriel Mountains about 21 miles north of the City. The fault is characterized by left-lateral reverse oblique-slip movement, and was responsible for the 1990 M 5.4 Upland earthquake.	M 6.9
Cucamonga	The Cucamonga Fault is the eastward extension of the Sierra Madre Fault Zone and is located 26 miles northeast of the City, extending 17 miles long, from Duncan Canyon to San Antonio Heights along the San Gabriel Mountains. The fault is characterized by reverse dip-slip movement. The Fault is active and within an Alquist-Priolo Earthquake Fault Zone.	M 6.9

2. Geologic and Seismic Hazards

Table 1 Earthquake Faults near Santa Ana

Fault	Description of Earthquake Fault Zone	Maximum Hazard
San Jacinto	The San Jacinto Fault, located about 36 miles northeast of the City, is considered to be the most active fault in southern California. The fault zone extends 130 miles and is characterized by right-lateral strike-slip movement. The San Jacinto Fault is considered active and is capable of a maximum moment magnitude 6.9 earthquake. The fault is zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 6.9
Sierra Madre Fault Zone	Located 24 miles north of the City, this fault zone extends 35 miles long, from Claremont and following the southern front of the San Gabriel Mountains to San Fernando. This fault zone is characterized by reverse dip-slip movement. The western portion of the Sierra Madre Fault is zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 7.2
Palos Verdes	The Palos Verdes Fault is located offshore about 16 miles southwest of the City. The fault zone extends for about 50 miles southeast from the northern front of the Palos Verdes Peninsula. The fault zone is characterized by reverse right-lateral oblique-slip movement. The fault is not zoned under the Alquist-Priolo Earthquake Fault Zone Act.	M 7.3
San Andreas	The San Bernardino and Southern segments of the San Andreas Fault are located about 40 miles northeast of the City. Past work estimates that the recurrence interval for a M 8.0 earthquake along the entire fault zone is 50–200 years, and a 140–200 year recurrence interval for a M 7.0 earthquakes along the southern fault zone segment.	M 7.5+

Source: Cao et al., 2003.

Seismic Hazards

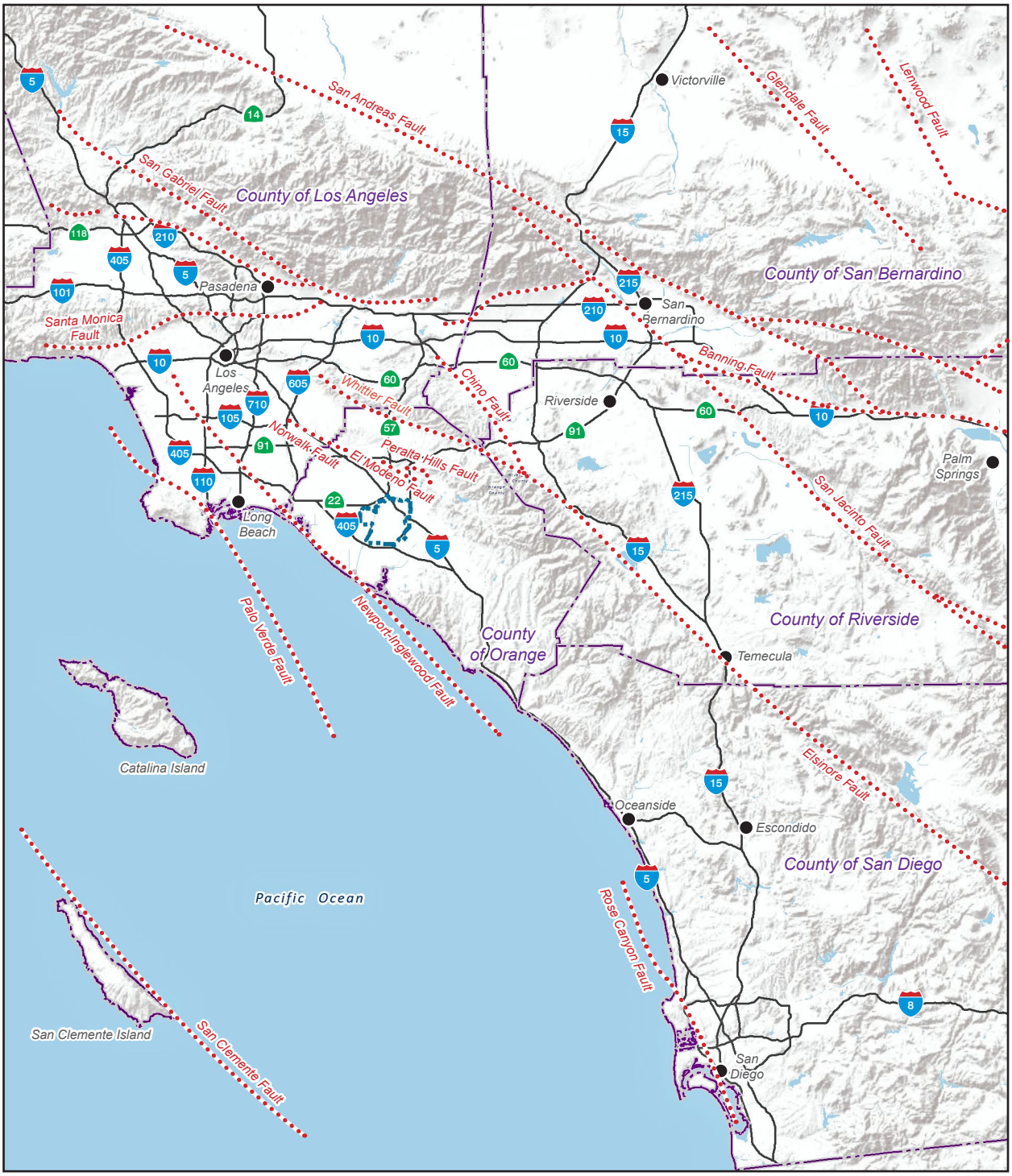
Historically, the City of Santa Ana has not experienced a major destructive earthquake. However, based on a search of earthquake databases of the United States Geological Survey (USGS) National Earthquake Information Center (NEIC), several major earthquakes (magnitude 5.8 or more) have been recorded within approximately 60 miles of the City since 1769 (USGS 2019). The latest of these were the Northridge earthquake and Granada Hills aftershock in 1994, about 60 miles from the City.

The primary seismic hazards related to earthquakes are summarized below:

SURFACE (FAULT) RUPTURE

Seismic activity has been known to cause surface rupture, or ground displacement, along a fault or within the general vicinity of a fault zone. In accordance with the Alquist-Priolo Earthquake Fault Zoning Act (AP

Figure 2 - Regional Fault Location Map



City of Santa Ana

Fault Line

0 20
Scale (Miles)

Note: All fault locations and dimensions are approximate and not all faults are shown.
Source: California Department of Mines and Geology. Preliminary fault activity map of California, 1994.

2. Geologic and Seismic Hazards

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Zoning Act), the State Geologist has established fault zones along known active faults in California. No active surface faults are mapped and zoned under the AP Zoning Act in Santa Ana (CGS 2019).

Primary ground rupture usually results in a relatively small percentage of the damage caused by an earthquake. Primary fault rupture is rarely confined to one fault; it often spreads out into complex patterns of secondary faulting and ground deformation. Secondary faulting involves a web of interconnected faults that rupture in response to a primary rupture. Secondary ground deformation can include fracturing, shattering, warping, tilting, uplift, and/or subsidence. Such deformation may be relatively confined along the rupturing fault or spread over a large region. Deformation and secondary faulting can also occur without primary ground rupture, as in the case of ground deformation above a blind (buried) thrust fault.

STRONG SEISMIC GROUND SHAKING

Ground shaking refers to vibration of the ground from an earthquake. Shaking above Magnitude 5 on the Richter Scale is known to damage structures. Earthquakes are common to southern California, and geologic evidence is used to determine the likelihood and magnitude of ruptures along a fault. Peak horizontal ground acceleration (PHGA) values that could be expected in Santa Ana are based on types and characteristics of fault sources, distances and estimated maximum earthquake magnitude, and subsurface site geology. The PHGA estimate depends on the method of determination. The maximum magnitude (Mmax) is considered the largest earthquake expected to occur along a fault and is based in part on fault characteristics (length, style of faulting and historic seismicity). The Newport-Inglewood Fault is the dominant active fault that could significantly impact the City.

Ground motion will generally amplify as it passes from the bedrock and through the softer, deep alluvial deposits. The PHGA at the surface of a site depends substantially on the thickness of sedimentary deposits beneath the site. Based on USGS estimates for the Santa Ana area and a 1.0-second spectral acceleration, site effects from the geologic units underlying the City may be three times the effect of crystalline bedrock at the same location.

LIQUEFACTION AND RELATED GROUND FAILURE

Liquefaction happens when strong earthquake shaking causes sediment layers that are saturated with groundwater to lose strength and behave as a fluid. This subsurface process can lead to near-surface or surface ground failure. Surface ground failure is usually expressed as lateral spreading, flow failures, ground oscillation, buoyancy forces on underground structures, increased lateral earth pressure on retaining walls, post-liquefaction settlement and/or general loss of bearing strength. Sand boils (injections of fluidized sediment) commonly accompany these different types of failure. Liquefaction can damage building foundations, structures, and infrastructure, leading to collapse.

Susceptibility to liquefaction typically depends on: 1) the intensity and duration of ground shaking; 2) the age and textural characteristic of the alluvial sediments; and 3) the depth to the groundwater. Loose, granular materials at depths of less than 50 feet, with silt and clay contents of less than 30 percent, and saturated by relatively shallow groundwater table are most susceptible to liquefaction. These geological conditions are typical in parts of southern California, in valley regions and alluvial floodplains. In Santa Ana, most of the

city is within areas that are susceptible to liquefaction, including the southern half of the city and along the margins of Santiago Creek and the Santa Ana River (CGS 2019) (see Figure 3, *Liquefaction Zones*).

SLOPE FAILURE (LANDSLIDES)

Landslides are perceptible downward movements of soil, debris, rock, or a combination of these under the influence of gravity. Landslide materials are commonly porous and very weathered in the upper portions and margins of the slide. They may also have open fractures or joints. Slope failures can occur during or after periods of intense rainfall or in response to strong seismic shaking. Landslides are distinguished from minor debris flows because in a landslide, the majority of material moved is bedrock materials, and a minor debris flow is the surface slippage of soil. Fire events in areas of high topographic relief can lead to conditions conducive to debris flows.

Landslides, debris flows, or any movement of earth or rock are most common in areas of high topographic relief, such as steep canyon walls or steep hillsides. As the entire City is nearly flat, landslides are not a major hazard in Santa Ana (USGS 2015a; 2015b; 2015c; 2015d).

Geologic Hazards

Based on available studies, the geologic hazards most likely to occur in the City of Santa Ana include expansive soils, corrosive soils, and settlement/collapsible soils (to a lesser degree). Each of these potential hazards is discussed below, followed by maps showing vulnerable locations.

EXPANSIVE SOILS

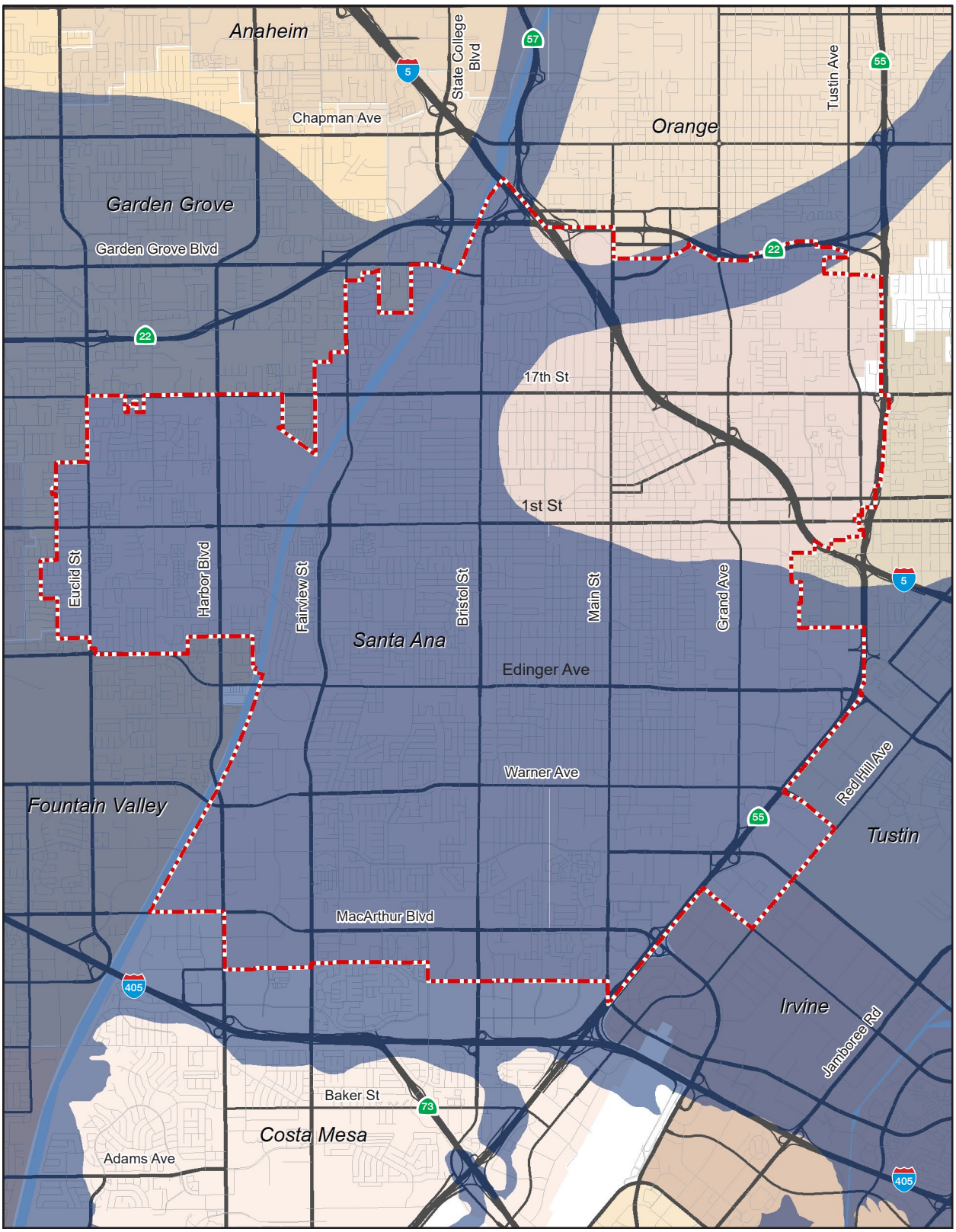
Expansive and collapsible soils are two of the most widely distributed and costly of geologic hazards. Expansive soils will shrink or swell as the moisture content decreases or increases. Expansive soil and rock are typically characterized by clayey material that shrinks as it dries and swells as it becomes wet. Homes, infrastructure, and other structures built on these soils may experience shifting, cracking, and breaking damage as soils shrink and subside or expand. Expansive soils are also known to cause damage to the foundation of structures.

Based on the presence of alluvial materials within the City, there is some potential for expansive soils throughout Santa Ana (Morton 2004; USDA 1978). Expansive soils are possible wherever clays and elastic silts may be present, including alluvial soils and weathered granitic and fine-grained sedimentary rocks. Expansive soils are tested prior to grading as part of a soil engineering report—as required by the CBC and the City of Santa Ana—and are mitigated as necessary.

CORROSIVE SOILS

Corrosive soils contain chemical constituents that may cause damage to construction materials such as concrete and ferrous metals. One such constituent is water-soluble sulfate, which, if in high enough concentrations, can react with and damage concrete. Electrical resistivity, chloride content, and pH level are all indicators of a soil's tendency to corrode ferrous metals. High chloride concentrations from saline

Figure 3 - Liquefaction Zones



Liquefaction Zone

City of Santa Ana

0 1
Scale (Miles)

Source: California Geological Survey, 1997 (Newport Beach Quadrangle), 1998a (Anaheim Quadrangle), 1998b (Orange Quadrangle) and 2001 (Tustin Quadrangle). Seismic Hazard Zone Maps.

2. Geologic and Seismic Hazards

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minerals can corrode metals (carbon steel, zinc, aluminum, and copper). Low pH and/or low resistivity soils could corrode buried or partially buried metal structures.

Soils throughout the majority of Santa Ana have been found to be highly corrosive to metals and marginally to moderately corrosive to concrete (USDA 1978). Typical mitigation for corrosive soil includes corrosion-resistant coatings. Corrosive soils for concrete and/or metals are often addressed through techniques that include cathodic protection, use of specialty concrete overlays, and other techniques. The City's Engineering Standards require that proposed projects include soil investigations and cathodic protection for metal piping when corrosive soils are encountered.

LAND SUBSIDENCE

Land sinking or subsidence is generally related to substantial overdraft of groundwater reserves from underground reservoirs. Santa Ana has shown historical subsidence and is considered to be a potential hazard on the City (Riel et al 2018). Historically, subsidence in Santa Ana does not show a pattern of widespread irreversible permanent lowering of the ground surface. The probability of subsidence effects is generally low in the majority of Santa Ana, with the most susceptible areas along the margins of the Santa Ana River and Santiago Creek. Groundwater storage by Orange County Water District and statutory commitments to sustainable groundwater management practices reduce the potential for future land subsidence, and ongoing surveying of the ground surface by Orange County Water District provides a way to verify that their efforts in preventing subsidence are effective (OCWD 2015).

SETTLEMENT AND/OR COLLAPSE

The potential hazard posed by seismic settlement and/or collapse in the City is considered to be moderate based on the compressibility of the underlying alluvial soils and the presence of shallow groundwater (CGS 2019). Strong ground shaking can cause settlement of alluvial soils and artificial fills if they are not adequately compacted. Because unconsolidated soils and undocumented fill material are present in the City, seismically induced settlement and/or collapse are possible (Morton 2004). Site-specific mass grading and compaction, which would occur as part of future development, would mitigate any potential impacts from compressible soils within the City.

2. Geologic and Seismic Hazards

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3. Implications for the General Plan Update

Santa Ana has many environmental hazards that present potential risks to the safety of residents, commerce, and personal property. While the risks vary according to whether development is located near industrial and transportation land uses, or on the periphery, every neighborhood is subject to potential hazards. Since a fundamental mission of the City is to protect public health and safety, understanding the changing nature of seismic and geologic safety hazards is a key part of that effort.

3.1 ISSUES FOR CONSIDERATION

» **Seismic and Geologic Hazards.** Santa Ana is located between the Elsinore Fault Zone and the Newport-Inglewood Fault. These fault zones along with regional faults can produce earthquakes of Magnitude 7.0 or greater. As a result of earthquakes, the City is subject to liquefaction and seismic ground shaking. Geologic hazards, such as corrosive soils, are more of an everyday concern with large swaths of Santa Ana underlain by soils corrosive to steel. The City has adopted state-mandated safety codes to address these concerns, which are acknowledged as some of the most stringent codes and regulations in the nation.

  However, concern remains. Of particular concern is vulnerable structures—hospitals, health care facilities, schools, and mobile homes—built decades ago in accordance with standards at that time. Not all of these land uses have been upgraded to meet current building codes or are required to be retrofitted to withstand high-magnitude earthquakes or geologic hazards. For instance, mobile home units typically perform poorly in natural hazards, but they are not required to have bracing to permanent foundations. Similarly, hospitals statewide have been slow to complete upgrades mandated by the Alquist Hospital Facilities Seismic Safety Act.

3.2 OPPORTUNITIES

Santa Ana faces a wide range of natural hazards—like most cities in the state. Many of these hazards cannot be completely mitigated or prevented. They remain part of the fabric of Santa Ana. The best defense for keeping Santa Ana safe from hazards is to focus on prevention, preparedness, risk reduction, and control measures while maintaining the capability to respond in an effective manner during a disaster. The general plan update can further these objectives.

» **General Plan Vision.** Seismic safety is a principal theme of the general plan's vision. Given the change in general plan safety legislation, the principle could be broadened to address geologic and seismic safety concerns beyond the normal purview of safety related to seismic events. This would provide the framework for an enhanced discussion of seismic safety in the general plan.

» **General Plan Implementation.** The general plan could also contain new programs for addressing seismic safety issues in the community. These programs should be coordinated with the recently adopted hazard mitigation plan. Specific programs could be proposed or designed to:

3. Implications for the General Plan Update

- Encourage the retrofit of mobile homes with bracing and other devices to protect seniors and lower income families living in those units.
- Encourage compliance with new safety requirements for health care facilities promulgated by the Office of Statewide Health Planning and Development.
- Study measures to improve safety for soft-story construction, concrete tilt-up construction, and other vulnerable structures.
- Develop and publish evacuation routes that can be incorporated into the hazard mitigation plan and general plan update.

4. Environmental Impacts

This chapter describes the impacts of the project on geotechnical, geologic and seismic conditions within the city. The analysis of impacts addresses direct and indirect impacts and cumulative impacts.

4.1 IMPACTS

This section describes the long-term impacts of the General Plan Update. The City is subject to a number of geotechnical, geologic and seismic risk hazards. Compliance with building and design codes would include design measures to minimize impacts so that they are less than adverse for strong ground shaking, liquefaction, slope stability, and compressible, corrosive and expansive soils.

4.1.1 Surface (Fault) Rupture

The city is not within a recognized area of active faulting, and no active faults have been observed within the city. The absence of active faults within the city means that there would be no impact from surface fault rupture hazards.

4.1.2 Strong Seismic Ground Shaking

Strong seismic shaking from a local event on the Newport-Inglewood Fault or another regional fault is considered a hazard for this project. The proximity of active faults that are capable of generating large magnitude earthquakes means that structures within the city could be affected by strong seismic ground shaking. Structures could be damaged or destroyed and people could be harmed during a major seismic event.

All structures that would be constructed in accordance with the General Plan Update would be designed to meet or exceed current design standards as found in the latest California Building Code (CBC). Therefore, new structures are expected to remain standing, but may suffer damage requiring closure and replacement. These project design measures would reduce the exposure of people and structures to harm from strong ground shaking hazards such that there would not be a significant impact.

4.1.3 Liquefaction and Related Ground Failure

Liquefaction and related ground failure hazards exist within most of the city, including the southern half of the city and along the margins of Santiago Creek and the Santa Ana River (CGS 2019). This subsurface process can lead to near-surface or surface ground failure. Surface ground failure is usually expressed as lateral spreading, flow failures, ground oscillation, buoyancy forces on underground structures, increased lateral earth pressure on retaining walls, post-liquefaction settlement and/or general loss of bearing strength. Sand boils (injections of fluidized sediment) commonly accompany these different types of failure. Liquefaction can damage or destroy building foundations, structures, and infrastructure, that could lead to the harm of people.

4. Environmental Impacts

All structures constructed following the General Plan Update would be designed in accordance with current seismic design standards as found in the California Building Code (CBC). Design measures would be implemented according to the most recent CBC that would reduce the impact of liquefaction and seismic settlement, including, but not limited to, ground improvement techniques such as in-situ densification, load transfer to underlying non-liquefiable bearing layers and over-excavation and recompaction with engineered fill method. These design measures would reduce the potential exposure of people and structures to the hazard from liquefaction and seismic settlement such that there would not be a significant impact.

4.1.4 Slope Failure (Landslides)

There are no substantial hazards with respect to slope stability, as the city is mostly flat. As such, there would not be a significant impact from slope stability.

4.1.5 Expansive Soils

Based on the presence of alluvial materials within the City, there is some potential for expansive soils throughout Santa Ana (Morton 2004; USDA 1978). Expansive soils are possible wherever clays and elastic silts may be present, including alluvial soils and weathered granitic and fine-grained sedimentary rocks. The presence of expansive soils in the City represents a hazard to structures and people.

CBC design code has been adopted within the City which requires that structures be designed to mitigate expansive soils. Methods that could be used to reduce the impact of expansive soils include drainage control devices to limit water infiltration near foundations, over-excavation and recompaction of engineered fill method, or support of the foundation with piles. These project design measures, or a combination of them, would reduce the impact of expansive soils to less than significant.

4.1.6 Corrosive Soils

Corrosive soils have been found throughout the majority of Santa Ana to be highly corrosive to metals and marginally to moderately corrosive to concrete (USDA 1978). The potential impacts of corrosive soils are corrosion of concrete, preventing complete curing, reducing concrete strength, and corroding buried or partially buried metal components and structures. The weakening of structures from corrosive soils could result in some structural damage or failure of underground utilities, which could expose people to harm. The presence of corrosive soils within the City represents a hazard to structures and people.

CBC design code has been adopted within the City which requires that structures be designed to mitigate corrosive soils. Typical mitigation for corrosive soil includes using a low water-to-cement ratio to decrease the permeability of concrete, using sulfate-resistant cement, and corrosion-resistant coatings. Corrosive soils for concrete and/or metals are often addressed through techniques that include cathodic protection, use of specialty concrete overlays, and other techniques. The City's Engineering Standards require that proposed projects include soil investigations and cathodic protection for metal piping when corrosive soils are encountered. These design measures, or a combination of them, would reduce the impact of corrosive soils to less than significant.

4.1.7 Land Subsidence

Santa Ana has shown historical subsidence and is considered to be a potential hazard on the City (Riel et al 2018). Historically, subsidence in Santa Ana does not show a pattern of widespread irreversible permanent lowering of the ground surface. The probability of subsidence impacts is generally low in the majority of Santa Ana, with the most susceptible areas along the margins of the Santa Ana River and Santiago Creek. Groundwater storage by Orange County Water District and statutory commitments to sustainable groundwater management practices reduce the potential for future land subsidence, and ongoing surveying of the ground surface by Orange County Water District provides a way to verify that their efforts in preventing subsidence are effective. The statutorily required sustainable groundwater management practices by Orange County Water District reduce the impact of subsidence to less than significant.

4.1.8 Settlement and/or Collapse

Settlement and collapse are likely to exist in areas with alluvial soils. Areas of large settlement can damage, or in extreme cases, destroy structures. The presence of compressible soils within the city represents a hazard to structures and people.

CBC design code has been adopted within the city which requires that structures be designed to mitigate compressible soils. Methods that could be used to reduce the impact of compressible soils include in-situ densification, transferring the load to underlying non-compressible layers with piles and overexcavation of compressible soil and recompaction with engineered fill. These design measures, or a combination of them, would reduce the impact of compressible soils to less than significant.

4. Environmental Impacts

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Appendix G-b Paleontological Existing Conditions Technical Report

Appendices

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PALEONTOLOGICAL RESOURCES TECHNICAL REPORT FOR THE CITY OF SANTA ANA GENERAL PLAN UPDATE, ORANGE COUNTY, CALIFORNIA

APRIL 2020

PREPARED FOR

PlaceWorks

PREPARED BY

SWCA Environmental Consultants

PALEONTOLOGICAL RESOURCES TECHNICAL REPORT FOR THE CITY OF SANTA ANA GENERAL PLAN UPDATE, ORANGE COUNTY, CALIFORNIA

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May 2020

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ABSTRACT/EXECUTIVE SUMMARY

Purpose and Scope: In support of the forthcoming City of Santa Ana General Plan update, Placeworks retained SWCA Environmental Consultants (SWCA) to summarize the existing conditions of paleontological resources within the General Plan Area. The study area corresponds with the approximately 17,472 acres (27.3 square miles [70.7 km^2]) city limits. Methods include a records search from the Natural History Museum of Los Angeles County (LACM) as well as a search of the online records of the San Diego Natural History Museum and the University of California Museum of Paleontology, and a review of geologic mapping and the scientific literature.

Dates of Investigation: The records search results were received from the LACM on March 4, 2019. Online museum records were searched on March 6, 2019. The first draft of this report was authored in March 2019, and updated as the final draft in May 2020.

Summary of Findings: The review of online museum records indicates thousands of fossil specimens have been collected from geologic formations within and in the vicinity of the City of Santa Ana. A review of the scientific literature provided context for these and other fossil discoveries. Geologic mapping shows the surficial geology of the City consists of alluvial deposits that range in age from the Holocene to early Pleistocene, with older geologic units likely present in the subsurface. Analysis of these data allowed the assignment of both Society of Vertebrate Paleontology sensitivity rankings to the geologic units present in Santa Ana. Paleontological sensitivity varies across the study area, with younger sedimentary units having low sensitivity at the surface and sensitivity increasing with the age of the sediments. Growth and development will inevitably lead to impacts on paleontological resources, but with the implementation of planning and mitigation measures, impacts to paleontological resources can be reduced to less than significant.

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1 INTRODUCTION

PlaceWorks retained SWCA Environmental Consultants (SWCA) to provide paleontological resources services in support of the City of Santa Ana General Plan Update (project) for the City of Santa Ana in Orange County, California (the City). SWCA performed a desktop analysis to assess paleontological conditions throughout the project area and reviewed relevant technical documents and agency-maintained databases on paleontological resources. The desktop research is summarized in this paleontological resources technical report (PRTR) that documents reported paleontological resources within the project area and assesses paleontological sensitivity across the City. This interim technical update to the General Plan, last updated in 1982, will ensure that all technical data and policies remain current, and will guide decisions carried out by the City. The General Plan addresses an area encompassing the 27.3 square miles (70.7 km^2) of the city.

SWCA relied upon three main sources of data to conduct this paleontological assessment: 1) geologic mapping, 2) scientific literature, and 3) museum records from the Natural History Museum of Los Angeles County (LACM), University of California Museum of Paleontology (UCMP), and the San Diego Natural History Museum (SDNHM). Data from these sources were used to assign paleontological sensitivity rankings following the guidelines of the Society of Vertebrate Paleontology (SVP 1995, 2010).

1.1 Project Description

The proposed project is a comprehensive update to the City of Santa Ana's General Plan (1982). The City's General Plan was last updated in 1982, with some updates to the City's Land Use Element, Circulation Element, Urban Design Element, and Economic Development in 1998. In March of 2014, the City Council adopted the Santa Ana Strategic Plan, identifying the need for a comprehensive update to the City's Existing General Plan. The General Plan is the City's principal policy and planning document guiding the development, conservation, and enhancement of Santa Ana. It contains a comprehensive collection of goals and policies related to the physical development of the City, and the General Plan Update is intended to result in a total of 11 elements to guide the physical development, quality of life, economic health, and sustainability of the Santa Ana community.

The City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.

1.2 Project Location

The City of Santa Ana is located in the southwest portion of California, bordered by Anaheim to the north, Garden Grove to the west, Huntington Beach and Newport Beach to the southwest, and Irvine to the southeast (Figure 1). As shown in Table 1, the City is plotted in numerous Townships, Ranges, and Sections, as depicted on the U.S. Geological Survey (USGS) Anaheim, Orange, Newport Beach, and Tustin 7.5 minute quadrangles (Figure 2). Encompassing approximately 27.3 square miles (70.7 km^2), Santa Ana is the County Seat and second largest city in Orange County, and eleventh largest in California. The Santa Ana River runs northeast-southwest through the western side of the city. Interstate 5 (I-5), a major north-south route through California, passes through the northern portion of Santa Ana.



Figure 1. Project Vicinity.

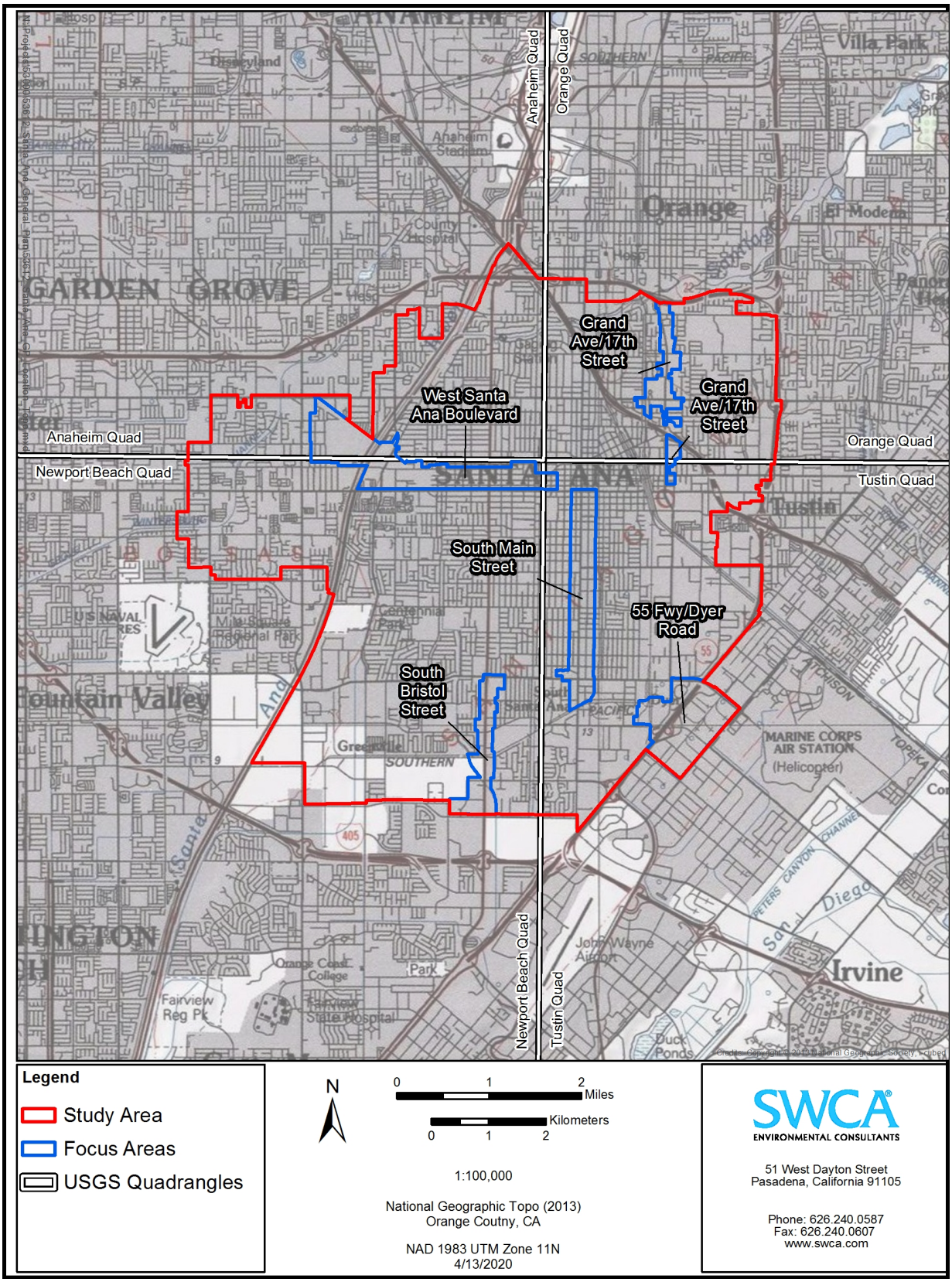


Figure 2. Project Location.

Another major interstate, Interstate 405 (I-405), is located just south of the City's limits and serves as a major north-south connector between Greater Los Angeles, Orange County, and San Diego County. Within the City, five focus areas are present: South Main Street, located in the central portion of the city along Main Street; Grand Avenue/17th Street, located in the northeastern corner of the city; West Santa Ana Boulevard, located along the Santa Ana Boulevard in the northern half of the city; 55 Freeway / Dyer Road, located in the southeastern corner of the city; and South Bristol Street, located in the southern-most part of the city along Bristol Street.

1.3 Definition and Significance of Paleontological Resources

Paleontology is a multidisciplinary science that combines elements of geology, biology, chemistry, and physics in an effort to understand the history of life on earth. Paleontological resources, or fossils, are the remains, imprints, or traces of once-living organisms preserved in rocks and sediments. These include mineralized, partially mineralized, or un-mineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Paleontological resources include not only the fossils themselves, but also the physical characteristics of the fossils' associated sedimentary matrix.

The fossil record is the only evidence that indicates life on earth has existed for more than 3.6 billion years. Fossils are considered nonrenewable resources because the organisms they represent no longer exist. Thus, once destroyed, a fossil can never be replaced (Murphey and Daitch 2007). Fossils are important scientific and educational resources and can be used to:

- study the phylogenetic relationships among extinct organisms, as well as their relationships to modern groups;
- elucidate the taphonomic, behavioral, temporal, and diagenetic pathways responsible for fossil preservation, including the biases inherent in the fossil record;
- reconstruct ancient environments, climate change, and paleoecological relationships;
- provide a measure of relative geologic dating, which forms the basis for biochronology and biostratigraphy, and is an independent and corroborating line of evidence for isotopic dating;
- study the geographic distribution of organisms and tectonic movements of land masses and ocean basins through time;
- study patterns and processes of evolution, extinction, and speciation; and
- identify past and potential future human-caused effects to global environments and climates (Murphey and Daitch 2007).

2 REGULATORY SETTING

Paleontological resources are limited, nonrenewable resources of scientific, cultural, and educational value, and are afforded protection under federal and state laws and regulations. This study satisfies project requirements in accordance with both federal and state regulations. This analysis also complies with guidelines and significance criteria specified by the SVP (1995, 2010).

2.1 State Regulations

2.1.1 California Environmental Quality Act (CEQA)

CEQA is the principal statute governing environmental review of projects occurring in the state and is codified at Public Resources Code (PRC) Section 21000 et seq. CEQA requires lead agencies to determine if a proposed project would have a significant effect on the environment, including significant effects on paleontological resources. Guidelines for the implementation of CEQA, as amended March 29, 1999 (Title 14, Chapter 3, California Code of Regulations 15000 et seq.), define procedures, types of activities, persons, and public agencies required to comply with CEQA, and include as one of the questions to be answered in the Environmental Checklist (Section 15023, Appendix G, Section XIV, Part a) the following: "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

2.1.2 Public Resources Code (PRC) Section 5097.5

Requirements for paleontological resource management are included in the PRC Division 5, Chapter 1.7, Section 5097.5, and Division 20, Chapter 3, Section 30244, which states:

> No person shall knowingly and willfully excavate upon, or remove, destroy, injure or deface any historic or prehistoric ruins, burial grounds, archaeological or vertebrate paleontological site, including fossilized footprints, inscriptions made by human agency, or any other archaeological, paleontological or historical feature, situated on public lands, except with the express permission of the public agency having jurisdiction over such lands. Violation of this section is a misdemeanor.

These statutes prohibit the removal, without permission, of any paleontological site or feature from lands under the jurisdiction of the state or any city, county, district, authority, or public corporation, or any agency thereof. As a result, local agencies are required to comply with PRC 5097.5 for their own activities, including construction and maintenance, as well as for permit actions (e.g., encroachment permits) undertaken by others. PRC Section 5097.5 also establishes the removal of paleontological resources as a misdemeanor, and requires reasonable mitigation of adverse impacts to paleontological resources from developments on public (state, county, city, and district) lands.

2.2 Resource Assessment Guidelines

The loss of any identifiable fossil that could yield information important to prehistory, or that embodies the distinctive characteristics of a type of organism, environment, period of time, or geographic region, would be a significant environmental impact. Direct impacts on paleontological resources primarily concern the potential destruction of nonrenewable paleontological resources and the loss of information associated with these resources. This includes the unauthorized collection of fossil remains. If potentially fossiliferous bedrock or surficial sediments are disturbed, the disturbance could result in the destruction of paleontological resources and subsequent loss of information (a significant impact). At the project-specific level, direct impacts can be reduced to a less than significant level through the implementation of paleontological mitigation.

The CEQA threshold of significance for an impact to paleontological resources is reached when a project is determined to "directly or indirectly destroy a significant paleontological resource or unique geologic feature" (Appendix G, State CEQA Guidelines). In general, for project areas underlain by paleontologically sensitive geologic units, the greater the amount of ground disturbance, the higher the

potential for significant impacts to paleontological resources. For project areas that are directly underlain by geologic units with no paleontological sensitivity, there is no potential for impacts on paleontological resources unless sensitive geologic units that underlie the non-sensitive unit are also affected.

Numerous paleontological studies have developed criteria for the assessment of significance for fossil discoveries (e.g., Eisentraut and Cooper 2002; Murphey and Daitch 2007; Scott and Springer 2003). In general, these studies assess fossils as significant if one or more of the following criteria apply:

1. The fossils provide information on the evolutionary relationships and developmental trends among organisms, living or extinct;
2. The fossils provide data useful in determining the age(s) of the rock unit or sedimentary stratum, including data important in determining the depositional history of the region and the timing of geologic events therein;
3. The fossils provide data regarding the development of biological communities or interaction between paleobotanical and paleozoological biotas;
4. The fossils demonstrate unusual or spectacular circumstances in the history of life; or
5. The fossils are in short supply and/or in danger of being depleted or destroyed by the elements, vandalism, or commercial exploitation, and are not found in other geographic locations.

2.2.1 Professional Standards

The SVP (1995, 2010) has established standard guidelines that outline professional protocols and practices for conducting paleontological resource assessments and surveys, monitoring and mitigation, data and fossil recovery, sampling procedures, and specimen preparation, identification, analysis, and curation. Most practicing professional vertebrate paleontologists adhere closely to the SVP's assessment, mitigation, and monitoring requirements as specifically provided in its standard guidelines. Most state regulatory agencies with paleontological laws, ordinances, regulations, and standards accept and use the professional standards set forth by the SVP to meet the requirements of CEQA.

As defined by the SVP (2010:11), significant paleontological resources are:

> …fossils and fossiliferous deposits, here defined as consisting of identifiable vertebrate fossils, large or small, uncommon invertebrate, plant, and trace fossils, and other data that provide taphonomic, taxonomic, phylogenetic, paleoecologic, stratigraphic, and/or biochronologic information. Paleontological resources are considered to be older than recorded human history and/or older than middle Holocene (i.e., older than about 5,000 radiocarbon years).

A geologic unit known to contain significant fossils is considered sensitive to adverse impacts if there is a high probability that earth-moving or ground-disturbing activities in that rock unit will either disturb or destroy fossil remains directly or indirectly. This definition of sensitivity differs fundamentally from the definition for archaeological resources as follows:

> It is extremely important to distinguish between archaeological and paleontological resources when discussing the paleontological potential of rock units. The boundaries of an archaeological resource site define the areal/geographic extent of an archaeological resource, which is generally independent from the rock unit on which it sits. However, paleontological sites indicate that the containing rock unit or formation is fossiliferous. Therefore, the limits of the entire rock unit, both areal and stratigraphic, define the extent of paleontological potential (SVP 2010).

Many archaeological sites contain features that are visually detectable on the surface. In contrast, fossils are often contained within surficial sediments or bedrock, and are therefore not observable or detectable unless exposed by erosion or human activity.

In summary, paleontologists cannot know either the quality or quantity of fossils prior to natural erosion or human-caused exposure. As a result, even in the absence of fossils on the surface, it is necessary to assess the sensitivity of rock units based on their known potential to produce significant fossils elsewhere within the same geologic unit (both within and outside the study area), a similar geologic unit, or based on whether the unit in question was deposited in a type of environment that is known to be favorable for fossil preservation. Monitoring by experienced paleontologists greatly increases the probability that fossils will be discovered during ground-disturbing activities and that, if these remains are significant, successful mitigation and salvage efforts may be undertaken in order to prevent adverse impacts to these resources.

2.2.1.1 SVP SENSITIVITY RANKINGS

Paleontological sensitivity is defined as the potential for a geologic unit to produce scientifically significant fossils. This is determined by rock type, past history of the geologic unit in producing significant fossils, and fossil localities recorded from that unit. Paleontological sensitivity is derived from the known fossil data collected from the entire geologic unit, not just from a specific survey. In its *Standard Procedures for the Assessment and Mitigation of Adverse Impacts to Paleontological Resources*, the SVP (2010:1–2) defines four categories of paleontological sensitivity (potential) for rock units: high, low, undetermined, and no potential:

> **High Potential.** Rock units from which vertebrate or significant invertebrate, plant, or trace fossils have been recovered are considered to have a high potential for containing additional significant paleontological resources. Rock units classified as having high potential for producing paleontological resources include, but are not limited to, sedimentary formations and some volcaniclastic formations (e.g., ashes or tephras), and some low-grade metamorphic rocks which contain significant paleontological resources anywhere within their geographical extent, and sedimentary rock units temporally or lithologically suitable for the preservation of fossils (e.g., middle Holocene and older, fine-grained fluvial sandstones, argillaceous and carbonate-rich paleosols, cross-bedded point bar sandstones, fine-grained marine sandstones, etc.). Paleontological potential consists of both a) the potential for yielding abundant or significant vertebrate fossils or for yielding a few significant fossils, large or small, vertebrate, invertebrate, plant, or trace fossils and b) the importance of recovered evidence for new and significant taxonomic, phylogenetic, paleoecologic, taphonomic, biochronologic, or stratigraphic data. Rock units which contain potentially datable organic remains older than late Holocene, including deposits associated with animal nests or middens, and rock units which may contain new vertebrate deposits, traces, or trackways are also classified as having high potential.
>
> **Low Potential.** Reports in the paleontological literature or field surveys by a qualified professional paleontologist may allow determination that some rock units have low potential for yielding significant fossils. Such rock units will be poorly represented by fossil specimens in institutional collections, or based on general scientific consensus, only preserve fossils in rare circumstances and the presence of fossils is the exception not the rule, e.g. basalt flows or Recent colluvium. Rock units with low potential typically will not require impact mitigation measures to protect fossils.
>
> **Undetermined Potential.** Rock units for which little information is available concerning their paleontological content, geologic age, and depositional environment are considered to have

undetermined potential. Further study is necessary to determine if these rock units have high or low potential to contain significant paleontological resources. A field survey by a qualified professional paleontologist to specifically determine the paleontological resource potential of these rock units is required before a paleontological resource impact mitigation program can be developed. In cases where no subsurface data are available, paleontological potential can sometimes be determined by strategically located excavations into subsurface stratigraphy.

No Potential. Some rock units have no potential to contain significant paleontological resources, for instance high-grade metamorphic rocks (such as gneisses and schists) and plutonic igneous rocks (such as granites and diorites). Rock units with no potential require no protection or impact mitigation measures relative to paleontological resources.

3 GEOLOGIC SETTING

The City of Santa Ana is located in the northwestern Peninsular Ranges Geomorphic Province, one of the largest geologic regions in western North America (Norris and Webb 1990). The Peninsular Ranges extend from the Mexican border in the south to the Transverse Ranges in the north and northeast and are bordered by the Pacific Ocean on the west and the Colorado Desert on the east. The Peninsular Ranges are a series of northwest trending mountain ranges extending approximately 149 miles (240 km) to the Mexican border, where they then continue for an additional 746 miles (1,200 km) along the Baja Peninsula (Harden 2004). The core of the Peninsular Ranges is made up of Mesozoic plutonic rocks and represents the roots of a magmatic arc formed by active subduction along the Pacific Plate boundary (Harden 2004). Two main batholiths form the core of the Peninsular Ranges. The western batholith, where the project area is located, is 140–105 million years old (Ma) and consists of mafic plutonic rocks, while the eastern batholith is 99–92 Ma and is more silica-rich granodiorites and tonalities (Kimbrough et al. 2001). These plutonic rocks intruded into the older rocks of a Paleozoic carbonate platform and early Mesozoic marine sequences, heavily metamorphosing them (Harden 2004). Above these plutonic rocks, around 130–120 Ma, the Santiago Peak Volcanics were deposited as primarily andesitic and silicic flows, and then metamorphosed by the batholith emplacement (Fife et al. 1967). Cretaceous sedimentary rocks deposited as turbidity currents overlie the plutons and volcanic rocks (Kimbrough et al. 2001). These rocks are in turn overlain by more recent sedimentary deposits leading up to the present day. These deposits were marine through the Eocene and then shifted to terrestrial volcanic and sedimentary strata by the Oligocene and lower Miocene (Powell 1993).

Locally, the project area lies within the alluvial valley of the Santa Ana River on the Perris Block. The Perris Block is an area of low topographic relief bounded by the San Jacinto and Elsinore fault zones (Morton and Miller 2006). This region is characterized by widespread alluvial fan deposits originating from the San Gabriel Mountains to the east of the project area and dating to the late Pleistocene.

4 METHODS

This PRTR is based on a desktop review of available scientific literature, geologic maps, a records search from the LACM, and a review of the online collections databases of the UCMP and the SDNHM. The purpose of this report is to assess the paleontological sensitivity of the geologic units found within the City of Santa Ana. The guidelines of the SVP (2010) were used to assign paleontological sensitivity rankings and develop recommended mitigation measures.

4.1 Project Personnel

SWCA Lead Paleontologist Alyssa Bell, Ph.D., conducted the paleontological analysis and authored this report. Geographic Information Systems (GIS) Specialist John Walls produced the figures. SWCA Principal Investigator Paleontologist Russell Shapiro, Ph.D. reviewed this report. SWCA Project Manager Alyssa Newcomb, M.S., RPA provided oversight on this project.

5 RESULTS (EXISTING CONDITIONS)

5.1 Geology and Paleontology in the City of Santa Ana

Geologic mapping by Morton and Miller (2006) indicates the surficial geology of the City of Santa Ana is composed of alluvial sediments that range in age from the Holocene to early Pleistocene. These sediments are subdivided into recognized geologic units on the basis of their age and lithology as follows (as shown on Figure 3):

Young Alluvial Fan Deposits (Qyf). These sediments date from the Holocene to the late Pleistocene (near recent times to 12,600 years ago), and consist of unconsolidated to moderately consolidated silt, sand, and gravel with slightly to moderately dissected surfaces (Morton and Miller 2006). These sediments cover the majority of the city (Figure 3). As relatively recent sediments at the surface, upper layers of this unit are not old enough to preserve fossil resources (5,000 years, as defined by the SVP [2010]). However, these sediments increase in age with depth, such that in the subsurface they may be old enough to preserve fossils similar to those described below for old alluvial fan deposits. Moreover, these units may overlie older sediments with high paleontological sensitivity. The depth at which Holocene sediments are old enough to preserve fossil resources (i.e., more than 5,000 years old) or transitions to old alluvial fan deposits is highly variable and often unknown for any specific area. One study of inland valley fossil deposits in Riverside and San Bernardino Counties identifies this transition as relatively shallow in many areas, with fossil-bearing sediments occurring as little as 5 feet (1.5 m) below the surface (Reynolds and Reynolds 1991).

Young Axial-Channel Deposits (Qya). These sediments also date from the Holocene to the late Pleistocene (near recent times to 126,000 years ago), and consist of clay, silt, and sand deposited along river channels and valleys (Morton and Miller 2006). Like the young alluvial fan deposits described above, these sediments are too young in the surficial layers to preserve fossil resources, but increase in age with depth, such that in the subsurface they may be old enough to preserve fossils similar to those described below for old alluvial fan deposits. These sediments are restricted to outcrops in the southern portion of the city (Figure 3).

Old Alluvial Fan Deposits (Qof). Old alluvial fan deposits are very similar to young alluvial fan deposits in terms of lithology and depositional setting; however, they are much older, dating to the late to middle Pleistocene (roughly 780,000–11,700 years old) (Morton and Miller 2006). As such, these sediments are of an appropriate age to preserve fossil resources. These sediments are only found at the surface in the northeastern-most portion of the city but occur extensively in this area outside the city limits. These sediments are likely present in the subsurface throughout the city at an undetermined depth that may be quite shallow in the northeastern parts of city.

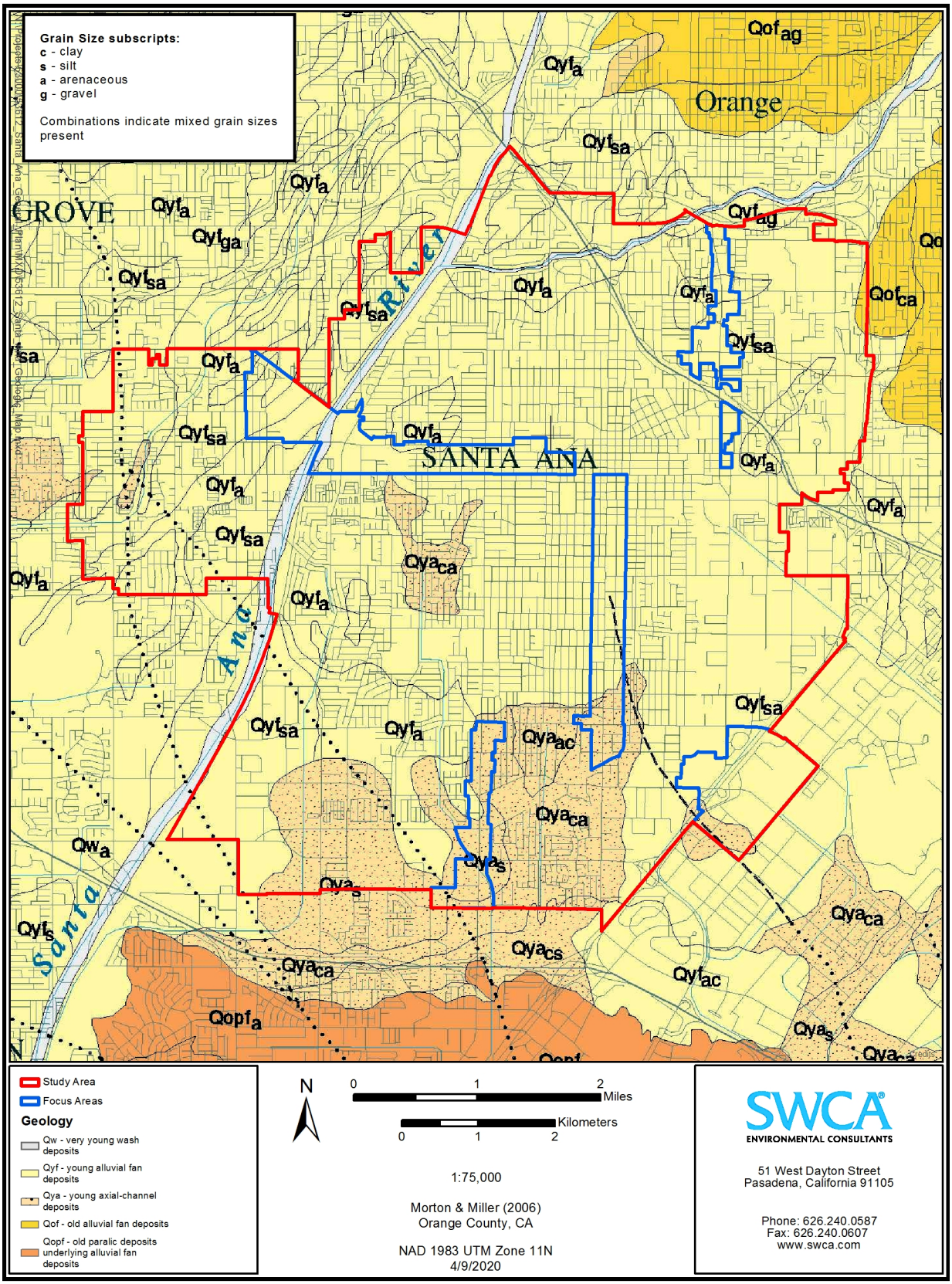


Figure 3. Geologic Map of the Project Area.

Pleistocene sediments have a rich fossil history in southern California (Hudson and Brattstrom 1977; Jefferson 1991a, 1991b; McDonald and Jefferson 2008; Miller 1941, 1971; Roth 1984; Scott 2010; Scott and Cox 2008; Springer et al. 2009). The most common Pleistocene terrestrial mammal fossils include the bones of mammoth, horse, bison, camel, and small mammals, but other taxa, including lion, cheetah, wolf, antelope, peccary, mastodon, capybara, and giant ground sloth, have been reported (Graham and Lundelius 1994), as well as birds, amphibians, and reptiles such as frogs, salamanders, snakes, and turtles (Hudson and Brattstrom 1977). In addition to illuminating the striking differences between Southern California in the Pleistocene and today, this abundant fossil record has been vital in studies of extinction (e.g., Sandom et al., 2014; Scott 2010), ecology (e.g., Connin et al. 1998), and climate change (e.g., Roy et al. 1996).

The LACM has records of 16 fossil localities within a five-mile radius of the city (Table 1). The closest fossil locality from these sediments known to the LACM is approximately 2.5 miles south of the City, where LACM 1339 produced fossil specimens of mammoth (*Mammuthus*) and camel (Camelidae) from sands approximately 15 feet below ground surface (bgs) along Adams Avenue east of the Santa Ana River (McLeod 2019). Also in this area, LACM 4219 produced specimens of sea turtle (*Chelonia*) and camel, LACM 3267 produced a specimen of a fossil elephant (Proboscidea), and LACM 6370 produced a specimen of horse (*Equus*), all from unrecorded depths (McLeod 2019). North of the city, a fossil sheep (*Ovis*) was discovered near the intersection of Lincoln Avenue and South Rio Vista Avenue at LACM 1652, approximately four miles from the project area (McLeod 2019). Just to the east of this locality, along Fletcher Avenue east of the Santa Ana River LACM 4943 produced a specimen of fossil horse at a depth of 8–10 feet bgs (McLeod 2019). Just over five miles to the west of the City, near the intersection of Warner Avenue and Bolsa Chica Street, LACM 65113 produced specimens of mammoth between six and eight feet bgs and specimens of fossil bison (*Bison*) between 14 and 20 feet bgs (McLeod 2019). To the southeast of the City, LACM has records of nine fossil localities around MacArthur Boulevard east of Upper Newport Bay that produced a rich suite of fossil vertebrates detailed by Miller (1971) and included specimens of sea otter (*Enhydra lutris*), pallid bat (*Antrozous pallidus*), shrews (*Notiosorex crawfordi* and *Sorex ornatus*), and pocket gopher (*Thomomys bottae*).

Table 1. LACM Pleistocene-aged Fossil Localities in the Vicinity of the City of Santa Ana

Locality Number	Depth	Specimens
LACM 1339	15 feet bgs	Mammoth, camel
LACM 4219	NA	Sea turtle, camel
LACM 3267	NA	elephant
LACM 6370	NA	horse
LACM 1652	NA	sheep
LACM 4943	8–10 feet bgs	horse
LACM 65113	6–20 feet bgs	Mammoth, bison
LACM multiple (9)	NA	sea otter, pallid bat, shrews, pocket gopher

The online collections databases from the UCMP (2019) and SDNHM (2019) do not provide precise locality information, but indicate that numerous specimens have been recovered from Pleistocene-aged deposits in Orange County (Table 2). The majority of these specimens are invertebrates, with vertebrates such as fish, birds, and mammals also recovered.

Table 2. Pleistocene-aged Fossils from Orange County

Museum	Specimens
UCMP (multiple)	Invertebrate fossils (4,732 specimens); Vertebrate fossils (bird: 2 specimens, fish: 29 specimens, mammals: 7 specimens)
SDNHM (multiple)	Invertebrate fossils (2,432 specimens); Vertebrate fossils (bird: 14 specimens, fish: 24 specimens, mammals: 460 specimens)

5.2 Paleontological Sensitivity Analysis

The results of the desktop analysis presented above were used to assign SVP paleontological sensitivity rankings (SVP 2010) to each geologic unit present in the City of Santa Ana (Table 3, Figure 4).

Low-to-High Sensitivity, increasing with depth. Both young alluvial fan deposits (Qyf) and young axial-channel deposits (Qya) are too young to preserve fossil resources at the surface or in the shallow subsurface (i.e., sediments younger than 5,000 years before present), but may preserve fossils at depth or overlie older units that have high paleontological sensitivity. These units are widespread across the city, making up the majority of the surficial sediments. In assessing the sensitivity and determining mitigation measures for areas mapped as these units, it is important to establish the thickness of these surficial, low-sensitivity sediments (those less than 5,000 years old that have low sensitivity). The museum records search from the LACM notes several fossil localities at depths of as little as 6–10 feet bgs, indicating the transition to high sensitivity sediments can be quite shallow in this area. Geotechnical studies specific to individual projects may also be able to help determine the depth of this change in specific locations within the city.

High Sensitivity. Old alluvial fan deposits are present at the surface in the most northeastern part of the City and are likely present in the subsurface throughout the City. The records of the LACM, UCMP, and SDNHM as well as the review of the scientific literature all indicate Pleistocene-aged sediments have a strong history of fossil preservation in this area, and therefore these sediments are assigned high paleontological sensitivity.

Table 3. Paleontological Sensitivity of Geologic Units in Santa Ana

Geologic Unit	Map Symbol	Age	Occurrence	Focus Areas	SVP Sensitivity
Young alluvial fan deposits	Qyf	Holocene – late Pleistocene	Surface, majority of city	Grand Avenue / 17th Street; 55 Freeway / Dyer Road; South Main Street; South Bristol Street; West Santa Ana Boulevard	Low-to-High, increasing with depth
Young axial-channel deposits	Qya	Holocene – late Pleistocene	Surface, southern part of city	55 Freeway / Dyer Road; South Main Street; South Bristol Street	Low-to-High, increasing with depth
Old alluvial fan deposits	Qof	Late – middle Pleistocene	Surface, northeastern-most city; Subsurface, throughout city	None	High

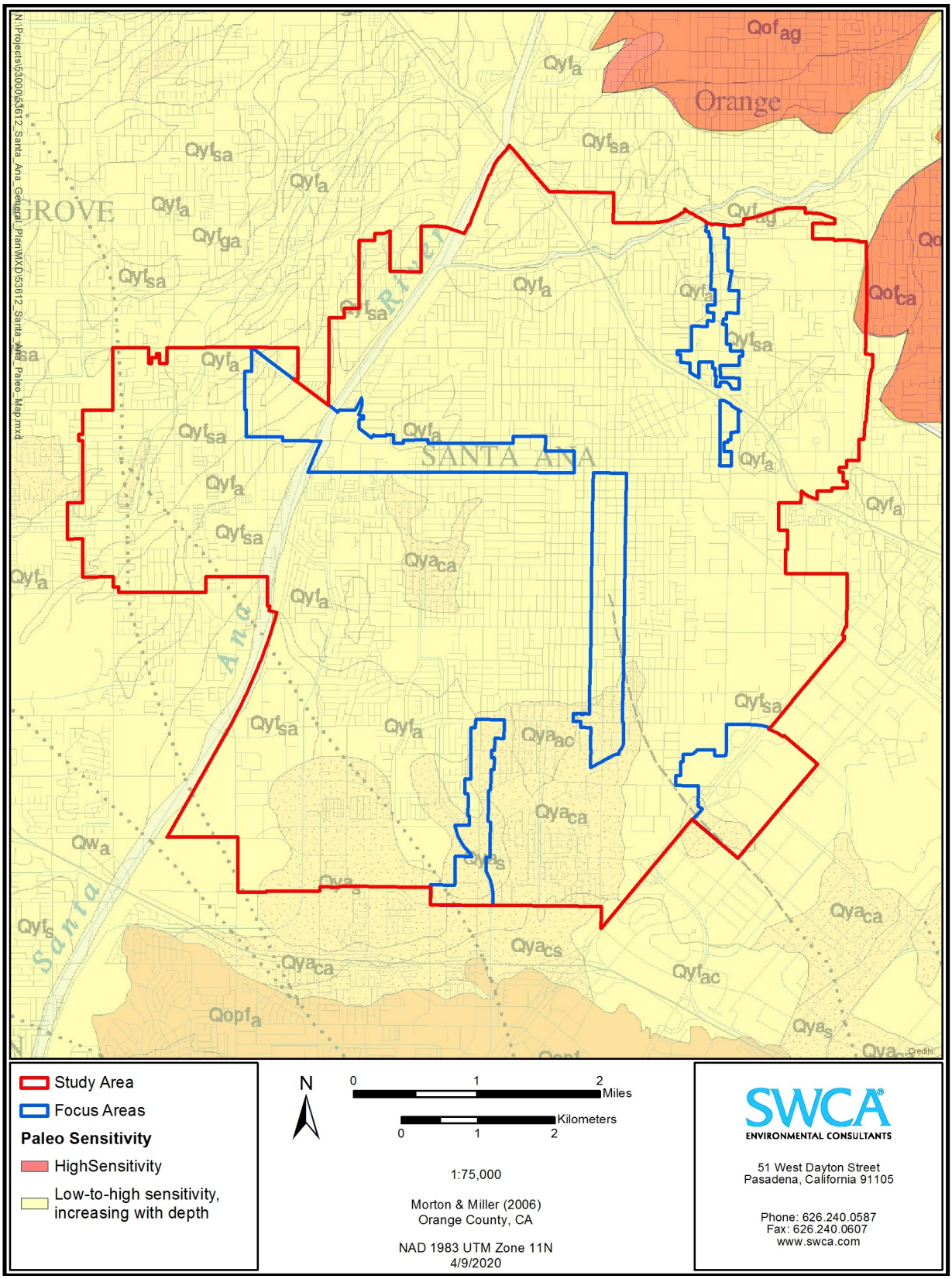


Figure 4. Paleontological Sensitivity of the Project Area.

6 POTENTIAL IMPACTS AND MITIGATION MEASURES

As discussed above, numerous federal and state regulations have been established to protect paleontological resources. If it can be demonstrated that a project will cause damage to a unique paleontological resource, mitigation measures are required (CEQA, Appendix G). Impacts to paleontological resources most commonly occur from damage or destruction during ground-disturbing activities. Fossils are most commonly buried in sediment or rock, and so are often undetectable from surface observations until excavations uncover them. This can result in damage to the fossil if measures are not taken during ground-disturbing activities to identify and protect fossils as they are encountered. The mitigation measures presented in this section are designed to reduce impacts to less than significant.

6.1 Thresholds of Significance

The General Plan provides a framework within which future development projects can be considered. The potential for future proposed projects to result in impacts associated with paleontological resources is based on the CEQA thresholds of significance outlined in Appendix G of the State CEQA Guidelines, which asks the question, "Will the proposed project directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?"

6.1.1 Impacts to Paleontological Resources

The review of the LACM records search, the UCMP and SDNHM online paleontological collections, geologic mapping, and the scientific literature presented here indicate that the General Plan Area contains areas with sediments of high paleontological sensitivity, either at the surface or in the subsurface. Future development or improvements related to changes in land use could potentially affect and cause significant adverse impacts to paleontological resources. The following measures are recommended to assist in the avoidance and mitigation of potential impacts to paleontological resources from future projects in the General Plan Area.

The guidelines of the SVP (1995, 2010) have been used to develop general recommendations for proposed projects in the City of Santa Ana. With the implementation of the following mitigation measures, construction projects in Santa Ana will be mitigated against directly or indirectly destroying unique paleontological resources or sites or unique geologic features. The intent of these recommendations is to ensure that potential adverse impacts to paleontological resources as a result of project implementation are reduced to a less-than-significant level. These mitigation measures are only general guidelines, and all projects should develop a project-specific paleontological mitigation and monitoring plan, as discussed below.

6.1.2 Paleontological Resources Mitigation Measure 1

A Qualified Paleontologist meeting the standards of the SVP (2010) will be designated to conduct all paleontological mitigation measures associated with construction activities and develop a project-specific paleontological resources monitoring and mitigation plan (PRMMP). This plan will address monitoring and mitigation measures specific to that project area and construction plan, and will take into account updated geologic mapping, geotechnical data, updated paleontological records searches, and any changes to the regulatory framework. This PRMMP should usually meet the standards of the SVP (2010). The following provisions should be made, based on the paleontological sensitivity of the geologic units impacted by specific projects:

High Sensitivity — All projects involving ground disturbances in previously undisturbed areas mapped as having high paleontological sensitivity will be monitored by a qualified paleontological monitor (SVP 2010) on a full-time basis under the supervision of the Qualified Paleontologist. This monitoring will include inspection of exposed sedimentary units during active excavations within sensitive geologic sediments. The monitor will have authority to temporarily divert activity away from exposed fossils to evaluate the significance of the find and, should the fossils be determined to be significant, professionally and efficiently recover the fossil specimens and collect associated data. Paleontological monitors will use field data forms to record pertinent location and geologic data, will measure stratigraphic sections (if applicable), and collect appropriate sediment samples from any fossil localities.

Low-to-High Sensitivity—All projects involving ground disturbance in previously undisturbed areas mapped with low-to-high paleontological sensitivity will only require monitoring if construction activity will exceed the depth of the low sensitivity surficial sediments. The underlying sediments may have high paleontological sensitivity, and therefore work in those units might require paleontological monitoring, as determined by the Qualified Paleontologist in the PRMMP. When determining the depth at which the transition to high sensitivity occurs and monitoring becomes necessary, the Qualified Paleontologist should take into account: a) the most recent local geologic mapping, b) depths at which fossils have been found in the vicinity of the project area, as revealed by the museum records search, and c) geotechnical studies of the project area, if available.

6.1.3 Paleontological Resources Mitigation Measure 2

In the event of any fossil discovery, regardless of depth or geologic formation, construction work will halt within a 50-ft. radius of the find until its significance can be determined by the Qualified Paleontologist. Significant fossils will be recovered, prepared to the point of curation, identified by qualified experts, listed in a database to facilitate analysis, and deposited in a designated paleontological curation facility, such as the LACM, in accordance with the standards of the SVP (2010). A repository will be identified, and a curatorial arrangement will be signed prior to collection of the fossils.

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Appendix A.

Confidential - Paleontological Records from the Natural History Museum of Los Angeles County

Natural History Museum
of Los Angeles County
900 Exposition Boulevard
Los Angeles, CA 90007

tel 213.763.DINO
www.nhm.org

NATURAL HISTORY MUSEUM
LOS ANGELES COUNTY

Vertebrate Paleontology Section
Telephone: (213) 763-3325

e-mail: smcleod@nhm.org

4 March 2019

SWCA Environmental Consultants
51 West Dayton Street
Pasadena, CA 91105

Attn: Alyssa Bell, Ph.D., Lead Paleontologist

re: Paleontological resources for the proposed Santa Ana General Plan Update Project, SWCA Project # 53612, in the City of Santa Ana, Orange County, project area

Dear Alyssa:

I have conducted a thorough search of our paleontology collection records for the locality and specimen data for proposed Santa Ana General Plan Update Project, SWCA Project # 53612, in the City of Santa Ana, Orange County, project area as outlined on the portions of the Anaheim, Orange, Newport Beach, and Tustin USGS topographic quadrangle maps that you sent to me via e-mail on 26 February 2019. We do not have any vertebrate fossil localities that lie directly within the proposed project area boundaries, but we do have vertebrate fossil localities nearby from sedimentary deposits similar to those that occur in the proposed project area, either at the surface or at depth.

In the entire proposed project area the surficial deposits consist of younger Quaternary Alluvium, derived as alluvial fan deposits from the Santa Ana Mountains to the east and northeast, partly via Santiago Creek that currently flows through the northern portion of the proposed project area, but especially from the Santa Ana River that currently flows through the western portion of the proposed project area. These younger Quaternary deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but we have a vertebrate fossil locality, LACM 1652, north of the proposed project area on the western side of the Santa Ana River along Rio Vista Avenue south of Lincoln Avenue, that produced a fossil specimen of sheep, *Ovis*. Almost due east of locality LACM 1652, along Fletcher Avenue east of Glassell

Inspiring wonder, discovery and responsibility for our natural and cultural worlds.

Street east of the Santa Ana River, our vertebrate fossil locality from older Quaternary deposits, LACM 4943, produced a specimen of fossil horse, *Equus*, at a depth of 8-10 feet below the surface.

To the southwest of the proposed project area our closest fossil vertebrate locality from these deposits is LACM 4018, southwest of the proposed project area at the intersection of Warner Avenue and Golden West Street, that produced specimens of invertebrates, reptiles, birds, rodents, horses and deer in peat between four and eight feet below the surface, but these specimens were later determined to be of very late Holocene age. Further west along Warner Avenue, close to Bolsa Chica Street, our fossil vertebrate locality LACM 65113 from these deposits produced Pleistocene age specimens of mammoth, *Mammuthus*, between six and eight feet below the soil and specimens of fossil bison, *Bison*, between fourteen and twenty feet below the soil. A little further southwest of the proposed project area, along Ellis Avenue east of Beach Boulevard, our vertebrate fossil localities LACM 7657-7659 from the underlying Pleistocene San Pedro Sand produced fossil shark and fish specimens including soupfin shark, *Galeorhinus galeus*, skate, *Raja*, ray, *Myliobatis*, angel shark, *Squatina californica*, cusk eel, *Otophidium*, toadfish, *Porichthys notatus*, queenfish, *Seriphus politus*, sculpin, *Leptocottus*, goby, *Lepidogobius lepidus*, and sanddabs, *Citharichthys sordidus* and *Citharichthys stigmaeus*, from well cores over 100 feet below the surface.

To the south of the western portion of the proposed project area our closest older Quaternary locality is LACM 1339, east of the Santa Ana River near the top of the mesa bluffs along Adams Avenue, that produced fossil specimens of mammoth, *Mammuthus*, and camel, Camelidae, from sands approximately 15 feet below the top of the mesa that is overlain by shell bearing silts and sands. Further to the south and east, along the Newport Freeway near Santa Isabel Avenue, our locality LACM 4219 produced fossil specimens of sea turtle, *Chelonia*, and camel, Camelidae. Further south, near the intersection of 19th Street and Anaheim Avenue, our older Quaternary locality LACM 3267 produced a specimen of a fossil elephant, Proboscidea. Due south farther still from the proposed project area, our locality LACM 6370, from the Hoag Hospital lower campus parcel near the intersection of Superior Avenue and the Pacific Coast Highway, produced a specimen of a fossil horse, *Equus*, in older Quaternary deposits.

To the south of the eastern portion of the proposed project area, just east of Upper Newport Bay around MacArthur Boulevard, we have several vertebrate fossil localities from older Quaternary deposits including LACM 1066, 1068-1069, 1086, 1240, 3407, 3877, 4426 and 6732. These localities, and many more closer to Upper Newport Bay, produced a rich suite of Quaternary fossil vertebrates. In his 1971 publication (Pleistocene vertebrates of the Los Angeles basin and vicinity (exclusive of Rancho La Brea). Los Angeles County Museum Science Bulletin 10:1-124) W.E. Miller documented many of these taxa from localities LACM 1066 and 3877 and figured specimens of sea otter, *Enhydra lutris*, pallid bat, *Antrozous pallidus*, shrews, *Notiosorex crawfordi* and *Sorex ornatus*, and pocket gopher, *Thomomys bottae*.

Shallow excavations in the uppermost layers of the younger Quaternary alluvial fan sediments in the proposed project site area are unlikely to uncover significant fossil vertebrate remains. Deeper excavations in the proposed project area, however, may well encounter significant vertebrate fossils in older Quaternary sediments. Any substantial excavations below the uppermost layers, therefore, should be closely monitored to quickly and professionally collect any specimens without impeding development. Also, sediment samples should be collected and processed to determine the small fossil potential in the proposed project area. Any fossils recovered during mitigation should be deposited in an accredited and permanent scientific institution for the benefit of current and future generations.

This records search covers only the vertebrate paleontology records of the Natural History Museum of Los Angeles County. It is not intended to be a thorough paleontological survey of the proposed project area covering other institutional records, a literature survey, or any potential on-site survey.

Sincerely,



Samuel A. McLeod, Ph.D.
Vertebrate Paleontology

enclosure: invoice

Appendix H-a Infrastructure Technical Report for Hydrology, Sewer, Water, and Water Quality

Appendices

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CITY OF SANTA ANA GENERAL PLAN UPDATE

INFRASTRUCTURE TECHNICAL REPORT FOR HYDROLOGY, SEWER, WATER, & WATER QUALITY

City of Santa Ana
Orange County, California

Prepared For

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Project Manager:
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Principal / Stormwater Manager

Date Prepared: May 5, 2020
Updated: June 3, 2020

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CITY OF SANTA ANA
GENERAL PLAN UPDATE

INFRASTRUCTURE REPORT FOR
HYDROLOGY, SEWER, WATER, AND WATER QUALITY

CITY OF SANTA ANA
ORANGE COUNTY, CALIFORNIA

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DATE PREPARED: MAY 5, 2020 *(UPDATED 6/3/2020)*

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Appendix C Water Flow Calculations

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1. INTRODUCTION & BACKGROUND

The City of Santa Ana ("City") is currently undergoing a General Plan Update (GPU) which is intended to shape development in the City over the next 30-plus years. A General Plan is the principal long-range policy and planning document for guiding the physical development, conservation, and enhancement of California cities and counties. As part of the California Environmental Quality Act (CEQA) process associated with General Plan Updates, infrastructure such as drainage, sewer, water systems and water quality that support the existing and proposed land uses will be analyzed at a level consistent with the city-wide program-level planning of an EIR. This report will focus on the existing conditions of these infrastructure systems that serve the City (referred to the Santa Ana GPU area).

The City is located in the center of Orange County and is bounded by the City of Orange to the north, the cities of Irvine and Tustin to the east, Fountain Valley and Westminster to the west, and Costa Mesa to the south. The GPU includes five "Focus Areas" throughout the City. Focus Areas will feature the majority of land use changes and proposed increases in land use density in addition to Citywide land use changes also proposed outside of the Focus Areas. Details of these Focus Areas are listed below and shown in Figure 1:

Table 1 City of Santa Ana GPU Focus Areas

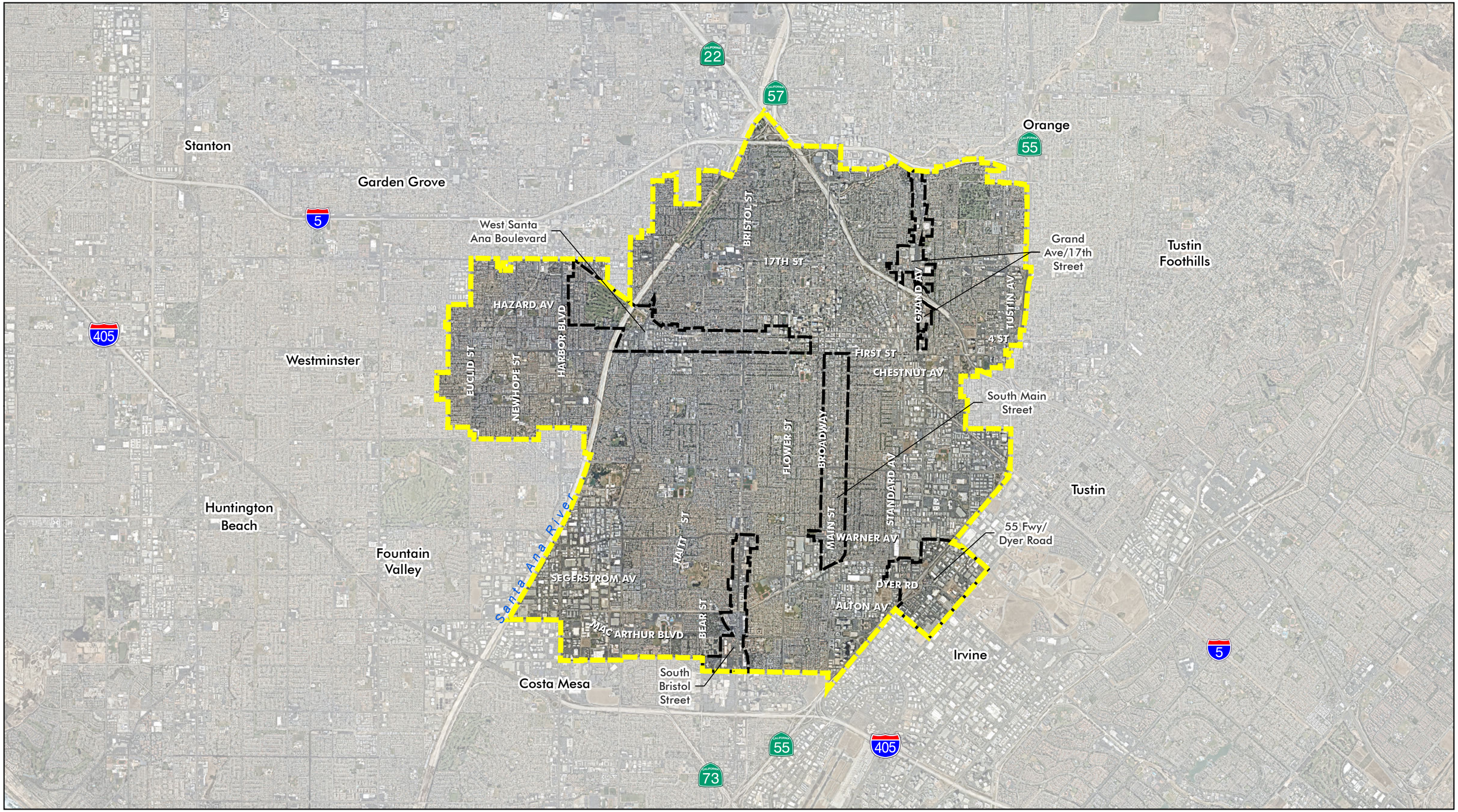
Focus Area	Acreage	Location within the City	Primary Existing Land Uses
West Santa Ana Boulevard	604 acres	Central portion of the City between 1st Street and 5th Street	• Low density residential • Industrial • Open Space
South Bristol Street	236 acres	South central portion of City along Bristol Street	• General Commercial • South Bristol Street
Grand Avenue/17th Street	202 acres	North east portion of City along 17th Street	• General Commercial • Professional/Admin Office
South Main Street	408 acres	Central portion of City along the Main Street corridor	• Low density residential • General commercial
55 Freeway/Dyer Road	438 acres	South east portion of City off the 55 Freeway	• General Commercial • Professional/Admin Office

The proposed land use changes will increase residential land uses and commercial square footage. An estimated growth of 36,261 dwelling units is anticipated across the City as compared to existing land use, concentrated mainly among the five Focus Areas and additional specific plan and special zoning areas. Approximately 5.8 million square feet of additional commercial land uses are anticipated across the City as compared to existing land use, and a corresponding increase of 11,436 Citywide jobs is anticipated.

This report analyzes the existing infrastructure systems that serve the City and the Focus Areas. The analysis includes a review and summary of the baseline conditions of the storm drainage system, water and wastewater systems, and existing water quality regulations currently in place,

and provides a comparison to proposed conditions under final buildout conditions of the GPU. The analysis also utilizes assumptions made under the current General Plan as this document was utilized to inform many of the regional infrastructure planning documentation and associated master plans. Any significant impacts will be identified by analyzing the CEQA thresholds of significance as they relate to storm drain, water, sewer and water quality. The analysis also includes the utilization of GIS tools and data and ongoing communication with City staff.

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Aerial Date: 09/26/2018

Santa Ana GPU and Focus Areas Aerial Extent

Figure 1

City of Santa Ana General Plan Update

4/10/2020

FUSCOE ENGINEERING
full circle thinking

Santa Ana City Boundary

Focus Area

0 0.5 1 2 Miles

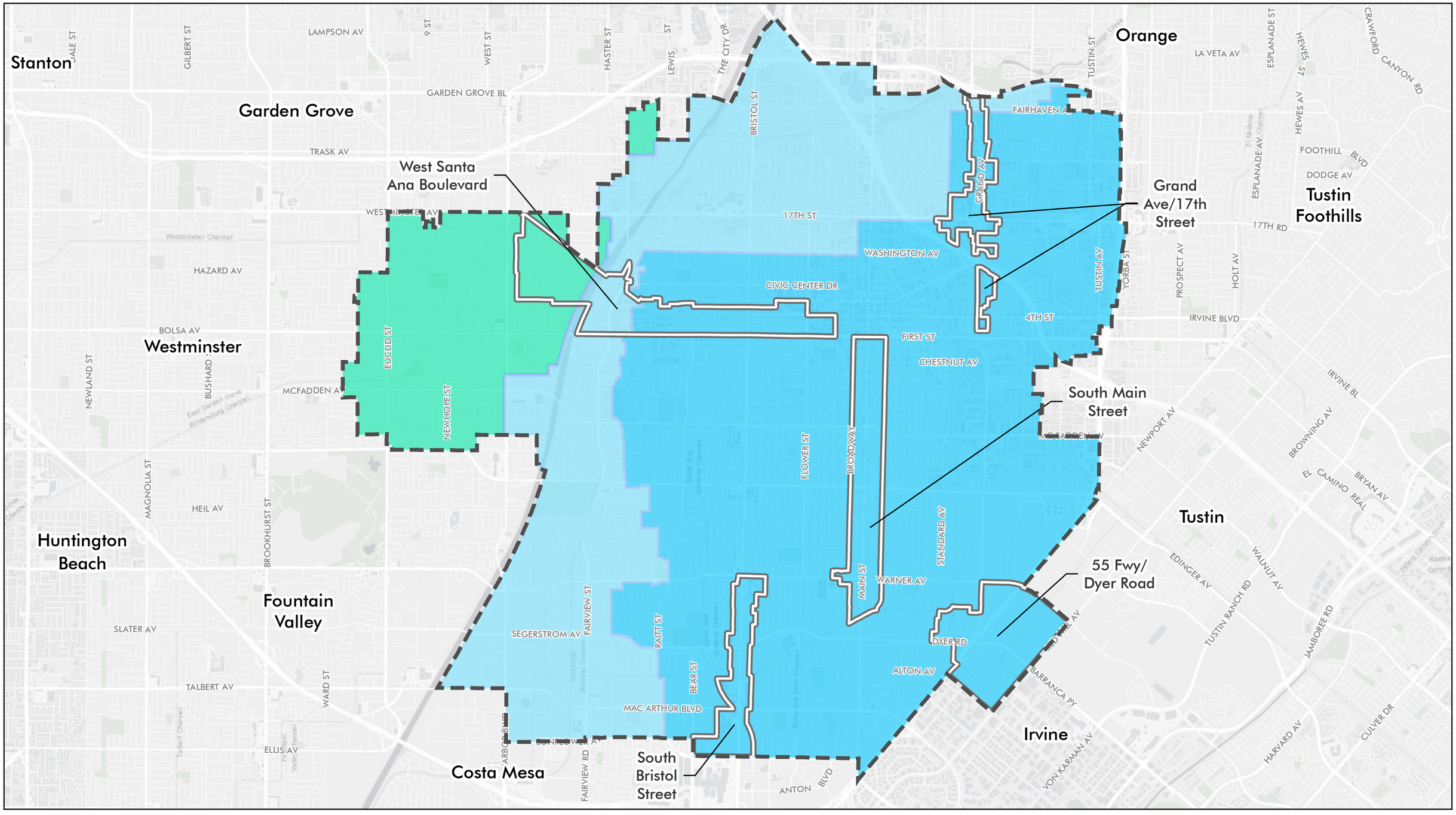
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Table 2 Existing Drainage Facilities within Focus Areas

Focus Area	Acreage	Primary Drainage Facilities
West Santa Ana Boulevard	604 acres	12″-60″ City Storm Drain Lines OCFCD Drainage Channels Santa Ana River (OCFCD Maintained)
South Bristol Street	236 acres	12″-72″ City Storm Drain Lines OCFCD Drainage Channel (Gardens)
Grand Avenue/17th Street	202 acres	36″-81″ City Storm Drain Lines
South Main Street	408 acres	12″-84″ City Storm Drain Lines
55 Freeway/Dyer Road	438 acres	12″-48″ City Storm Drain Lines OCFCD Drainage Channel (Lane-Barranca)

See Figure 2 below that shows the watersheds within the City and Figure 4 that shows existing storm drain system throughout the City and the Focus Areas.

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City of Santa Ana Watersheds

Figure 2

4/10/2020

City of Santa Ana

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full circle thinking

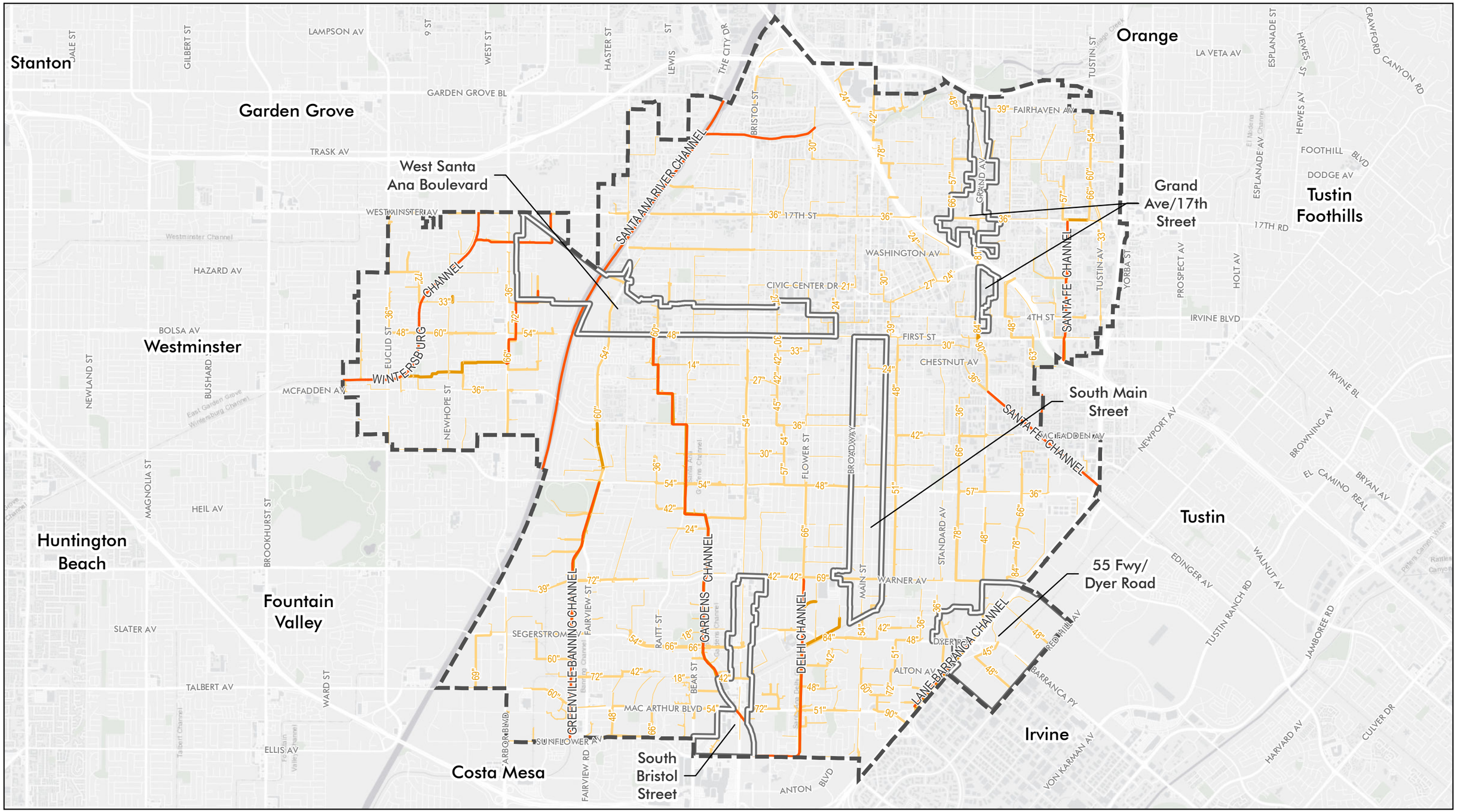
Santa Ana Boundary
Focus Area

Watersheds

Anaheim Bay-Huntington Harbour
Newport Bay
Santa Ana River

0 4,000 8,000 Feet

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City of Santa Ana Existing Storm Drain Facilities

Figure 3

4/10/2020

City of Santa Ana

FUSCOE ENGINEERING
full circle thinking

Santa Ana City Boundary

Focus Area

City Storm Drain Facilities

Trapezoidal Channel

12"-42" Storm Drain Pipe

42"-96" Storm Drain Pipe

Storm Drain Pipe (Diameter Undetermined)

OCFCD Facilities

Storm Drain Lines

0 4,000 8,000 Feet

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2.1.2 Storm Drain Master Plan

City of Santa Ana Master Plan of Storm Drainage

The City of Santa Ana's Master Plan of Storm Drainage (MPD) prepared in December 2015 by Michael Baker International. The purpose of the MPD is to analyze existing storm drain infrastructure capacity and provide recommendations on any flooding issues for all lines 36" or larger throughout the City. In order to perform this analysis, the Bentley CivilStorm program was used for hydrodynamic modeling of storm drain infrastructure. In addition, hydrology calculations for the entire City were conducted using GIS General Plan data. Flooding results for the 10-, 25-, and 100-year storm conditions were compared to County of Orange design protection levels for streets and properties in order to determine deficient segments and locations.

After identifying deficiencies, proposed condition (post-improvement) runs were conducted in CivilStorm in order to determine the extent of upsizing necessary for the various facilities (catch basins, conduits, pipe inverts and diameters) present in the deficient segments. Based on model results and extent of improvements necessary, recommended improvements were prioritized for each regional watershed within the City. Top recommended improvements are shown in Table 3 below.

Table 3 City of Santa Ana Recommended Storm Drain Improvements

Improvement Number	Regional Watershed	Improvement
1	Delhi	Improve County Delhi Channel between Alton and Sunflower
2	Gardens	Improve County Gardens Channel between Edinger and Sunflower
3	Santa Ana	Improve City system along 17th Street between Santa Ana River and west of Flower St
4	Santa Fe	Improve City system along Grand Avenue between Santa Clara and the Santa Fe Channel
5	Santa Fe	Improve City system along Tustin Avenue between 17th Street and the Santa Fe Channel
6	Greenville Banning	Improve City system between Macarthur and Sunflower
7	Lane Barranca	Improve the City system between Alton and Macarthur connecting to the Lane Channel
8	Santa Ana	Improve City system along Flower between Santa Clara and Santiago Creek
9	Santa Ana	Improve City system along Fairview between Trask and the Santa Ana River
10	Wintersburg	Improve City system along Rosita between Hazard Avenue and the Wintersburg Channel
Source: 2015 City of Santa Ana Master Plan of Drainage		

The MPD recommends that all improvements are implemented beginning at the most downstream portion of the target area. All recommendations made in the MPD are done so at a master planning level. For individual projects, specific modeling/analysis may be necessary. Of the 10 improvement projects identified in the MPD, one project (Improvement 7) was

included in the 2018/2019 City of Santa Ana Capital Improvement Plan (CIP). Figure 4 illustrates recommended storm drain improvement areas in the City and their associated improvement numbers.

The 2018/2019 CIP includes a stormwater capture project located at Mabury Park. This project includes the construction of a large bioretention basin to slow and treat flows draining the Newport Bay.

In addition, the City provides frequent updates to the status of their CIP projects for sewer, water and storm drain systems. The following projects are listed on the October – March 2020 CIP quarterly executive summary schedule:

- D-03 Channel Improvements at Alton Ave
- Civic Center Storm Drain Lift Station
- C-5-F channel Repair between Newhope and Harbor
- First Street Undercrossing Stormwater Lift Station
- Warner Avenue Storm Drain Improvements (Ph 1) (Main St to Oak St)

The majority of the projects listed above are either going through the design phase or construction phase as of March 2020.[2]

2.1.3 Orange County Public Works 7-Year CIP

Orange County Public Works' (OCPW) 7-Year Capital Improvement Plan covers OCFCD drainage facilities, Road, Bridge, Flood, and Bikeway Projects for Fiscal Years 2019/20 – 2025/26. There was one project within the GPU area downstream of the 55 Freeway/Dyer Road Focus Area included in the 2018/19 CIP that is estimated to be concluded in June 2020[3]:

Lane Channel (FY 18/19) – Demolish existing damaged concrete-lined channel and replace with channel lining constructed with current design standard criteria.

[2] City of Santa Ana – Public Works Agency. Capital Improvement Program – Quarterly Executive Summary Schedule (October – March 2020). Found here: https://www.santa-ana.org/sites/default/files/pw/documents/Executive-Monthly-CIP-Update-Oct-to-March-2020.pdf

[3] Personal communication with OCFCD Staff, April 8, 2020.

City of Santa Ana Existing Storm Drain Recommended Improvements

Figure 4

4/10/2020

City of Santa Ana

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full circle thinking

Santa Ana City Boundary
Focus Area

City Storm Drain Facilities
Trapezoidal Channel
12"-42" Storm Drain Pipe
42"-96" Storm Drain Pipe
Storm Drain Pipe (Diameter Undetermined)

OCFCD Facilities
Storm Drain Lines

Proposed Improvements
Master Plan of Drainage Recommended Improvement
1 Improvement Number
OCPW 7-Year CIP Project
Mabury Park Stormwater Capture Project

0 4,000 8,000 Feet

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2.1.4 Existing Floodplain Mapping

The National Flood Insurance Act (1968) established the National Flood Insurance Program, which is based on the minimal requirements for flood plain management and is designed to minimize flood damage within Special Flood Hazard Areas. The Federal Emergency Management Agency (FEMA) is the agency that administrates the National Flood Insurance Program. Special Flood Hazard Areas (SFHA) are defined as areas that have a 1 percent chance of flooding within a given year, also referred to as the 100-year flood. Flood Insurance Rate Maps (FIRMs) were developed to identify areas of flood hazards within a community.

According to the Flood Zone determination covering the Santa Ana GPU Area, the majority of the City lies within Zone X. Zone X is designated as the area determined to be outside the 500-year flood, protected by levee from 100-year flood, and with a minimal or 0.2% chance of flooding. The western portion of the City is protected by levee from flood events or features a 0.2% chance of flooding, while the eastern portion features a minimal risk of flooding. There are small areas surrounding the various drainage channels throughout the City including the Delhi Channel that are listed as Zone A, which represents areas with a 1% annual chance of flooding and a 26% chance of flooding over the life of a 30-year mortgage. These areas are immediately adjacent to the drainage channels in question, with surrounding developments and neighborhoods protected by levee. The drainage area within and surrounding Santiago Creek, located in the northern portion of the City, is listed as both Zone AE and as a Regulatory Floodway. Zone AE represents a 1% annual chance of flooding with a base flood elevation. In addition, a small segment of the City located between the Santa Ana River and the Greenville-Banning Channel is designated as Flood Zone D, representing areas where no flood analysis has been conducted, or where recent incorporation into a larger community has resulted in no map being prepared.

See Figure 5 below for a map of the FEMA flood zones within the Santa Ana GPU.

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Stanton
Garden Grove
Westminster
Huntington Beach
Fountain Valley
Costa Mesa
Orange
Tustin
Tustin Foothills
Irvine
West Santa Ana Boulevard
Grand Ave/17th Street
South Main Street
55 Fwy/ Dyer Road
South Bristol Street
HOLDER ST
KNOTT ST
WESTERN AV
DALE ST
GILBERT ST
LAMPSON AV
CHAPMAN AV
9 ST
WEST ST
HARBOR BLVD
ORANGEWOOD AV
HASTER ST
LEWIS ST
RAMPART ST
THE CITY DR
BATAVIA ST
GLASSELL ST
CAMBRIDGE ST
TUSTIN ST
Santiago Creek
BOND AV
HEWES ST
CANNON ST
CANYON VIEW AV
LA VETA AV
HEWES AV
ESPLANADE AV
DODGE AV
17TH RD
PROSPECT AV
HOLT AV
IRVINE BLVD
HOOVER ST
GARDEN GROVE BL
TRASK AV
WESTMINSTER AV
HAZARD AV
BOLSA AV
EDWARDS ST
MC FADDEN AV
NEWLAND ST
BUSHARD ST
EUCLID ST
NEWHOPE ST
CENTER AV
EDINGER AV
HEIL AV
SPRINGDALE ST
GOTHARD ST
GOLDEN WEST ST
BROOKHURST ST
WARNER AV
SLATER AV
MAGNOLIA ST
TALBERT AV
WARD ST
ELLIS AV
GARFIELD AV
DELAWARE ST
LAKE ST
YORKTOWN AV
PALM AV
ADAMS AV
BAKER ST
FAIRVIEW RD
GISLER AV
BEAR ST
RAITT ST
FAIRVIEW ST
SEGERSTROM AV
MAC ARTHUR BLVD
ANTON BLVD
PAULARINO AV
VON KARMAN AV
HARVARD AV
ALTON PKWY
BARRANCA PY
IRVINE CENTER DR
SAND CANYON AV
TRABUCO RD
JEFFREY RD
YALE LOOP
YALE AV
CULVER DR
BRISTOL ST
FAIRHAVEN AV
GRAND AV
17TH ST
BROADWAY
WASHINGTON AV
CIVIC CENTER DR
4TH ST
TUSTIN AV
YORBA ST
FIRST ST
CHESTNUT AV
FLOWER ST
STANDARD AVE
MAIN ST
ALTON AV
DYER RD
NEWPORT AV
WALNUT AV
RED HILL AV
BROWNING AV
EL CAMINO REAL
BRYAN AV
IRVINE BL
TUSTIN RANCH RD
JAMBOREE RD
PORTOLA PK
Peters Canyon Wash

Aerial Date: 09/26/2018

City of Santa Ana Flood Zones

City of Santa Ana General Plan Update

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full circle thinking

Figure 5

4/10/2020

Santa Ana City Boundary
Focus Area

FEMA Flood Zones
Zones A
Zones AE
Zones AH
Zones D
Zones VE
Zones X

0 0.5 1 2 Miles

X:\Projects\511\31\MXD\5_SantaAna_FloodZones200402.mxd

2.2 SEWER & WASTEWATER INFRASTRUCTURE

2.2.1 Existing Sewer System and Facilities

The City operates and maintains the City's sewer system which serves the entire City as well as portions of Garden Grove and Orange. The City's sewer collection system consists of approximately 390/450 miles of sewer mains, including approximately 60 miles of Orange County Sanitation District (OCSD) regional trunk facilities within the City. The system operates largely by gravity and discharges at several locations into OCSD gravity trunk sewers for conveyance to OCSD Treatment Plant #1.

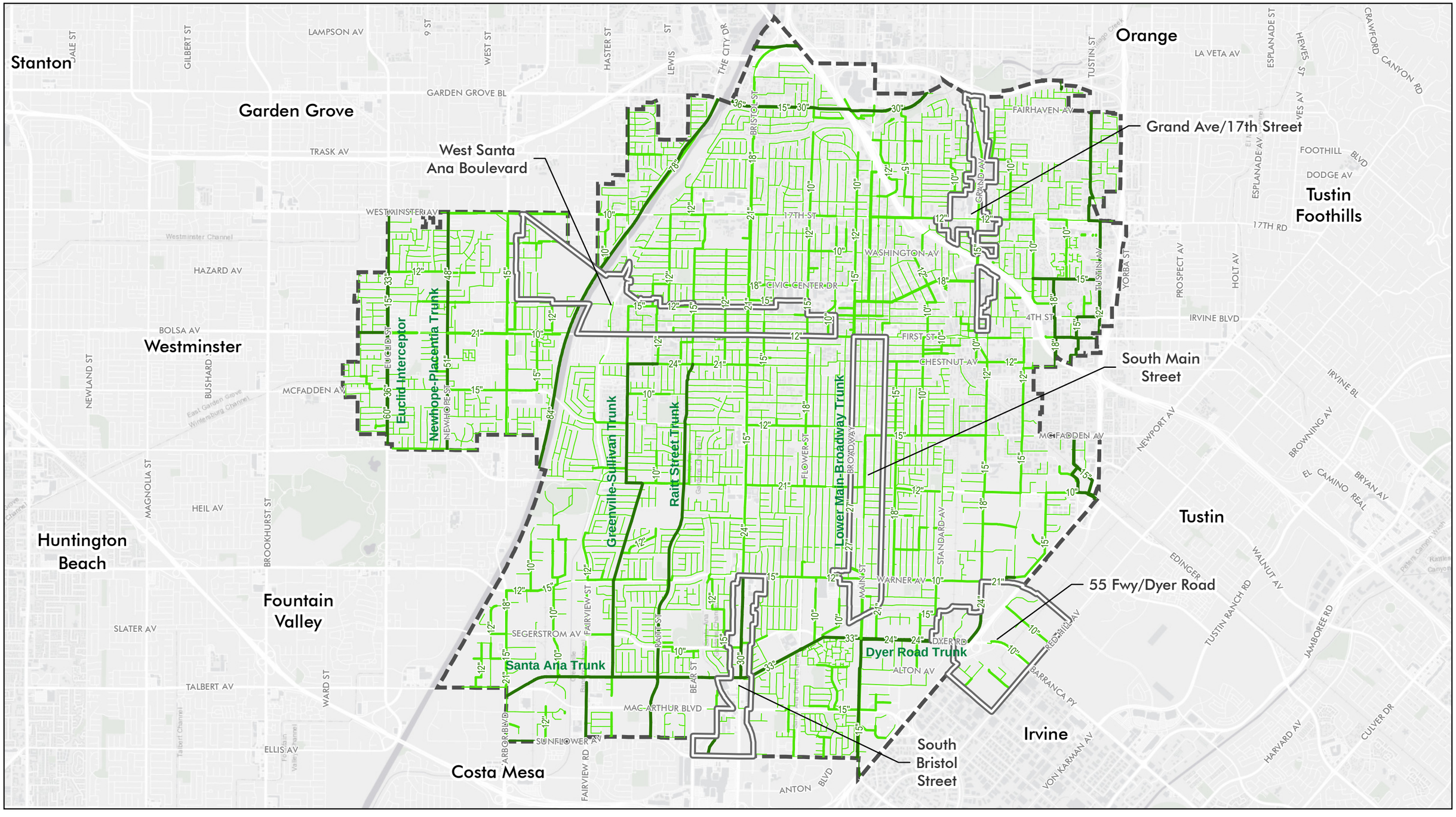
The sewer system is divided into minor sewers (6"-8" in diameter) serving an area no greater than 25 miles and major sewers that are larger sewer systems that convey greater than 25 miles of sewer discharges.[4] See below for summary of sewer facilities within the Focus Areas.

Table 4 Existing Sewer Facilities within the Focus Areas

Focus Area	Acreage	Primary Sewer System Facilities
West Santa Ana Boulevard	604 acres	10"-15" City Lines 21" City Trunk Line
South Bristol Street	236 acres	8"-15" City Lines 30"-33" OCSD Trunk Line
Grand Avenue/17th Street	202 acres	8"-12" City Lines 15" City Trunk Line
South Main Street	408 acres	8"-15" City Lines 21"-27" City Trunk Line
55 Freeway/Dyer Road	438 acres	8"-10" City Lines 21"-24" OCSD Trunk Line

Figure 6 illustrates existing City and OCSD sewer infrastructure in the City.

[4] City of Santa Ana 2016 Sewer Master Plan Update Final Report. December 2016.



City of Santa Ana Existing Sewer Facilities

Figure 6

5/5/2020

City of Santa Ana

FUSCOE ENGINEERING
full circle thinking

Santa Ana Boundary

City Sewer Pipelines
- 8" and Below in Diameter
- 9" - 84" in Diameter

OCSD Sewer Pipelines
- OCSD Sewer Lines

0 4,000 8,000 Feet

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2.2.2 Existing Sewer Flows

For each land use in the City of Santa Ana and the five Focus Areas, a total sewer generation was estimated to provide a baseline condition and to allow for comparison against proposed land use changes. Acreages of the existing development (i.e. residential & non-residential) were utilized along with their corresponding flow/generation factors to develop existing condition flow rates. Commercial sewer generation factors were provided from the Orange County Sanitation District Design and Construction Standards for Sanitary Sewers (2016). Residential sewer generation factors were derived from the Municipal Water District of Orange County (MWDOC) Orange County Water Reliability Study (2016) water flow factors for single and multi-family residences for 2015 multiplied by a 0.95 sewer factor as indoor water flows and sewer flows are similar. This sewer factor per land use is the recommended approach by sewer agencies to determine any impacts to sewer infrastructure at a level consistent with a general plan update. This method allows for a conservative understanding of sewer flow depths, velocities, diurnal patterns, surcharges and peak capacities which are ultimately used to evaluate capacity issues under existing conditions and in the future. The generation factors are typically conservative in nature and tend to over-represent sewer flows as a means to incorporate a safety factor into pipe network design and hydraulic capacity assessments.

Table 5 provides a summary of the existing wastewater flows for the City and Focus Areas. See Appendix A for detailed sewer flow calculations.

Table 5 Existing Condition Average Daily Sewer Flows

Area	Number of Dwelling Units	Commercial Square Footage	Average Sewer Flows (GPD)
Focus Areas			
West Santa Ana Boulevard	2,658	3,090,472	827,553
South Bristol Street	220	1,577,511	125,918
Grand Avenue/17th Street	561	1,400,741	188,358
South Main Street	1,720	1,685,978	565,500
55 Freeway/Dyer Road	1,221	5,666,453	538,450
Focus Area Total	**6,380**	**13,421,155**	**2,245,779**
Remainder of City			
All Other Areas of City	72,412	53,697,441	27,786,561
Citywide Total	**78,792**	**67,118,596**	**30,032,340**

Notes:
GPD – Gallons per day SF – Square Feet
Land use data supplied by Placeworks, 2020

Under the existing conditions, average daily sewer flows are estimated at 30 million gallons per day (MGD) throughout the City of Santa Ana. Under existing conditions, the Focus Areas represent approximately 7.5% of the City's sewer flows. These conservative flow estimates are for land planning purposes only.

2.2.3 Existing Sewer Capacity Assessment

City of Santa Ana 2016 Sewer Master Plan

The City's most recent Sewer Master Plan update was performed in December 2016 by RMC consultants. The 2016 Sewer Master Plan Update Final Report ("2016 SMP") was an update to a sewer capacity analysis performed in 2003. The 2016 SMP analyzed the age of the sewer infrastructure, and the capacity of the City's sewer collection system for existing and future peak flow conditions under both dry and wet weather conditions. In addition, the 2016 summarized the rankings of the condition of the sewer pipes/manholes and the recommended rehabilitation and replacement of these sewers based on the most recent CCTV inspection reports. The results of the capacity analysis and condition assessment are summarized below.

City Sewer Capacity Assessment

The capacity of the City's sewer system was assessed through use of an InfoWorks™ ICM hydraulic model. The model includes all major trunk lines with diameters ranging from 10"-39" in size. In total, the model network includes approximately 97 miles of City pipelines, 20 miles of OCSD trunk lines and a total of 1,799 manholes. The capacity of the system was assessed for existing and future (2040) base flow scenarios in addition to peak wet-weather flows (PWWF) derived for a 10-year storm event.

For Santa Ana, since the design storm PWWF represents a relatively infrequent return period event, the City considers it acceptable to allow surcharging over the pipe crown, provided the hydraulic grade line (water level) remains at least five feet below the ground surface. During peak dry weather conditions, however, sewers should be able to convey the peak flow without surcharge. The following summarizes the trigger and design criteria:

- Manning's n friction factor of 0.013 for all pipes
- Allowable depth of flow (PDWF) before triggering an improvement project
  - d/D<0.5 for less than 12"
  - d/D<0.75 for 12" and greater
- Allowable depth of flow before triggering an improvement project
  - 2-feet of surcharge for sewers over 12" in diameter
  - Full pipe for sewers smaller than 12"
- Freeboard depth >5-feet (depth from rim elevation to maximum water level)
- Design depth of flow for sizing improvements
  - 75% of full pipe for all sewers

The results were based on the following Likelihood to Failure (LOF) scores below:

- Score 1 (Low): No surcharge or not in model
- Score 3: Model predicts surcharge resulting from backwater conditions
- Score 5: Model shows surcharging due to throttle pipe
- Score 8: Model shows surcharging due to throttle pipe resulting in spills or less than 5-feet freeboard
- Score 10 (High): Model shows surcharging due to throttle pipe resulting in spills or less than 5-feet freeboard for current (2015) flows

The hydraulic model was used to simulate flows for the design storm event and identify areas of the Santa Ana trunk sewer system that fail to meet specified performance criteria during existing and future PWWF. The model identified four areas of the City where "surcharged" sewers were identified. A surcharge condition occurs when the full pipe capacity is less than the predicted peak flow. In these conditions, the hydraulic grade line exceeds the pipe slope indicating the pipe has insufficient capacity to convey peak flows. These surcharged pipes can increase the risk of sewer overflows occurring during significant rainfall events.

The most significant areas of potential wet weather capacity deficiencies are between Fairhaven Avenue and 17th Street running through Old Grand Street, to Santa Clara Avenue, and then onto Wright Street in the northeastern area of the City. Predicted peak flows result in surcharging with depths ranging from 2 to 5-feet above pipe crown, with some manholes less than desired 5-feet of freeboard.

City Sewer Condition Assessment

In addition to the sewer capacity assessment, the City uses a specialist CCTV contractor to inspect the condition of the City's sewer system. The 2016 SMP included a review of the CCTV inspection data to provide an independent assessment of the accuracy and consistency of the condition scores provided by the CCTV contractor. Similar to the capacity assessment, the LOF matrix was used to score the condition of the sewer system as shown below.

Table 6 Sewer System Condition Assessment Rating Score

Likelihood Category	Indicator	Likelihood Score				
		1 (Low)	3	5	8	10 (High)
Condition	Pipe Age	<20 years	20 to <40 years	40 to <60 years	60 to <80 years	>=80 years
Notes Source: 2016 Sewer Master Plan Update, RMC						

The review identified several defects in the condition in the sewer system primarily in the central part of the City including the downtown area. This area is known to have older pipes compared to the outer neighborhoods and consequently has more defect issues.

For purposes of grouping pipes into sewer rehabilitation projects, the improvement projects identified through the decision process were assigned to "mini-basins" delineated by Traffic Area Zone (TAZ) areas. The TAZ areas provide a mechanism for bundling pipe improvements into manageable projects which benefit from efficient cost savings through combined construction mobilization, collective and organized street closures, bulk cost savings for materials and equipment rentals and overall design and construction cost savings. The combined deficiencies and recommended improvement areas found by the capacity assessment and the condition assessment are portrayed below in Figure 7. Individual sewer capacity and sewer condition deficiency maps from the 2016 SMP are included in Appendix B.

Capital improvement projects are prioritized to allocate available funds to critical projects based on risk of failure and level of impact to economic, social and environment issues. Similar to

many public agencies, the City has an annual budget for replacing or rehabilitating aging infrastructure and therefore requires a systematic and defensible method for prioritizing both capacity and condition-based improvement projects. The SMP has aided in prioritizing projects on each years CIP. The SMP references 20 projects for FY2016/17 – FY2020/21. The current 2018/19 CIP sewer projects are listed below[5]:

- #43 Bristol Street Sewer Main Improvements
- #44 Santa Ana Memorial Neighborhoods Sewer Main Improvements
- #45 Warner Garnsey Sewer Main Diversion Improvements (Project listed in SMP as CIP-CAP-006A)
- #46 Willard Neighborhood Sewer Main Improvements

In addition, the current CIP projects currently under design or construction are listed below:

- Citywide Sewer Main Improvements Phase II
- Columbine Sewer Main Improvements
- Washington Square Neighborhood Sewer Main Improvements
- Flower St Sewer Main Improvements (Washington St – 17th)
- Segerstrom/San Lorenzo Sewer List Station

In addition to the SMP and CIP sewer system management procedures, the City currently requires sewer monitoring studies for all projects that go through the entitlement process. After submittal and review of these studies by City staff, if the sewer system is found to be deficient, the developer will be required to upsize the portion of the sewer pipe within the frontage of their property. There may be options depending on the condition of the sewer infrastructure for the developers to enter into a Joint Cost Sharing Agreement with the City to cover a portion of the cost for required upsizing that may be done by the City at a later date. If improvements are needed to infrastructure downstream of the project site, the developer may be required to participate and pay into the Fair Share Agreement currently employed by the City. The Fair Share Agreement will allow the developer to fund a percentage of the downstream improvement that will be carried out by the City in the future. Therefore, the City has a robust process in place on a project-by-project basis to ensure the sewer system is functioning efficiently.

Orange County Sanitation District Master Plan Update Report No. 3

OCSD, in coordination with Woodard & Curran, prepared an update to its Master Plan in December 2019. The purpose of this Update Report was to evaluate collections system capacity throughout the OCSD service area. A new model was developed to replace the previous 2006 model, based on Center for Demographic Research (CDR) population and employment data and growth estimates. The updated capacity assessment was conducted between 2016 and 2017.

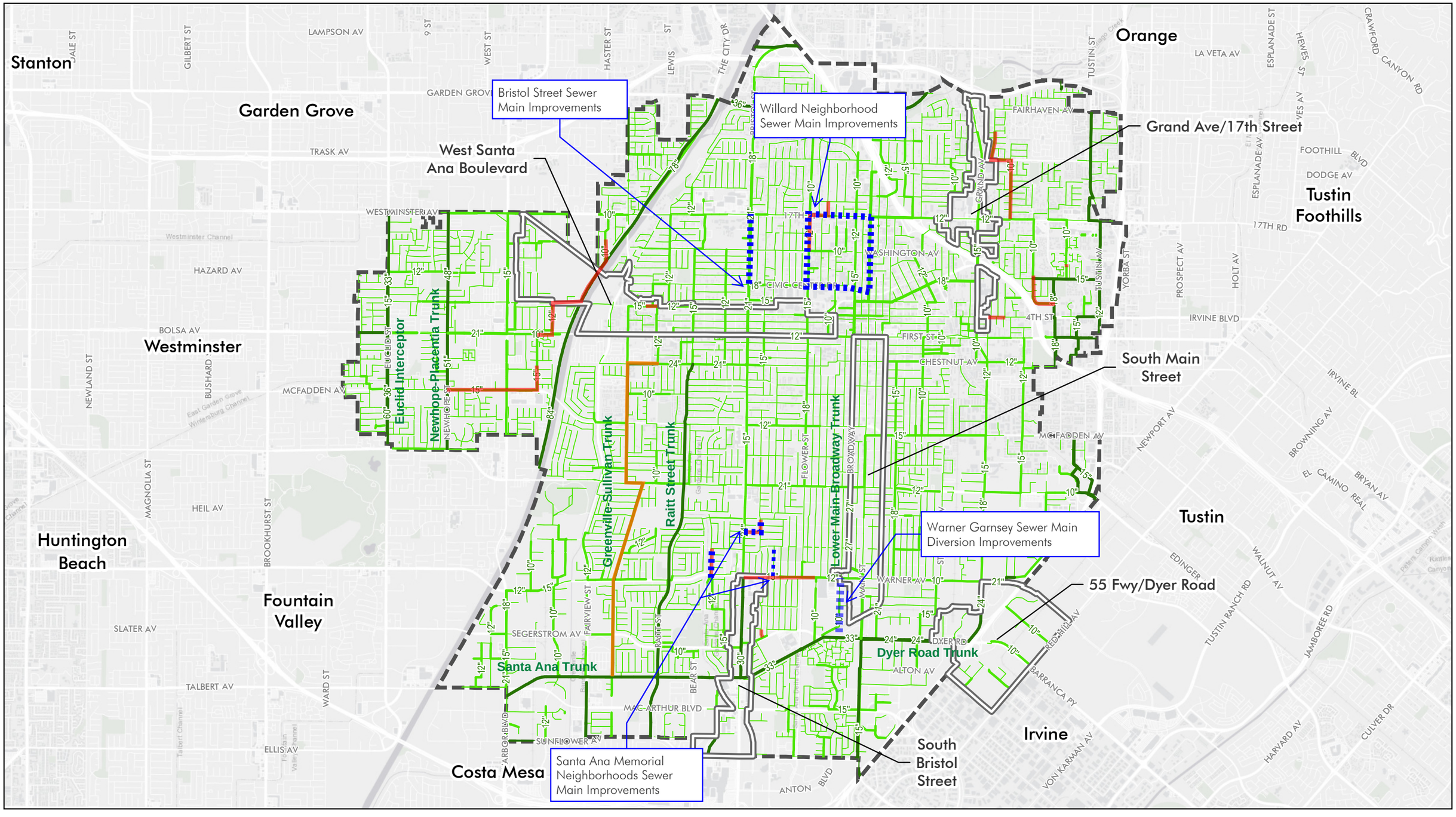
The 2019 Update Report determined a series of trunk line segments that exhibited hydraulic deficiencies or potential hydraulic deficiencies under existing (2017) and buildout (2040)

[5] City of Santa Ana Capital Improvement Program 2018/2019. Found here: https://www.santa-ana.org/sites/default/files/FY18-19-CIP.pdf

conditions. Hydraulic deficiencies were assessed for both peak dry weather flow and peak wet weather flow scenarios. Of the assessed segments, the Greenville-Sullivan Trunk Line within the GPU boundary was shown to exhibit surcharge conditions for peak wet weather flows. The Greenville-Sullivan Trunk line was shown to have potential surcharge above the crown from 2' to over 5' for both existing and proposed buildout conditions.

A capacity improvement project for the Greenville-Sullivan Trunk line has been included in OCSD's proposed projects and is currently under review. The project will upsize all 33" segments within the trunk line to a 39" diameter, addressing all surcharge concerns.

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City of Santa Ana Existing Sewer System Improvement Projects

Figure 7

5/5/2020

City of Santa Ana

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Santa Ana Boundary

City Sewer Pipelines
- 8" and Below in Diameter
- 9" - 84" in Diameter

OCSD Sewer Pipelines
- OCSD Sewer Lines

Proposed Improvements
- Sewer Master Plan Recommended 5-Year CIP Improvements for City Sewer Facilities
- 2018/19 City Capital Improvement Plan Project
- Proposed OCSD Trunk Line Capacity Improvement Project

0 4,000 8,000 Feet

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2.3 WATER DISTRIBUTION SYSTEM

2.3.1 Existing Water System

The City's Water Utility provides water service within a 27-square mile service area. The service area includes the City of Santa Ana and a small neighborhood in the City of Orange, near Tustin Avenue and Fairhaven by the northeast corner of Santa Ana.[6] There are also Irvine Ranch Water District (IRWD) water lines that serve portions of the City. In addition, Orange County Water District (OCWD) provides recycled water service to portions of the City. Metropolitan Water District of Southern California (Metropolitan) also has delivery/conveyance lines that run through the City.

The City obtains water from two primary sources: local groundwater from the Orange County Groundwater Basin (OC Basin), which is managed by OCWD and imported water from Metropolitan. The City is a member agency of Metropolitan. Groundwater production accounts for roughly 70-75% of the water supply and Metropolitan imported water supplies provide the remaining 25-30%. The City's water system has a total of nine reservoirs with a storage capacity of 49.3 million gallons, 21 groundwater wells, and seven imported water connections.[7] The seven imported water connections that receive water through Metropolitan's Orange County and East Orange County Feeder pipelines have a total capacity of 60,580 gallons per minute (gpm) to transfer water into the City's distribution system.

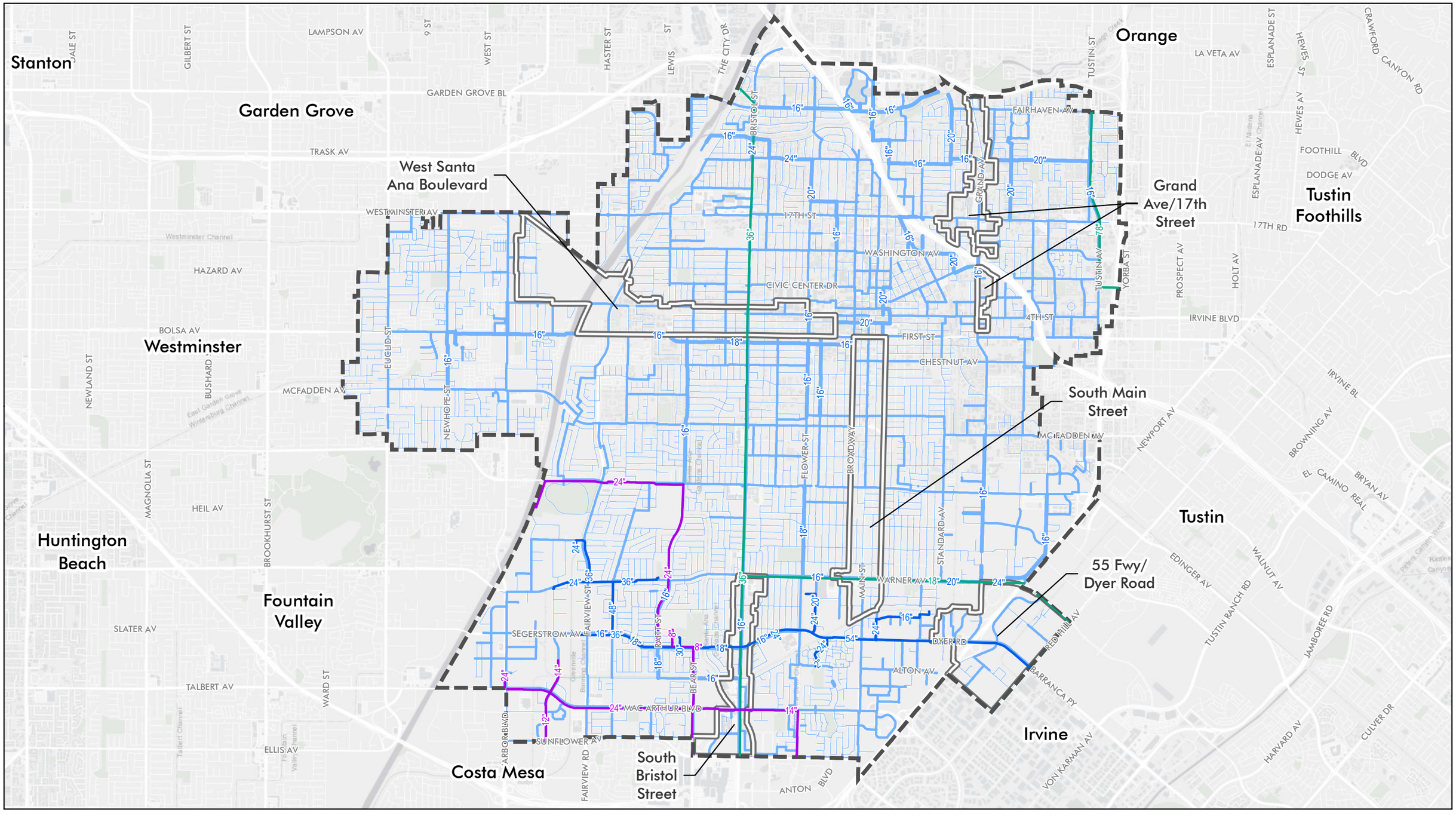
The City's water system consists of two pressure zones (High Zone and Low Zone). Each of these pressure zones have groundwater wells, reservoirs and booster pump stations which supplies potable water to the City's customers. In general, the facilities are consolidated into several stations consisting of multiple groundwater wells, a storage reservoir, and a booster pump station. At each station, the wells pump groundwater into the storage reservoir and the booster pump station pumps water from the storage reservoir to the distribution system. The City's water distribution system is comprised of approximately 480 miles of transmission/distribution mains ranging from 4"-30" in diameter. The majority of the City's water lines were constructed in the 1960s. The primary water facilities within the Focus Areas are summarized below in Table 7 and shown in Figure 8.

[6] 2015 City of Santa Ana Urban Water Management Plan, June 2016. City of Santa Ana.
[7] 2017 Water Master Plan, January 2018. City of Santa Ana.

Table 7 Existing Water System within Focus Areas

Focus Area	Acreage	Primary Water Facilities
West Santa Ana Boulevard	604 acres	6″-12″ City water lines 36″ MWD conveyance water line
South Bristol Street	236 acres	8″ – 36″ City water lines 36″ MWD conveyance line 16″-18″ IRWD water lines 14″ OCWD reclaimed water lines
Grand Avenue/17th Street	202 acres	6″-12″ City water lines
South Main Street	408 acres	4″-24″ City water lines 16″-18″ MWD conveyance line 24″-54″ IRWD water lines
55 Freeway/Dyer Road	438 acres	8″-12″ City water lines 24″ MWD conveyance line 54″ IRWD water line

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City of Santa Ana Existing Water System Facilities

Figure 8

4/10/2020

City of Santa Ana

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Santa Ana City Boundary
Focus Area

Santa Ana Municipal Utilities Water Lines
8" and Below in Diameter
9" - 14" in Diameter
15" - 30" in Diameter

Other Water Lines
IRWD Water Lines
MWD Water Lines
OCWD Reclaimed Water Lines

0 4,000 8,000 Feet

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2.3.2 Existing Water Flow

For each land use in the City of Santa Ana and its Focus Areas, water flow estimates were developed to provide a baseline condition and to allow for comparisons against any proposed land use changes. Acreages and units of development (i.e. residential & non-residential) were utilized along with their corresponding flow factors to identify changes in water flow. Commercial water flow factors were provided from the City of Santa Ana Guidelines for Water and Sewer Facilities (2017). Residential water flow factors were provided from the MWDOC Orange County Water Reliability Study (2016), and utilized Water Use Factors from Survey of Water Agencies in Orange County (FY 2013-14) for single family and multifamily water flow estimates. Similar to the methodology employed to estimate sewer flows as described in Section 2.2.2, the generation factors for estimating water flows are typically conservative in nature and tend to over-represent water flows as a means to incorporate a safety factor into pipe network design and hydraulic capacity assessments specifically for infrastructure.

Table 8 provides a summary of the existing condition water flow for the City and Focus Areas. Detailed calculations are provided in Appendix C.

Table 8 Existing Condition Average Daily Water Flow

Area	Number of Dwelling Units	Commercial Square Footage	Average Water Flows (GPD)
Focus Areas			
West Santa Ana Boulevard	2,658	3,090,472	880,807
South Bristol Street	220	1,577,511	136,957
Grand Avenue/17th Street	561	1,400,741	202,362
South Main Street	1,720	1,685,978	600,682
55 Freeway/Dyer Road	1,221	5,666,453	582,841
Focus Area Total	**6,380**	**13,421,155**	**2,403,648**
Remainder of City			
All Other Areas of City	72,412	53,697,441	29,403,648
Citywide Total	**78,792**	**67,118,596**	**31,833,589**

Notes:
GPD – Gallons per day SF – Square Feet
Land use data supplied by Placeworks, 2020

Under the existing conditions, average daily water flows are estimated at 31.83 MGD through the City of Santa Ana. Focus Area water flows represent approximately 7.5% of existing Citywide water flows. These conservative flow estimates are for infrastructure capacity planning purposes only.

2.3.3 Existing Water Capacity Assessment

City of Santa Ana Water Master Plan

The 2017 Santa Ana Water Master Plan (WMP) was prepared by Tetra Tech to document a multi-year capital improvement program to maintain the City's water utility infrastructure systems in sound operable condition and to meet the level of service expectations of the City over the proposed planning period from 2017/18 to 2039/40. The goal of the 2017 WMP was to

identify needed system improvements, define typical refurbishment and replacement requirements, recommend the prioritization of these improvements/replacements, and establish an overall general implementation schedule and budget for these future capital improvement projects.

The WMP analyzed several components of the City's water system including groundwater well rehabilitation needs, reservoir and pump station status, distribution system upgrade needs and other miscellaneous improvements. Maintaining groundwater wells has been given the highest priority as groundwater supply is more affordable as compared the water supplies purchased from Metropolitan. The WMP referenced a study by IDModeling, Inc. that developed and calibrated a computerized water system model of the City's existing water system for the evaluation and analysis of the City's water system for reliability and system hydraulic operations/capacity.

The results of the water supply analysis indicated that the City's water system has adequate capacity and distribution capabilities to supply the entire water system demands using only groundwater wells. However, as discussed in the WMP, as of 2017, based on age of the existing pipe, 20% (about 560,000 feet of pipe) of the City's distribution system has already past the pipe materials typical useful life. By the end of the proposed planning period (fiscal year 2039/40), 70% (about 1,870,000 feet of pipe) of the City's distribution system will be past the materials lifetime. In summary, while the City's distribution system is robust and hydraulically sound, the system is old and needs to be systematically replaced. The recommended proposed pipeline replacement program from the WMP is summarized below in addition to updates from the City's most recent CIP Update list referenced above and discussions with the City on the status of improvement projects.

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Table 9 Water System Projects

Project Type	Project Description	March 2020 CIP Updates
Groundwater	Replace Groundwater Well 22 in High Zone	N/A
	Construct 1-2 new wells near elevated tank to resolve low pressures	N/A
	Replace Groundwater Wells W16, W18, W24 due to age	N/A
	Rehabilitation of W32 due to elevated nitrate levels at W29	Well #29 rehab is 79% through the design phase of the project.
	Install emergency generators for groundwater wells W31, W35, W37, W40, W41 in short term and W28, W32, W36 and W38 in long term	Well #32 rehab is 41% through the design phases of the project.
Pump Station	Walnut Pump Station Rehabilitation	The Walnut Pump Station rehab has been completed.
	Cambridge Pump Station[1] and East Pump Station Facilities	N/A
	Emergency generator at Crooke and Cambridge Pump Station facilities due to criticalness of these facilities in the High Zone	N/A
Distribution Systems / Water Main Improvements	(1) 17th Street	Improvement project completed
	(2) Riverview Phase 2	Riverview Neighborhood improvements are 86% through the design phase of the project. Southern portion of the project is under construction.
	(3) Bristol Phase 3	Bristol Street Phase 3A is 75% through the design phase; Bristol Street Phase 3B is 42% through the warranty phase.
	(4) West Grove Valley	Improvement project completed
	(5) Grand Avenue	Grand Avenue (fourth St to 17th St) is pending.
	(6) St Gertrude and Grand	St Gertrude and Grand Ave Improvements are 85% through the design phase of the project. Construction estimated to begin late Spring 2020.
	(7) Thornton Park	Improvement project completed
	(8) Bristol Phase 4	N/A
	(9) Warner Widening	Warner Avenue (Bristol St – Main St) Improvement planning is anticipated to start in early 2020.

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		Warner Avenue (Main St – Oak St) Improvements is 100% through design as of July 2019.
	(10) Walnut Discharge Main Lining	N/A
	(11) Warner Avenue	N/A
	(12) Fisher Park	Fisher Park NH Improvements are 16% through the design phase of the project.
	(13) French Court	
	(14) French Park	French Park NH Improvements are 18% through the design phase of the project.
	(15) Park Santiago	N/A
	(16/17) West Floral	N/A
	(18) Willard Neighborhood	N/A
	(19) Saddleback View	N/A
	(20) Washington Square	N/A
	(21) Artesia Pilar	N/A
	(22) Downtown;	N/A
	(23) Heninger Park;	N/A
	(24) Eastside Neighborhood.	N/A
Miscellaneous Improvements	Various new wellhead treatment facilities	N/A
	Remote control to four pressure reducing/sustaining facilities	N/A
	Automated meter infrastructure to access real-time water consumption data	N/A
	Upgrade SCADA and install fiber-optic backbone facility from each key facility to the City Yard	N/A
	Consideration of solar panels at Jon Garthe and West Reservoir facilities	N/A
	Intrusion alarms at reservoir sites	N/A

Notes
[1] Bolded text highlights WMP projects currently listed in the 2018/19 CIP.
[2] See Figure 8 for locations of Groundwater, Pump Station and Distribution System Projects.

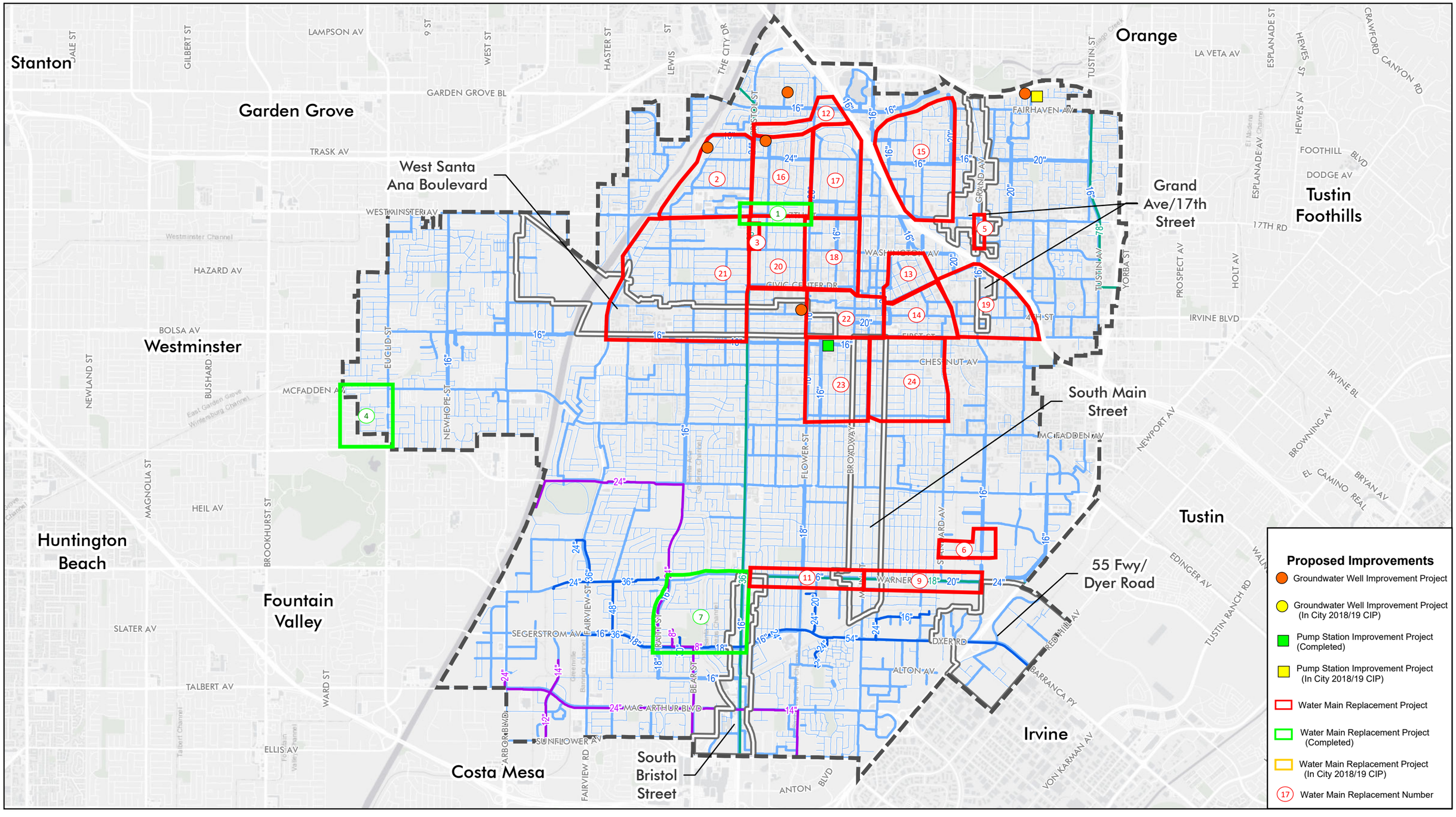
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As shown above, due to the importance and lower cost of groundwater resources for water supply as compared to imported water purchased from Metropolitan, groundwater projects have been allocated the largest CIP budget through 2040. Ensuring water distribution lines are functioning effectively is the second largest CIP budget allocation. The remaining budget is for pump station and reservoir projects and other miscellaneous water system needs. The projects below have been prioritized within the City's current 2018/19 CIP.

- #51 Bristol Street Water Main Improvements Phase 4
- #52 Cambridge Pump Station Entry Improvements
- #53 Washington Well Site Improvements

The 2018/19 CIP projects and the projects summarized above in Table 9 are shown below in Figure 9.

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City of Santa Ana Water System Improvement Projects

Figure 9

4/10/2020

City of Santa Ana

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Santa Ana City Boundary

Focus Area

Santa Ana Municipal Utilities Water Lines

8" and Below in Diameter

9" - 14" in Diameter

15" - 30" in Diameter

Other Water Lines

IRWD Water Lines

MWD Water Lines

OCWD Reclaimed Water Lines

0 4,000 8,000 Feet

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2.4 WATER QUALITY

2.4.1 Existing Regulations

Basin Plan for the Santa Ana Region

In addition to its permitting programs, the State Water Resources Control Board (SWRCB), through its nine Regional Water Quality Control Boards (RWQCBs), developed Regional Water Quality Control Plans (or Basin Plans) that designate beneficial uses and water quality objectives for California's surface waters and groundwater basins, as mandated by both the CWA and the state's Porter-Cologne Water Quality Control Act. Water quality standards are thus established in these Basin Plans and provide the foundation for the regulatory programs implemented by the state. The Santa Ana RWQCB's Basin Plan, which covers the GPU area, specifically (i) designates beneficial uses for surface waters and ground waters, (ii) sets narrative and numerical objectives that must be met in order to protect the beneficial uses and conform to the state's antidegradation policy, and (iii) describes implementation programs to protect all waters in the Region. In other words, the Santa Ana RWQCB Basin Plan provides all relevant information necessary to carry out federal mandates for the antidegradation policy, 303(d) listing of impaired waters, and related Total Maximum Daily Loads (TMDLs), and provides information relative to National Pollutant Discharge Elimination System (NPDES) and Waste Discharge Requirement (WDR) permit limits.

Total Maximum Daily Loads (TMDLs)

Under Section 303(d) of the Clean Water Act (CWA), states are required to identify water bodies that do not meet their water quality standards. Once a water body has been listed as impaired on the 303(d) list, a TMDL for the constituent of concern (pollutant) must be developed for that water body. A TMDL is an estimate of the daily load of pollutants that a water body may receive from point sources, non-point sources, and natural background conditions (including an appropriate margin of safety), without exceeding its water quality standard. Those facilities and activities that are discharging into the water body, collectively, must not exceed the TMDL. In general terms, Municipal Separate Storm Sewer System (MS4) and other dischargers within each watershed are collectively responsible for meeting the required reductions and other TMDL requirements by the assigned deadline.

TMDLs have been established for pesticides, pathogens, sediment, and nutrients for the Upper and Lower Newport Bay. The remaining 303(d) listed impairments shown in Table 10 have not yet been established and are pending approval for TMDL establishments for 2019 to 2029.

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Table 10 List of 303(d) Impairments and TMDLs

Water Body/Channel	List of 303(d) Impairments[1]	TMDL
East Garden Grove Wintersburg Channel	Ammonia (Unionized),	Pending 2021 TMDL Establishment for Ammonia
Bolsa Chica Ecological Reserve	Toxicity	Pending 2027 TMDL Establishment for Toxicity
Bolsa Chica State Beach	Copper, Nickel	Pending 2019 TMDL Establishment for Copper and Nickel
Huntington City Beach	No Impairments	N/A
Huntington Beach State Park	Polychlorinated Biphenyls (PCBs)	Pending 2019 TMDL Establishment for PCBs
Talbert Channel	Toxicity	Pending 2029 TMDL Establishment for Toxicity
Santa Ana River, Reach 1	No Impairments	N/A
Newport Slough	Indicator Bacteria	Pending 2021 TMDL Establishment for Indicator Bacteria
Newport Beach	No Impairments	N/A
Balboa Beach	DDT, Dieldrin, PCBs	Pending 2019 TMDL Establishment for DDT, Dieldrin, and PCBs
Santa Ana River Delhi Channel	No Impairments	N/A

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Costa Mesa Channel	No Impairments	N/A
Newport Bay, Upper	Chlordane, Copper, DDT, Indicator Bacteria, Malathion, Nutrients, PCBs, Sedimentation, Toxicity	TMDLs for Chlordane, DDT, and PCBs established 2013 TMDL for Chlorpyrifos/Diazinon established 2004 TMDL for Lead established 2000 TMDLs for Nutrients and Sedimentation established 1999 Pending 2019 TMDL Establishment for Copper Pending 2027 TMDL Establishment for Malathion and Toxicity
Lower Newport Bay	Chlordane, Copper, DDT, Indicator Bacteria, Nutrients, PCBs, Sedimentation, Toxicity	TMDLs for Chlordane, DDT, and PCBs established 2013 TMDL for Chlorpyrifos/Diazinon established 2004 TMDL for Lead established 2000 TMDLs for Nutrients and Sedimentation established 1999 Pending 2019 TMDL Establishment for Copper Pending 2027 TMDL Establishment for Toxicity
Newport Beach West Jetty	No Impairments	N/A
Corona Del Mar State Beach	No Impairments	N/A

Notes:
Source:
2014-2016 California 303(d) List of Water Quality Limited Segments. Retrieved January 2019: http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2014_2016.shtml

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In addition, the California State Water Resources Control Board (State Board) has adopted the statewide Trash Provisions that requires implementation of Best Management Practices (BMPs) that mitigate or abate trash within Priority Land Use Areas (PLUs). PLUs are defined as, "high density residential, industrial, commercial, mixed urban, and public transportation stations." The purpose of the Trash Provisions is to establish a statewide water quality objective that ensures the quality of surface waters that enter storm drains and eventually lead out to major water ways are free of trash. The City is currently undergoing the process to comply with these new Trash Provisions.

County of Orange MS4 Permit, Drainage Area Management Plan (DAMP) & Local Implementation Plans (LIP)

In May 2009, the Santa Ana RWQCB re-issued the North Orange County MS4 Storm Water Permit as WDR Order R8-2009-0030 (NPDES Permit No. CAS618030) to the County of Orange, the incorporated cities of Orange County, and the Orange County Flood Control District within the Santa Ana Region. Pursuant to this "Fourth-Term" MS4 Permit, the Co-permittees were required to update and implement a Drainage Area Management Plan (DAMP) for its jurisdiction, as well as Local Implementation Plans (LIPs), which describe the Co-permittees' urban runoff management programs for their local jurisdictions.

Under the City's LIP, land development policies pertaining to hydromodification and low impact development (LID) are regulated for new developments and significant redevelopment projects. The term "hydromodification" refers to the changes in runoff characteristics from a watershed caused by changes in land use condition. More specifically, hydromodification refers to "the change in the natural watershed hydrologic processes and runoff characteristics (i.e., interception, infiltration, overland flow, interflow and groundwater flow) caused by urbanization or other land use changes that result in increased stream flows and sediment transport." The use of LID Best Management Practices (BMPs) in project planning and design is to preserve a site's predevelopment hydrology by minimizing the loss of natural hydrologic processes such as infiltration, evapotranspiration, and runoff detention. LID BMPs try to offset these losses by introducing structural and non-structural design components that restore these water quality functions into the project's land plan. These land development requirements are detailed in the County-wide Model Water Quality Management Plan (WQMP) and Technical Guidance Document (TGD), approved in May 2011, which Cities have incorporated into their discretionary approval processes for new development and redevelopment projects.

The LID hierarchy requires new developments and re-developments to implement BMPs under the LID hierarchy as described in the TGD. The LID hierarchy requires new projects to first infiltrate, then harvest and reuse, then biofilter stormwater runoff from their project site depending on site constraints. New projects and redevelopments within the City will follow the set hierarchy of BMP selection, and more runoff throughout the City will be effectively treated as development occurs.

2.4.2 Existing Surface Water Conditions

According to the Santa Ana Region Water Action Plan (WAP), the channels with existing beneficial uses that serve the GPU area include San Diego Creek, the Santa Ana River, and coastal wetlands, bays, and tidal prisms.

Table 11 List of Receiving Waters and Beneficial Uses

Lower Santa Ana River Basin– Santa Ana River Reach 1	
MUN – Municipal and Domestic Supply GWR – Groundwater Recharge REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation	WARM – Warm Freshwater Habitat WILD – Wildlife Habitat RARE – Rare, Threatened, or Endangered Species
Lower Santa Ana River Basin – Santa Ana-Delhi Channel	
REC 2 – Non-Contact Water Recreation WARM – Warm Freshwater Habitat	WILD – Wildlife Habitat RARE – Rare, Threatened, or Endangered Species
Lower Santa Ana River Basin – San Diego Creek Reach 1	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation	WARM – Warm Freshwater Habitat WILD – Wildlife Habitat
Lower Newport Bay	
NAV – Navigation REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation COMM – Commercial and Sportfishing	RARE – Rare, Threatened, or Endangered Species WILD – Wildlife Habitat SPWN – Spawning, Reproduction, and Development MAR – Marine Habitat SHEL – Shellfish Harvesting
Upper Newport Bay	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation COMM – Commercial and Sportfishing BIOL – Biological Habitat of Significance EST – Estuarine Habitat	RARE – Rare, Threatened, or Endangered Species WILD – Wildlife Habitat SPWN – Spawning, Reproduction, and Development MAR – Marine Habitat SHEL – Shellfish Harvesting
Bolsa Chica Ecological Reserve	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation BIOL – Biological Habitat of Significance EST – Estuarine Habitat	RARE – Rare, Threatened, or Endangered Species WILD – Wildlife Habitat SPWN – Spawning, Reproduction, and Development MAR – Marine Habitat
Huntington Beach Wetlands	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation BIOL – Biological Habitat of Significance	RARE – Rare, Threatened, or Endangered Species WILD – Wildlife Habitat SPWN – Spawning, Reproduction, and Development MAR – Marine Habitat
Santa Ana River Salt Marsh	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation BIOL – Biological Habitat of Significance	RARE – Rare, Threatened, or Endangered Species WILD – Wildlife Habitat MAR – Marine Habitat EST – Estuarine Habitat

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Tidal Prisms of Flood Control Channels Discharging to Coastal or Bay Waters	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation COMM – Commercial or Sport Fishing	WILD – Wildlife Habitat MAR – Marine Habitat
Tidal Prism of Santa Ana River and Newport Slough	
REC 1 – Water Contact Recreation REC 2 – Non-Contact Water Recreation COMM – Commercial or Sport Fishing	WILD – Wildlife Habitat RARE – Rare, Threatened, or Endangered Species MAR – Marine Habitat
Tidal Prism of Santa Ana-Delhi Channel	
REC 2 – Non-Contact Water Recreation WILD – Wildlife Habitat	RARE – Rare, Threatened, or Endangered Species MAR – Marine Habitat

Notes:
Sources:
-California Regional Water Quality Control Board, Santa Ana Region. 1995 Water Quality Control Plan for the Santa Ana River Basin (Updated 2016). Retrieved September 2018 from https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2016/Chapter_3_Feb_2016.pdf

General water quality objectives have been prescribed in the Basin Plan for all surface waters within the Santa Ana River Region. In order to maintain the beneficial uses listed in the previous section, inland surface waters must achieve these water quality objectives. The following numeric objectives have been established by the Basin Plan for the following surface streams that may receive flows from the GPU area:

Table 12 Numeric Water Quality Objectives

Santa Diego Creek, Reach 1	
Water Quality Objective	**Numeric Objective (mg/L)**
Total Dissolved Solids	1500
Total Inorganic Nitrogen	13
Chemical Oxygen Demand	90

Water Quality Objectives

General water quality objectives have been prescribed for the upstream portions of the Santa Ana River Watershed and its inland surface streams. However, site-specific objectives have not been determined for the reaches surrounding and fed by the GPU area. These areas are often impaired (by high levels of minerals) and there is not sufficient historic data to designate objectives based on natural background conditions.

2.4.3 Existing Groundwater Conditions

Regional Groundwater Conditions

The GPU area lies within the Orange County Groundwater Basin (OC Basin). The OC Basin is the source of approximately 60 to 70 percent of the water supply for 2.3 million people.

OCWD is responsible for managing the OC Basin. To maintain groundwater quality, OCWD conducts an extensive monitoring program that serves to manage the OC Basin's groundwater production, control groundwater contamination, and comply with all required laws and regulations. A network of nearly 700 wells provides OCWD a source for samples, which are tested for a variety of purposes. OCWD collects 600 to 1,700 samples each month to monitor Basin water quality. These samples are collected and tested according to approved federal and state procedures as well as industry-recognized quality assurance and control protocols.

The OC Basin also has prescribed beneficial uses and water quality objectives as stated in the Santa Ana RWQCB Basin Plan that are described below.

Beneficial Uses

According to the Santa Ana RWQCB Basin Plan, beneficial uses have been established for the Orange Groundwater Management Zone which underlies the Santa Ana GPU area. These are listed below.

Table 13 Beneficial Uses of the OC Basin

Lower Santa Ana River Basin– Orange Groundwater Management Zone	
MUN – Municipal and Domestic Supply	IND – Industrial Service Supply
AGR – Agricultural Supply	PROC – Industrial Process Supply

Water Quality Objectives

Numeric water quality objectives within the Basin Plan have been established for the OC Basin and are listed below[8]:

Table 14 Numeric Water Quality Objectives

Basin Plan – Orange Groundwater Management Zone	
Water Quality Objective	Numeric Objective (mg/L)
Total Dissolved Solids	580
Nitrate as Nitrogen	3.4

Salinity is a significant water quality problem in many parts of southern California, including Orange County. Salinity is a measure of the dissolved minerals in water including both TDS and nitrates. The portions of the OC Basin with the highest levels are generally located in the Cities of Irvine, Tustin, Yorba Linda, Anaheim, Placentia, and Fullerton. OCWD continually monitors the levels of TDS in wells throughout the OC Basin. The TDS concentration in the OC Basin is

[8] Santa Ana RWQCB Basin Plan. Orange Groundwater Management Zone. Found here: https://www.waterboards.ca.gov/santaana/water_issues/programs/basin_plan/docs/2016/Chapter_4_Feb_2016.pdf

expected to decrease over time as the TDS concentration of Groundwater Replenishment System (GWRS) water used to recharge the OC Basin is approximately 50 mg/L.

Nitrates are one of the most common and widespread contaminants in groundwater supplies, originating from fertilizer use, animal feedlots, wastewater disposal systems, and other sources. The MCL for nitrate in drinking water is set at 10 mg/L. OCWD regularly monitors nitrate levels in groundwater and works with producers to treat wells that have exceeded safe levels of nitrate concentrations. OCWD manages the nitrate concentration of water recharged by its facilities to reduce nitrate concentrations in groundwater.

Other contaminants that OCWD monitors within the OC Basin include:

- Methyl Tertiary Butyl Ether (MTBE)
- Volatile Organic Compounds (VOC)
- NDMA
- 1-4-Dioxane
- Perchlorate
- Selenium
- Constituents of Emerging Concern (CEC)

Sustainable Groundwater Management Act

The California Sustainable Groundwater Management Act ("SGMA"), a three-bill package signed into law in 2014, creates a framework for the management of groundwater sources throughout the state. Under SGMA, local agencies form Groundwater Sustainability Agencies ("GSAs") and create Groundwater Sustainability Plans (GSPs). If a GSA is not formed, special act districts, such as OCWD, can submit "Alternative Plans" to GSPs. Timelines and requirements are based upon basin priority. Under SGMA, the Orange County Groundwater Basin (Basin 8-1) is considered a medium-priority basin.

In January 2017 OCWD, the city of La Habra, and Irvine Ranch Water District submitted the Basin 8-1 Alternative Plan. The Alternative Plan incorporates the requirements of GSPs and is considered to be "functionally equivalent" to a GSP. The Alternative Plan analyzes existing basin conditions and demonstrates that the Basin has been operated within its sustainable yield for more than 10 years without degrading water quality, reducing storage, or lowering groundwater levels. The Alternative Plan will be updated and resubmitted every 5 years as part of SGMA requirements. The Alternative Plan was approved by the California Department of Water Resources (DWR) in July 2019.

Under the Alternative Plan, four management areas have been created for the Orange County Groundwater Basin. Each of these management areas has slightly different management goals and strategies based on the government bodies that serve them. The management areas are as follows:

- *La Habra-Brea Management Area* – Includes the northern portion of the Basin located outside of the OCWD service area.
- *OCWD Management Area* – Includes OCWD's service area, covering approximately 89% of the Basin. This area encompasses the City of Santa Ana.

- *South East Management Area* – Includes the southern and southeastern portions of the Basin that are outside of OCWD's service area.
- *Santa Ana Canyon Management Area* – Includes the eastern portion of the Basin outside of OCWD's service area.

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3. THRESHOLDS OF SIGNIFICANCE

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources such as hydrology and water quality. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

3.1 HYDROLOGY & WATER QUALITY THRESHOLDS (CEQA CHECKLIST SECTION X)

Would the Project:

A. Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?
B. Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.
C. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

   (i) Result in a substantial erosion or siltation on- or off-site;
   (ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;
   (iii) 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; or
   (iv) Impede or redirect flood flows?

D. In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?
E. Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?

Should the answers to these environmental factors prove to be a potentially significant impact, mitigation measures would be required to reduce those impacts to a less-than-significant threshold.

3.2 UTILITIES AND SERVICE SYSTEMS THRESHOLDS (CEQA CHECKLIST SECTION XIX)

Would the Project:

A. Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?

C. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?

Should the answers to these environmental factors prove to be a potentially significant impact, mitigation measures would be required to reduce those impacts to a less-than-significant threshold.

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4. ENVIRONMENTAL IMPACTS

The purpose of the proposed conditions evaluation is to determine potential impacts related to the proposed land use zoning associated with the Santa Ana GPU and hydrology, sewer and water infrastructure systems.

4.1 PROPOSED LAND USE CHANGES

The proposed land use changes that will largely increase mixed use land uses including single and multi-family homes, commercial, industrial, and retail of varying density. An estimated growth of 36,261 dwelling units is anticipated across the City as compared to existing land use, concentrated mainly among the five Focus Areas and additional specific plan and special zoning areas. Approximately 5.8 million square feet of additional commercial land uses are anticipated across the City, and a corresponding increase of 11,436 jobs is anticipated. Land use changes as compared to the current General Plan occur exclusively in the Focus Areas. An increase of 13,195 dwelling units and a decrease in commercial square footage of -2,665,857 square feet is proposed across all of the Focus Areas in comparison to the current General Plan. Comparison of the current General Plan to the proposed GPU is important for understand any additional impacts to sewer and water infrastructure as described in Sections 4.3.2 and 4.4.2. Table 13 provides an overview of proposed land use changes across the City. Figure 10 illustrates the proposed buildout of land uses under full implementation of the GPU.

Table 15 City of Santa Ana GPU Land Use Changes

Focus Area	Acreage	Change in Housing Units	Change in Commercial Areas
Focus Areas			
West Santa Ana Boulevard	604 acres	+ 1,262 DUs	- 281,667SF
South Bristol Street	236 acres	+ 5,272 DUs	+ 3,505,130 SF
Grand Avenue/17th Street	202 acres	+ 1,722 DUs	- 696,847 SF
South Main Street	408 acres	+ 588 DUs	-739,316 SF
55 Freeway/Dyer Road	438 acres	+ 8,731 DUs	+ 475,830 SF
Focus Area Total	**1,888 acres**	**+17,575 DUs**	**+2,263,130 SF**
Remainder of City			
All Other Areas of City	15,642 acres	+ 18,686 DUs	+3,586,090 SF
Citywide Total	**17,530 acres**	**+ 36,261 DUs**	**+ 5,849,229 SF**

Under proposed conditions, 17,575 DUs and approximately 2.3 million sf of commercial space will be created throughout the Focus Areas, representing approximately half of the proposed growth as a result of GPU buildout. Based on the proposed land use changes, sewer and water flows are anticipated to increase while runoff within existing built out areas is anticipated to decrease due to minimum landscaping requirements as well as LID features associated with storm water requirements as compared to existing conditions. Runoff increases will occur within areas of new development where previous land uses were vacant. Additional details are provided below for hydrology, sewer and water.

Remainder of City Land Use Changes
+18,686 of Residential DUs
+3,566,090 SF of Commercial Space

Citywide Total Land Use Changes
Focus Areas + Remainder of City
+36,261 of Residential DUs
+5,849,229 SF of Commercial Space
+11,436 Jobs

Proposed Land Use Changes
+1,262 DUs
-281,667 SF
-2,393 Jobs

Proposed Land Use Changes
+1,722 DUs
-696,847 SF
-1,946 Jobs

Proposed Land Use Changes
+588 DUs
-739,316 SF
-1,304 Jobs

Proposed Land Use Changes
+8,731 DUs
+475,830 SF
+4,404 Jobs

Proposed Land Use Changes
+5,272 DUs
+3,505,130 SF
+7,855 Jobs

Anaheim
Orange
Garden Grove
Westminster
Tustin
Foothills
Fountain Valley
Huntington Beach
Irvine
Costa Mesa
Tustin
West Santa Ana Boulevard
Grand Ave/17th Street
South Main Street
55 Fwy/ Dyer Road
South Bristol Street
Santa Ana River
17TH ST
HAZARD AV
HARBOR BLVD
NEWHOPE ST
EUCLID ST
BRISTOL ST
GRAND AV
TUSTIN AV
4 ST
FIRST ST
CHESTNUT AV
BROADWAY
FLOWER ST
MAIN ST
STANDARD AV
WARNER AV
DYER RD
ALTON AV
SEGERSTROM AV
MAC ARTHUR BLVD
BEAR ST
RAILROAD ST
5 FWY
22
57
55
405

Aerial Date: 09/26/2018

Santa Ana GPU Proposed Zoning

City of Santa Ana General Plan Update

Figure 10
4/10/2020

Santa Ana City Boundary
Focus Area

Proposed General Plan Zoning
LR-7, Low Density Residential
LMR-11, Low-Medium Density Residential
MR-15, Medium Density Residential
UN, Urban Neighborhood
CR, Corridor Residential
GC, General Commercial
IND, Industrial
FLEX, Industrial/Flex
INS, Institutional
OS, Open Space
DC, District Center
PAO, Professional and Administrative Office
OBPDC, One Broadway Plaza District Center
ROW

FUSCOE ENGINEERING
full circle thinking

0 0.5 1 2 Miles

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4.2 HYDROLOGY

The purpose of the proposed conditions evaluation is to evaluate impacts associated with the proposed land use changes at a city-wide program-level EIR, characterize changes as compared to the existing runoff conditions and identify where either additional storm drain facilities are required to improve runoff conditions or where conformance to master plans of drainage are required for long-term planning and protection of downstream receiving waters.

4.2.1 Proposed Hydrology Conditions

As described in Section 2.1.1, under existing conditions, the City is largely built out and there are no major areas within the City undeveloped. Therefore, impacts to hydrology and storm drain systems will be minimal and peak flows will likely be decreased overall due to the implementation of minimum landscaping requirements as well as LID features associated with water quality regulations. These features will increase pervious areas throughout the City which will decrease stormwater flows.

As shown in Figure 4, it has been identified that there are two Focus Areas that may result in an increase of stormwater runoff peak flow rates due to the potential for single family homes and vacant lots to be redeveloped into higher intensity uses. These are summarized below:

- West Santa Ana Boulevard Focus Area:
  Description: The West Santa Ana Boulevard Focus Area has some existing single family residences that may be converted to multi family residences or commercial land uses in the future. This could result in increased imperviousness within these areas and therefore increased stormwater runoff peak flows.

  There are some downstream improvements to the Gardens Channel between Edinger and Sunflower as mentioned in Section 2.1.2 and in the City's MPD to alleviate some local flooding issues near Thorton Park. These improvements are also listed on the current OCPW 7-year CIP as a qualified future project. Therefore, based on these findings, prioritizing the Gardens Channel improvements may be beneficial to ensure no hydrology impacts result from the future developments proposed under the Santa Ana GPU.

- Grand Avenue / 17th Street Focus Area:
  Description: The Grand Avenue/17th Street Focus Areas also has some existing single family residences that may be converted to multi family residences or commercial land uses in the future. This could result in increased imperviousness within these areas and therefore increased stormwater runoff peak flows.

  There are several identified improvements along Grand Avenue between Santa Clara and the Santa Fe Channel within the regional Santa Fe Watershed. The majority of these improvements are to upsize various storm drain pipes to convey the 10-year storm event. Based on these findings, prioritizing the Santa Fe Grand storm drain improvements may be beneficial to ensure no hydrology impacts results from the future developments proposed under the Santa Ana GPU.

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- South Main Street Focus Area:
  Description: The South Main Street Focus Areas also has some existing single family residences that may be converted to multi family residences or commercial land uses in the future. This could result in increased imperviousness within these areas and therefore increased stormwater runoff peak flows.

  There are currently no improvements within this Focus Area identified within the City's MPD or the OCPW 7-year CIP.

- 55 Fwy/Dyer Road Focus Area:
  Description: Within the 55 Fwy/Dyer Road Focus Area, there are some large vacant parcels in the that may also result in increases in stormwater runoff.

  As mentioned in Section 2.1.3, the OCPW 7-Year Capital Improvement Plan includes the Lane Channel improvements which includes demolishing and replacing a portion of damaged concrete-lined channel. These improvements are anticipated to be finished in June 2020 and will serve to improve the hydrologic capacity of downstream areas.

Additionally, the South Bristol Street Focus Area also discharge to a number of the improvement projects covered in the Santa Ana Master Plan of Drainage and discussed in Section 2.1.2. Although this area is not anticipated to have an increase in peak runoff rates due to the likely increase in pervious areas associated with new development design features, these improvement projects should be considered for prioritization. The improvement projects within or downstream of the Focus Areas are summarized below.

- Improvement #2 – Gardens Channel Improvements receives runoff from West Santa Ana Boulevard and South Bristol Street Focus Areas and also drains through South Bristol Street Focus Area.

Prioritizing this improvement may be important to ensuring no hydrologic impacts exist in the future under buildout of the Santa Ana GPU.

Despite these potential increases in runoff from the GPU and recommended improvement projects, the City and County have policies in place for reviewing and permitting new developments as they are proposed as part of the GPU. As part of the development process, detailed hydrology studies will be required and if necessary, on-site detention systems within the development can be required to match existing peak flows, thereby eliminating any potential increase in runoff.

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4.2.2 Hydrology Impacts

The following impact assessments are based on the significance criteria established in Section 3.1 for hydrology.

Impact B: Substantially decrease groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin.

Impact Analysis: As a built out City, any proposed land use changes and development will occur within areas that are already built out and will not result in interference with groundwater recharge or management of the groundwater basin. The City of Santa Ana area relies on local groundwater resources for approximately 70% of its water supply. Therefore, increases in population could generate a higher demand for groundwater resources. However, the City of Santa Ana updates its UWMP every five years, quantifying existing and projected water supplies and demands to ensure there will not be any water supply shortages or significant groundwater depletion. The 2015 UWMP highlighted sufficient surface and underground water supplied through 2040 concluding no risk of a net deficit in aquifer volume or lowering of the groundwater table. In addition, the 2018-19 OCWD Engineer's Report also concluded sufficient groundwater supplies into the future to serve it's member agencies. OCWD has multiple mechanisms to prevent groundwater overdraft. The basin is covered by Alternative Plan 8-1, and the groundwater management strategies laid out in the Plan have been approved by DWR. Impacts related to the depletion of groundwater are considered less than significant.

Impact C: Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river or through the addition of impervious surfaces, in a manner which would:

(i) Result in a substantial erosion or siltation on- or off-site;

(ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite;

(iii) 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; or

(iv) Impede or redirect flood flows?

Impact Analysis:

i) *Result in a substantial erosion or siltation on- or off-site:* Under the existing conditions and proposed conditions, drainage patterns will largely be maintained and will utilize the existing drainage facilities within the public right of way. Current runoff is captured and conveyed by existing storm drain infrastructure throughout the City before discharging to County drainage channels and to the Pacific Ocean. The City is built out with the exception of a small number of vacant parcels which are stabilized and will likely be developed under buildout conditions. The majority of streams and channels that drain the City are concrete lined and not susceptible to scour or erosion. For those areas that are tributary to streams that may be

susceptible to scour, hydromodification requirements as part of the regional MS4 permit will ensure that impacts are minimized. Overall impacts to erosion and siltation as a result of GPU buildout are anticipated to be less than significant.

ii) *Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite:* Under the proposed condition, overall drainage patterns, flow rates and flow volumes will be largely be maintained based on the high level of impervious condition under the existing condition. Hydromodification requirements and standards flood control requirements for new development will minimize impacts of increased flows and volumes on downstream receiving waters. Both hydromodification and flood control requirements are currently enforced successfully throughout the City's review of various development projects through their Public Works department. As mentioned above, any increases in stormwater runoff and peak flows will be managed on a project-by-project basis by the City and County to implement detention systems where needed. Based on these provisions, impacts related to increased runoff rates are considered less than significant.

iii) *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:* The 2015 City of Santa Ana MPD identified a number of recommended and prioritized storm drain improvement projects throughout the City's service area. One of the projects identified was included in the 2018/19 CIP, and subsequent projects will be included in future CIP's based on priority. As identified in Section 4.2.1, there are some recommended downstream improvements to stormwater conveyance systems that may experience an increase in runoff from the conversion of single family residences to higher density uses as well as the development of vacant parcels. These areas primarily include the West Santa Ana Boulevard, the Grand Avenue/17th Street, South Main Street and the 55 Fwy/Dyer Road Focus Areas. The identified improvements within and downstream of these Focus Areas may be prioritized to be implemented to ensure no hydrology impacts results from the GPU land use changes. However, the City has policies in place to eliminate exacerbating any downstream flooding through existing flood control requirements associated with development projects and the implementation of detention systems. In addition, the City will continue monitoring its storm drain system for any segments that need immediate improvements and will regularly update its Master Plan of Drainage to adequately plan for future drainage needs. OCPW also updates their CIP each year to ensure regional drainage facilities are functioning. Redevelopment projects that will occur under implementation of the GPU will provide additional opportunities for capital improvements to occur. As new developments across the City are anticipated to reduce peak flows from existing conditions as discussed in Impact Analysis C.ii, impacts to drainage infrastructure are not anticipated.

iv) *Impede or redirect flood flows:* Under proposed buildout conditions, general drainage and flood control patterns will be maintained. As discussed in Impact Analysis C.ii and C.iii above, the City regularly updates its Master Plan of Drainage and the City and County both utilize a CIP program to prioritize and fund drainage improvement projects. Impediments to or redirection of flood flows as a result of project buildout are anticipated to be less than significant.

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4.3 SEWER & WASTEWATER INFRASTRUCTURE

4.3.1 Proposed Wastewater Flows

Under the proposed land use changes, sewer flows will increase across the City of Santa Ana. A total increase of 36,261 dwelling units and increase of approximately 5,849,220 sf of non-residential uses are proposed. Increases under proposed conditions implements the same methodology as existing sewer flows, however flow factors for residential land uses are based on 2025-2040 flow factors from the MWDOC Orange County Water Reliability Study to reflect buildout conditions. Table 16 provides a summary of the proposed increases in sewer flows under implementation of the General Plan land use changes.

Table 16 Proposed Condition Average Sewer Flows

Area	Number of Dwelling Units	Non-Residential SF[1]	Proposed Sewer Flows (GPD)	Existing Sewer Flows (GPD)	Change in Sewer Flows (GPD)	% Increase
Focus Areas						
West Santa Ana Boulevard	3,920	2,808,805	941,567	827,553	+114,014	13.8%
South Bristol Street	5,492	5,082,641	1,257,985	125,918	+1,132,067	899%
Grand Avenue/17th Street	2,283	703,894	451,305	188,358	+262,947	140%
South Main Street	2,308	946,662	565,847	565,500	+347	0.1%
55 Freeway/Dyer Road	9,952	6,142,283	2,120,271	538,450	+1,581,821	294%
Focus Area Total	**23,955**	**15,684,285**	**5,336,974**	**2,245,779**	**+3,091,195**	**138%**
Remainder of City						
All Other Areas of City	91,098	57,283,531	28,829,359	27,786,561	+1,042,778	3.75%
City of Santa Ana Total	**115,053**	**72,967,816**	**34,166,333**	**30,032,340**	**+4,133,993**	**13.8%**

Notes:
GPD – Gallons per day SF – Square Feet
Land use data supplied by Placeworks, 2020

Full implementation of the proposed land use changes has the potential to increase sewer flows by 4.13 MGD within the City and by 3.09 MGD throughout the Focus Areas. Therefore, the Focus Areas represent approximately 75% of the proposed increases in sewer flows throughout the GPU area. These flow estimates are for infrastructure planning purposes only and are considered conservative.

Remainder of City Land Use Changes
+18,686 Residential DUs
+3,586,090 Total SF of Commercial Space

Remainder for City Sewer Flow Increases from Existing Conditions
+1,042,778 gpd

Proposed Land Use Change
+1,722 DUs
-696,847 SF

Increase in Sewer Flows from Existing Conditions
+262,947 gpd

Orange

Grand Ave/17th Street

West Santa Ana Boulevard

Proposed Land Use Change
+1,262 DUs
-281,667 SF

Increase in Sewer Flows from Existing Condtions
+114,014 gpd

Tustin Foothills

Westminster

South Main Street

Proposed Land Use Change
+588 DUs
-739,316 SF

Increase in Sewer Flows from Existing Conditions
+347 gpd

Tustin

Huntington Beach

Fountain Valley

55 Fwy/Dyer Road

Proposed Land Use Change
+8,731 DUs
+475,830 SF

Increase in Sewer Flows from Existing Conditions
+1,581,821 gpd

Irvine

Proposed Land Use Change
+5,272 DUs
+3,505,130 SF

Increase in Sewer Flows from Existing Condtions
+1,132,067 gpd

Costa Mesa

South Bristol Street

Euclid Interceptor

Newhope-Placentia Trunk

Greenville-Sullivan Trunk

Raitt Street Trunk

Lower Main-Broadway Trunk

Santa Ana Trunk

Dyer Road Trunk

City of Santa Ana Proposed Sewer Flows

Figure 11

5/5/2020

City of Santa Ana

FUSCOE ENGINEERING full circle thinking

Santa Ana Boundary

City Sewer Pipelines
- 8" and Below in Diameter
- 9" - 84" in Diameter

OCSD Sewer Pipelines
- OCSD Sewer Lines

Proposed Improvements
- Sewer Master Plan Recommended 5-Year CIP Improvements for City Sewer Facilities
- 2018/19 City Capital Improvement Plan Project
- Proposed OCSD Trunk Line Capacity Improvement Project

0 4,000 8,000 Feet

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4.3.2 Proposed Sewer/Wastewater System

City of Santa Ana Proposed Sewer System

The City of Santa 2016 Sewer Master Plan (SMP) noted a number of deficient segments and improvement projects throughout the City. These projects have been included in the City CIP based on priority. Three of the Focus Areas have recommended improvements from the SMP either within the Focus Area boundary of immediately adjacent to the Focus Area boundaries as shown in Figure 11. When analyzing existing recommended improvements identified in the SMP that utilized previous population estimates as well as information from the City of Santa Ana General Plan (current GP), it is important to understand how the proposed GPU may impact these recommended improvements. See below for additional details.

Existing wastewater capacity analysis, including the 2016 Sewer Master Plan, is based on existing water meter data to establish baseline conditions and utilizes several resources including population projections and development projects associated with the current GP and its final buildout estimates. Therefore, it is helpful to understand how sewer flows under the current GP compare to the proposed GPU to refine the identification of impacts. The proposed GPU modifies buildout numbers within the GPU Focus Areas. From current GP to proposed GPU, 13,195 additional DUs, consisting primarily of multi-family units, are proposed, as well as a decrease in commercial square footage of approximately -2.7 million square feet. Table 17 below shows land use changes between the current GP buildout and the proposed GPU buildout. This analysis is based on total DU count and commercial square footage only and does not differentiate between single family and multifamily sewer flow factors. These increases in flows under the proposed GPU as compared to the current GP may have implications for capacity assessments that can be helpful for future planning and sewer monitoring.

Table 17 Sewer Flow Changes, Current GP to Proposed GPU

Focus Area	Change in Housing Units, Current GPU to Proposed	Change in Commercial Areas, Current GPU to Proposed	Change in Sewer Flows
Focus Areas			
West Santa Ana Boulevard	+ 1,308 DUs	- 38,106 SF	+ 234,115 GPD
South Bristol Street	+ 2,232 DUs	+ 946,213 SF	+ 452,011 GPD
Grand Avenue/17th Street	+ 1,766 DUs	- 1,715,794 SF	+ 226,655 GPD
South Main Street	+ 667 DUs	- 1,481,837 SF	+ 43,444 GPD
55 Freeway/Dyer Road	+ 7,222 DUs	- 376,333 SF	+ 1,284,029 GPD
Focus Area Total	**+ 13,195 DUs**	**- 2,665,857 SF**	**+ 2,243,264 GPD**
Remainder of City			
All Other Areas of City	+ 0 DUs	+ 0 SF	+ 0 GPD
Citywide Total	**+ 13,195 DUs**	**-2,665,857 SF**	**+ 2,243,264 GPD**

As shown in the table above, increases in sewer flows under the proposed GPU will be spread across the five Focus Areas, with no deviations from the current General Plan elsewhere in the City. As the 2016 Sewer Master Plan capacity analysis was completed utilizing current GP buildout scenarios, increased flows from the Focus Areas will alter the outcome of the capacity assessment as well as the suggested upsizing requirements to achieve optimal hydraulic

capacity. Additional flows beyond those modeled using the current GP are anticipated to impact the five Focus Areas as follows:

- West Santa Ana Boulevard Focus Area:
  Hydraulic Deficiency: There are two recommended hydraulic improvements (CIP-CAP-003 of SMP) within the West Santa Ana Boulevard Focus Area as identified in the SMP. The recommended improvements along the CIP-CAP-003 segment are to upsize the pipes from 10"-12" in diameter to 15" in diameter.
  Analysis: An additional 234,115 GPD is anticipated across the Focus Area under the proposed GPU compared to the modeled land use buildout from the current GP. This is likely conservative as it does not include the reduction of single family residences in this area under the proposed GPU as shown by the increase of only 114,014 gpd from existing land use to proposed GPU in Table 16.As a result of the proposed land uses under the GPU, the recommended improvement to a 15" line may need to be increased to an 18" line and will require additional flow monitoring and sewer modeling to confirm final pipe size.

- South Bristol Street Focus Area:
  Hydraulic Deficiency: Two improvements immediately adjacent to the Focus Area were identified in the 2016 SMP.
  Analysis: Under proposed GPU buildout, an additional 452,011 GPD of flows are anticipated through the Focus Area as compared to current GP; or an additional 1.13 MGD as compared to existing land use. While it is unlikely that the two improvement areas adjacent to the Focus Area will be exacerbated by the increase in flows, the magnitude of flows may result in additional improvements or deficiencies within or adjacent to the Focus Area. The sewer master plan demonstrated there is sufficient capacity under current and future conditions with the ability to accommodate significant growth over time. A primary reason is that the entire area is directly adjacent to large OCSD trunk lines which results in greater capacity. Based on the sewer flow monitoring requirements for local City lines and OCSD's separate detailed capacity assessment of their trunk lines, the system will be managed and updated to accommodate the full buildout of the proposed GPU over time.

- Grand Avenue / 17th Street Focus Area:
  Hydraulic Deficiency: There are two nearby deficiency areas, however the Focus Area is not directly tributary to any recommended improvements (identified capacity issues are upstream).
  Analysis: The additional 226,655 GPD under the proposed GPU as compared to the current GP, or additional 262,947 from existing land use to proposed GPU, will not exacerbate existing adjacent upstream capacity issues within the 15" and 18" trunk lines.

- South Main Street Focus Area:
  Hydraulic Deficiency: None.
  Analysis: The proposed GPU will result in a 43,444 GPD increase in flows spread across the Focus Area from current GP to proposed GPU; or only 347 gpd from existing land use (which takes into account a reduction of single family residences) as compared to

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the proposed GPU. Given the relatively small increase in flows (0.04 MGD) spread across the Focus Area and the lack of deficiencies identified in the SMP, it is not anticipated that any new deficiencies will arise from the proposed GPU land uses.

- 55/Dyer Focus Area:
  Hydraulic Deficiency: None
  Analysis: While there were no capacity issues or recommended improvement projects within or adjacent to the Focus Area identified in the 2016 SMP, buildout of the proposed GPU as compared to the current GP will result in an additional 1,284,029 GPD (1.3 MGD) across the Focus Area; or approximately 1.6 MGD from existing land use to the proposed GPU. The sewer master plan demonstrated there is sufficient capacity under current and future conditions with the ability to accommodate significant growth over time. A primary reason is that the entire area is directly adjacent to large OCSD trunk lines which results in greater capacity. Based on the sewer flow monitoring requirements for local City lines and OCSD's separate detailed capacity assessment of their trunk lines, the system will be managed and updated to accommodate the full buildout of the proposed GPU over time.

Recommendation: It is recommended that increases be shared with appropriate City staff so that they may re-analyze sewer segments as needed to ensure adequate capacity basis. This will also occur on a project by project basis, as confirmed by the City, as new development projects are proposed within the Focus Areas.

Any subsequent recommended improvements can be added to the City's CIP and prioritized at the City's discretion. Due to the proposed land use changes under the GPU, the improvements noted in the bullet points above may be prioritized in the future to eliminate any impacts to the sewer system. The City will continue to regularly update its Sewer Master Plan and CIP, allowing for deficient areas to be identified and improved.

OCSD Proposed Sewer System

The OCSD Master Plan Update Report No. 3 (2019) notes a surcharge conditions through the Greenville-Sullivan Trunk Line. A capacity improvement project for the trunk line has been proposed and is currently under review. The Greenville-Sullivan Trunk Line is not within a Focus Area but is downstream of the West Santa Ana Boulevard Focus Area that is anticipating an increase in sewer flows of 114,014 gpd or 0.01 MGD. This anticipated increase from the West Santa Ana Boulevard Focus Area will happen over a series of several years as new developments and redevelopments come online. The CIP project planned will be upsizing the Greenville-Sullivan Trunk Line from a 33" diameter line to a 39" diameter line which is more than adequate to handle the increase of 0.01 MGD proposed under the Santa Ana GPU.

OCSD bases its long-term sewer capacity assessments on CDR population estimates in coordination with all cities in their service area and does not generally utilize City-specific General or Specific Plans to plan or conduct capacity analysis. For improvement projects associated with new developments and redevelopments, OCSD manages required upgrades based on detailed population growth models and on a project by project basis. In cases where a trunk line requires upsizing as a result of a specific project and the project is not included in the CIP or any planning documents, OCSD allows the project applicant to conduct the trunk

line upsize and follow a reimbursement agreement process. Therefore, OCSD has a functioning and effective process in place to ensure the regional sewer infrastructure will support future developments under the Santa Ana GPU.

4.3.3 Sewer/Wastewater Impacts

The following impact assessments are based on the significance criteria established in Section 3.2 for wastewater.

Impact A. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

Impact Analysis: The estimated increase of 4.13MGD over the 30.03 MGD of existing flows is not anticipated to exceed the projected future capacity of the City of Santa Ana's wastewater infrastructure or OCSD's regional infrastructure or WWTP. The City maintains a regularly updated Sewer Master Plan and CIP and has a process in place to assess local sewer impacts on a project-by-project basis.

As noted above, there are some recommended improvements within or near Focus Areas where the majority of sewer flow increases are anticipated to occur. Additional studies using updated buildout numbers are recommended for the West Santa Ana Boulevard, South Bristol Street, and 55 Fwy/Dyer Road Focus Areas. At a citywide scale, the City's Sewer Master Plan and CIP process adequately prioritizes necessary projects as developments under the GPU come online. However, this process can likely be achieved at the local level as future development comes online and ties into the existing City infrastructure

As referenced, similar to existing protocols employed within the City, any project within the City and under the proposed GPU that goes through the entitlement process will be required to perform a sewer monitoring study. After submittal and review of the study by City staff, if the sewer system is found to be deficient, the developer will be required to upsize the portion of the sewer pipe within the frontage of their property. There may be options depending on the condition of the sewer infrastructure for the developers to enter into a Joint Cost Sharing Agreement with the City to cover a portion of the cost for required upsizing that may be done by the City at a later date. If improvements are needed to infrastructure downstream of the project site, the developer may be required to participate and pay into the Fair Share Agreement currently employed by the City. The Fair Share Agreement will allow the developer to fund a percentage of the downstream improvement that will be carried out by the City in the future. In the case of sewer line improvements, construction will follow the Construction General Permit and all pertinent City and County codes, minimizing environmental impact.

In addition, OCSD regularly updates long-term planning documents which include provisions for improving regional treatment plant and conveyance infrastructure capacity. OCSD has identified an improvement needed to the Greenville-Sullivan Trunk line within the GPU area which is currently under review. Through planning and management processes currently in place, OCSD is able to ensure the regional sewer infrastructure will support future developments under the Santa Ana GPU.

Impact C. *Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?*

Impact Analysis: See Impact Analysis A regarding wastewater treatment capacity. The City of Santa Ana has mechanisms to create adequate capacity within its sewage conveyance facilities to handle the proposed increases in flows from the GPU. OCSD's wastewater treatment plants have a total combined capacity of 390 MGD with the ability to route flows to either of the two WWTPs as needed. 2018-19 flows were estimated to be 185 MGD, indicating adequate capacity (205 MGD) for the proposed increase in flows of 4.13 MGD as compared to existing land use. OCSD utilizes a robust CIP process and relies on internal capacity modeling, population projects and land use projections, independent of General Plan update buildout estimates. OCSD is currently planning a CIP project along the Greenville-Sullivan trunk line within the City of Santa Ana to ensure sewer diversions are functioning effectively and to reduce surcharge conditions. As referenced in Section 4.3.2, the proposed upsizing of the trunk line from a 33" to 39" diameter pipe is more than adequate to handle the increase of 0.01 MGD from the West Santa Ana Boulevard Focus Area upstream. Through updating appropriate master plans, long-term capital improvement budgets, and plant capacity assessments, it is anticipated OCSD will be able to receive increases in flows consistent with the buildout proposed under implementation of the GPU. No impacts are anticipated to service provider capacities.

4.4 WATER INFRASTRUCTURE

4.4.1 Proposed Water Flows

Under the proposed land use changes, water flows will increase throughout the City of Santa Ana and its Focus Areas due to increases in dwelling units and commercial land uses. A total increase of 36,261 dwelling units and increase of approximately 5,849,220 sf of non-residential uses are proposed. Table 18 shows the proposed water flows associated with each land use change, using the same methodology as for the existing conditions. Increases in water flows under proposed conditions implements the same methodology as existing waterflows, however flow factors for residential land uses are based on 2025-2040 flow factors from the MWDOC Orange County Water Reliability Study to reflect buildout conditions. Detailed calculations and associated exhibits are included in Appendix C.

Table 18 Proposed Condition Water Flows

Area	Number of Dwelling Units	Commercial SF	Proposed Water Flow (GPD)	Existing Water Flow (GPD)	Change in Flow (GPD)	% Increase
Focus Areas						
West Santa Ana Boulevard	3,920	2,808,805	996,756	880,807	+115,949	13.6%

South Bristol Street	5,492	5,082,641	1,335,183	136,957	+1,198,226	857%
Grand Avenue/17th Street	2,283	703,894	475,779	202,362	+273,417	135%
South Main Street	2,308	946,662	597,029	600,682	- 3,653	-0.6%
55 Freeway/Dyer Road	9,952	6,142,283	2,243,399	582,841	+1,660,558	666%
Focus Area Total	**23,955**	**15,684,285**	**5,648,146**	**2,403,648**	**+3,244,498**	**135%**
Remainder of City						
All Other Areas of City	91,098	57,283,531	30,458,068	29,403,648	+1,054,420	3.6%
City of Santa Ana Total	**115,053**	**72,967,816**	**36,106,214**	**31,833,589**	**+4,272,625**	**13.4%**
Notes: *GPD – Gallons per day SF – Square Feet* *Land use data supplied by Placeworks, 2020*						

Full implementation of the proposed increases has the potential to increase water flow by 4.27 MGD within the City. Water flows across all Focus Areas are anticipated to increase by 3.24 MGD, representing approximately 75% of the projected Citywide increase in water flows. Water flows will primarily come from additional dwelling units within the Focus Areas and specific plan/special zoning areas. These water flow estimates are for infrastructure capacity purposes only and are considered conservative. Figure 12 summarizes proposed increases in water flows across the City under buildout conditions.

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Remainder of City Land Use Changes
+18,686 Residential DUs
+3,586,090 Total SF of Commercial Space

Remainder for City Water Demand Increases from Existing Conditions
+1,054,420 gpd

Proposed Land Use Change
+1,722 DUs
-696,847 SF

Increase in Water Demands from Existing Conditions
+273,417 gpd

Proposed Land Use Change
+1,262 DUs
-281,667 SF

Increase in Water Demands from Existing Condtions
+115,949 gpd

Proposed Land Use Change
+588 DUs
-739,316 SF

Increase in Water Demands from Existing Conditions
-3,653 gpd

Proposed Land Use Change
+5,272 DUs
+3,505,130 SF

Increase in Water Demands from Existing Conditions
+1,198,226 gpd

Proposed Land Use Change
+8,731 DUs
+475,830 SF

Increase in Water Demands from Existing Conditions
+1,660,558 gpd

West Santa Ana Boulevard
Grand Ave/17th Street
South Main Street
55 Fwy/ Dyer Road
Huntington Beach
Fountain Valley
Costa Mesa
Tustin
Tustin Foothills
South Bristol Street

Proposed Improvements
- Groundwater Well Improvement Project
- Groundwater Well Improvement Project (In City 2018/19 CIP)
- Pump Station Improvement Project (Completed)
- Pump Station Improvement Project (In City 2018/19 CIP)
- Water Main Replacement Project
- Water Main Replacement Project (Completed)
- Water Main Replacement Project (In City 2018/19 CIP)
- (17) Water Main Replacement Number

City of Santa Ana Proposed Water Flows

Figure 12

5/28/2020

City of Santa Ana

FUSCOE ENGINEERING full circle thinking

Santa Ana City Boundary
Focus Area

Santa Ana Municipal Utilities Water Lines
8" and Below in Diameter
9" - 14" in Diameter
15" - 30" in Diameter

Other Water Lines
IRWD Water Lines
MWD Water Lines
OCWD Reclaimed Water Lines

0 4,000 8,000 Feet

X:\Projects\511\31\MXD\12_Proposed_Water200406.mxd

4.4.2 Proposed Water System

The City currently has 19 remaining identified water main replacement projects, 6 groundwater well improvement projects, and 1 pump station improvement project throughout the City as identified in the 2017 Water Master Plan. These improvement projects are intended to increase the City water system's capacity and functionality to keep up with population and non-residential growth throughout the service area. Of these projects, one water main replacement, one pump station improvement, and one groundwater well improvement project were included in the City's 2018/19 CIP. Four of the five Focus Areas each have water main improvements identified as summarized below:

- West Santa Ana Boulevard Focus Area: West Santa Ana Boulevard Focus Area includes #10 and #21 water main replacement projects as well as one groundwater well improvement project.
- Grand Ave/17th Street Focus Area: The Grand Ave/17th Street Focus Area includes #5 and #19 water main replacement projects.
- South Main Street Focus Area: The South Main Street Focus Area includes #9, #11, #23 and #24 water main replacement projects.
- South Bristol Street Focus Area: The South Bristol Street Focus Area includes #8and #11 water main replacements projects.

The projects noted above and other future projects will be included in subsequent CIP's based on priority. The status of these projects, as well as the list of constructed or completed projects, will be updated upon releases of subsequent CIPs and water planning documents.

Similar to determining additional sewer impacts from the proposed GPU as it compares to the current GP which is utilized in water infrastructure planning efforts, the table below highlights the increases in water flows from the proposed GPU as compared to the current GP. This analysis is based on total DU count and commercial square footage only and does not differentiate between single family and multifamily water flow factors.

Table 19 Water Flow Changes, Current GP to Proposed GPU

Focus Area	Change in Housing Units, Current GPU to Proposed	Change in Commercial Areas, Current GPU to Proposed	Change in Water Flow
Focus Areas			
West Santa Ana Boulevard	+ 1,308 DUs	- 38,106 SF	+ 246,333 GPD
South Bristol Street	+ 2,232 DUs	+ 946,213 SF	+ 478,385 GPD
Grand Avenue/17th Street	+ 1,766 DUs	- 1,715,794 SF	+ 237,067 GPD
South Main Street	+ 667 DUs	- 1,481,837 SF	+41,684 GPD
55 Freeway/Dyer Road	+ 7,222 DUs	- 376,333 SF	+ 1,350,381 GPD
Focus Area Total	**+ 13,195 DUs**	**- 2,665,857 SF**	**+2,354,041 GPD**
Remainder of City			
All Other Areas of City	+ 0 DUs	+ 0 SF	+ 0 GPD
Citywide Total	**+ 13,195 DUs**	**-2,665,857 SF**	**+2,354,041 GPD**

Under buildout of the proposed GPU, water flows will increase across all Focus Areas, potentially creating deficiencies or necessitating the need for improvement projects not identified in the 2017 Water Master Plan. However, major deficiencies as a result of increased flow are not anticipated, as the 2017 WMP found that the distribution system was largely hydraulically sound. Improvement projects as a result of deteriorated or aged pipes are anticipated to constitute the majority of future water infrastructure projects. Therefore, the findings of the 2017 WMP stand and additional impacts as a result of proposed GPU buildout are not anticipated.

Through its planning and CIP mechanisms, the City of Santa Ana will have adequate capacity for the proposed increases in water flows across the City under implementation of the GPU and will be able to serve the additional dwelling units and commercial square footage proposed. This has been confirmed with City staff.[9]

4.4.3 Water Impacts

The following impact assessments are based on the significance criteria established in Section 3.2 for water systems.

Impact A **Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?**

Impact Analysis: The City of Santa Ana maintains a regularly updated Water Master Plan that identifies deficiencies and necessary improvement projects throughout its service area. Improvement projects are regularly incorporated into the City's CIP based on priority; including the improvements projects identified within or adjacent to Focus Areas as shown in Section 4.4.2. Major capacity deficiencies are not anticipated as the City has mechanisms in place to accommodate the proposed increases in water flows under implementation of the GPU as confirmed by City Staff. Improvement projects based on pipe age and condition may be required throughout GPU implementation, however the status or prioritization of these projects is not anticipated to be impacted by GPU buildout. Individual projects will be subject to City permits, fees, and applications in order to ensure that they will not place an undue burden on existing infrastructure. In instances where infrastructure is expanded or relocated, construction will follow the Construction General Permit and City and County specific regulations to minimize environmental impacts. No significant impacts from the construction or expansion of water facilities are anticipated.

4.5 WATER QUALITY

4.5.1 Construction Activities

Clearing, grading, excavation and construction activities associated with the proposed project may impact water quality due to sheet erosion of exposed soils and subsequent deposition of particulates in local drainages. Grading activities, in particular, lead to exposed areas of loose soil, as well as sediment stockpiles, that are susceptible to uncontrolled sheet flow. Although

[9] Phone call with City Staff. April 30, 2020.

erosion occurs naturally in the environment, primarily from weathering by water and wind action, improperly managed construction activities can lead to substantially accelerated rates of erosion that are considered detrimental to the environment.

General Construction Permit

Prior to the issuance of grading permits, the project applicants shall provide evidence that the development of the projects one acre or greater of soil disturbance shall comply with the most current General Construction Permit (GCP) and associated local National Pollutant Discharge Elimination System (NPDES) regulations to ensure that the potential for soil erosion is minimized on a project-by-project basis. In accordance with the updated GCP (Order No. 2009-0009-DWQ), the following Permit Registration Documents are required to be submitted to the SWRCB prior to commencement of construction activities:

- Notice of Intent (NOI)
- Risk Assessment (Standard or Site-Specific)
- Particle Size Analysis (if site-specific risk assessment is performed)
- Site Map
- SWPPP
- Post-Construction Water Balance Calculator (not required – project is covered under the North Orange County MS4 permit Order No. R8-2009-0030)
- Active Treatment System (ATS) Design Documentation (if ATS is determined necessary)
- Annual Fee & Certification

Construction Best Management Practices (BMPs)

In accordance with the existing and updated GCP, a construction SWPPP must be prepared and implemented at all construction projects with 1 acre or greater of soil disturbance, and revised as necessary, as administrative or physical conditions change. The SWPPP must be made available for review upon request, shall describe construction BMPs that address pollutant source reduction, and provide measures/controls necessary to mitigate potential pollutant sources. These include, but are not limited to: erosion controls, sediment controls, tracking controls, non-storm water management, materials & waste management, and good housekeeping practices.[10]

Prior to commencement of construction activities within the GPU area, the project-specific SWPPP(s) will be prepared in accordance with the site specific sediment risk analyses based on the grading plans, with erosion and sediment controls proposed for each phase of construction for the individual project. The phases of construction will define the maximum amount of soil disturbed, the appropriate sized sediment basins and other control measures to accommodate all active soil disturbance areas and the appropriate monitoring and sampling plans.

[10] California Stormwater Quality Association. (2003, January). *Stormwater Best Management Practices Handbook for New Development and Redevelopment*. Retrieved March 20, 2020, from http://www.cabmphandbooks.com

4.5.2 Post-Construction Activities

With the proposed land use changes, development resulting from the General Plan Update may result in long-term impacts to the quality of storm water and urban runoff, subsequently impacting downstream water quality. Developments can potentially create new sources for runoff contamination through changing land uses. As a consequence, developments within individual Focus Areas and the City as a whole may have the potential to increase the post-construction pollutant loadings of certain constituent pollutants associated with the proposed land uses and their associated features, such as landscaping and plaza areas.

To help prevent long-term impacts associated with land use changes and in accordance with the requirements of the City of Santa Ana LIP and consistency with OC DAMP and Fourth-Term MS4 permit, new development and significant redevelopment projects must incorporate LID/site design and source control BMPs to address post-construction storm water runoff management. In addition, projects that are identified as Priority Projects are required to implement site design/LID and source control BMPs applicable to their specific priority project categories, as well as implement treatment control BMPs where necessary. Selection of LID and additional treatment control BMPs is based on the pollutants of concern for the specific project site and the BMP's ability to effectively treat those pollutants, in consideration of site conditions and constraints. Further, both Priority and Non-Priority projects must develop a project-specific Water Quality Management Plan (WQMP) that describes the menu of BMPs chosen for the project, as well as include operation and maintenance requirements for all structural and any treatment control BMPs.

Since the GPU does not include a specific or detailed development plan, project-specific WQMP(s) will not be required at this time. Future project-specific WQMPs, preliminary and/or final, will be prepared consistent with the prevailing terms and conditions of the City's LIP, OC DAMP, and Model WQMP at the time of project application. Moreover, LID and water quality treatment solutions prescribed in project specific WQMPs shall be designed to support or enhance the regional BMPs and efforts implemented by the City as part of their City-wide efforts to improve water quality.

LID Design Approach

The overall approach to water quality treatment for the individual projects within the GPU area will include incorporation of site design/LID strategies and source control measures throughout the sites in a systematic manner that maximizes the use of LID features to provide treatment of storm water and reduce runoff. In accordance with the MS4 Permit, the use of LID features will be consistent with the prescribed hierarchy of treatment provided in the Permit: infiltration, evapotranspiration, harvest/reuse and biotreatment. Where applicable, LID features will be analyzed to demonstrate their ability to treat portions of the required design capture volume (DCV) and reduce the size of downstream on-site treatment control BMPs.

Consistent with regulatory requirements and design guidelines for water quality protection, the following principles will be followed for new projects associated with the General Plan Plan and will be supported by construction level documents in the final LID Design Plans prior to grading permit(s) issuance by the City of Santa Ana:

- LID features will be sized for water quality treatment credit according to local Regional Board sizing criteria as defined in the Fourth-Term MS4 Permit for either flow-based or volume-based BMPs.
- LID techniques within the internal development areas (site design objectives), thereby providing treatment of low-flow runoff directly at the source and runoff reduction of small (i.e., more frequent) storm event runoff (first-flush). In most instances, LID features will be sized by volume-based analyses to demonstrate compliance with the required design capture volume for the new projects under the General Plan.
- Detailed field investigations, drainage calculations, grading, and BMP sizing to occur during the detailed design phase and future project-specific WQMP documentation.
- Where feasible, LID features will be designed to infiltrate and/or reuse treated runoff on-site in accordance with feasibility criteria as defined in the 2013 Countywide Model WQMP and Technical Guidance Document (TGD).[11] [12]
- For those areas of the City where infiltration is not recommended or acceptable and harvest/reuse landscaping demands are insufficient, biotreatment LID features will be designed to treat runoff and discharge controlled effluent flows to downstream receiving waters.

Unlike flood control measures that are designed to handle peak storm flows, LID BMPs and treatment control BMPs are designed to retain, filter or treat more frequent, low-flow runoff or the "first-flush" runoff from storm events. In accordance with the Fourth-Term MS4 Permit for North Orange County, the LID BMPs shall be sized and designed to ensure on-site retention of the volume of runoff produced from a 24-hour 85th percentile storm event, as determined from the County of Orange's 85th Percentile Precipitation Map.[13] This is termed the "design capture volume", or DCV. The City is split between an an 85th Percentile storm depth of 0.75 and 0.8 inches. The 2013 Model WQMP and its companion Technical Guidance Document provides design criteria, hydrologic methods and calculations for combining use of infiltration, retention, and biofiltration BMPs to meet the required design capture volume.

Consistency with the State-wide Trash TMDL

As part of the state-wide mandate to reduce trash within receiving waters, the City of Santa Ana will be required to adhere to the requirements of the amended CA Trash Total Maximum Daily Load (TMDL) from July 2016 onwards. The requirements will include the installation and maintenance of trash screening devices at all public curb inlets, grate inlets and catch basin inlets. The trash screening devices must be approved by the local agency and consistent with the minimum standards of the Trash TMDL. The City of Santa Ana has selected Track 1 as its compliance option. By selecting Track 1, the City has agreed to install, operate, and maintain full capture systems in storm drains that capture runoff from one or more priority land use areas.

Sustainable On-Lot and Public Right of Way Infrastructure Opportunities

As part of an on-going sustainable effort to improve water conservation, reduce potable water usage, support green infrastructure features within the Public R/W and reduce environmental

[11] County of Orange Planning Division. (December 20, 2013). Exhibit 7.III - Model Water Quality Management Plan
(WQMP).
[12] County of Orange Planning Division. (December 20, 2013). Technical Guidance Document (TGD).
[13] Figure XVI-1 in the Technical Guidance Document (County of Orange, December 20, 2013).

"footprint" within the City, there are several emerging trends and technologies that should be considered and incorporated where feasible within the future redevelopment opportunities within the GPU area. These include the following:

- Gray Water Systems – The use of gray water systems to collect and reuse gray water from various new developments and redevelopments can greatly reduce on-site potable water usage. The process typically includes routing water from showers, sinks and washing machines, treating the water to NSF 350 standards[14] (or equivalent) and reusing the treated gray water within the building for toilet flushing or exterior landscaping. Gray water systems are especially opportune and cost effective within new hotel developments and multi-family residential developments where the constant use of water from showers, sinks and washing machines can be reused for toilet flushing and/or landscape irrigation. Reuse of gray water can help reduce both potable water and sewer generation fees.

- Small-scale and Large-scale Cistern and Reuse Systems – Both small- and large-scale harvest and reuse systems may be feasible based on certain project types. Depending on the type of potable demand for landscape irrigation and toilet flushing of a new development of redevelopment, the implementation of a harvested rainwater BMP would provide a multi-benefit solution that could satisfy both water quality regulations and provide for a sustainable water quantity solution that would offset potable water costs. The efficiency and cost-effectiveness for harvest and reuse systems increases when combined with on-site gray water recycling systems.

- Green Street Features – Green streets are sustainable design features with many benefits. Green street design components include stormwater infiltration planters within parkways to treat lot runoff and roadway runoff; bulb out planters that provide traffic calming along with runoff treatment, tree boxes and light reflective paving surfaces which reduce heat island effects.

- Green Roofs and Green Walls – Green roofs and green walls offer up some of the most advanced ways to reduce stormwater runoff volumes and common pollutants. As open space becomes more limited within high density areas, green roofs provide a solution with many additional benefits including stormwater treatment, internal and external cooling effects for the building and aesthetic benefits, all within a shared footprint. Green roofs are most feasible when there is a sturdy building structure included in a project. On the other hand, green walls require less structural stability and can be implemented on almost any vertical surface. Some opportunities include implementing green walls on the sides of large, above-ground parking structures. Green roof/wall design can be combined with harvest and reuse cisterns and gray water systems to provide a constant source of treated water for irrigation without increasing demands on local and regional potable water supplies.

Each of these opportunities should be evaluated to determine feasibility and appropriateness for the proposed development and redevelopment projects within the GPU area.

[14] NSF/ANSI 350 and 350-1: Onsite Water Reuse Specifications. Found here: http://www.nsf.org/services/by-industry/water-wastewater/onsite-wastewater/onsite-reuse-water-treatment-systems

4.5.3 Water Quality Impacts

The impact assessments are based on the significance criteria established in Section 3.2for water quality.

Impact A *Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or groundwater quality?*

Impact Analysis:
Construction activities within the GPU area would potentially result in soil erosion and temporary adverse impacts to surface water quality from construction materials and wastes if left unregulated or unmitigated.

Both State and Local regulations will effectively mitigate construction storm water runoff impacts from the proposed land use changes under the GPU. Standard erosion control practices shall be implemented for all construction within the City. Additionally, construction sites will be required to prepare and implement a Storm Water Pollution Prevention Plan (SWPPP) in accordance with the requirements of the Statewide General Construction Permit and subject to the oversight of the Santa Ana Regional Water Quality Control Board. The SWPPP must include BMPs to reduce or eliminate erosion and sedimentation from soil disturbing activities, as well as proper materials and waste management. Implementation of these State and Local requirements would effectively protect projects from violating any water quality standards or waste discharge requirements from construction activities.

In terms of post-construction related impacts, the incorporation of site design, LID features and BMPs as required under the North Orange County MS4 Permit, the individual development and redevelopment projects within the GPU will effectively retain or treat the 85th percentile 24-hour storm water runoff for pollutants such as bacteria, metals, nutrients, oil & grease, organics, pesticides, sediment, trash, and oxygen demanding substances prior to discharge off their property. As properties within the City undergo redevelopment, existing properties that do not have water quality BMPs will be replaced with project incorporating LID BMPs. Therefore, long-term surface water quality of runoff from the GPU area would be expected to improve over existing conditions as more LID BMPs are implemented. This is considered an overall beneficial effect of the proposed land use changes associated with implementation of the GPU. Impacts to surface and groundwater quality will be less than significant.

Impact E *In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?*

Impact Analysis:

It is the City's policy to avoid placing new housing within 100-year flood hazard areas based on FEMA's floodplain maps. All existing housing within Flood Zone A's and AE's require flood insurance. As noted in Impact Analysis C, the City and County regularly maintain and improve storm drain and flood control infrastructure based on priority. New developments will comply

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with all pertinent flood control regulation. It is not anticipated that pollutants will be mobilized in the event of flooding or inundation.

Impact E *Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?*

Impact Analysis:

New development and redevelopment within the City of Santa Ana will not impact implementation of local or regional water quality control plans or sustainable groundwater management plans. All development within the City will follow the North Orange County MS4 permit. Groundwater levels are managed by OCWD, and development projects will be reviewed for conformance with OCWD's groundwater management goals. Impacts to water quality and groundwater management will be less than significant.

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5. CONCLUSION

The proposed land use changes under buildout of the Santa Ana GPU will increase the flow within water and sewer infrastructure over existing conditions while largely maintaining existing runoff conditions. The City of Santa Ana, OCPW, and OCSD each have methods in place for prioritizing, funding, and correcting deficient infrastructure. In all cases, specific analyses will be required during final design stages of final development projects to evaluate storm drain, water and sewer infrastructure condition and capacity. Impacts to sewer, water, and storm drain infrastructure are anticipated to be less than significant.

Based on the existing built out condition of the City and the proposed land use changes under the GPU including the implementation of low impact development features, no substantial additional sources of pollutants or significant Citywide increases in runoff for the 85th percentile storm event are anticipated. Based on the findings of this technical report, the incorporation of site design/LID features, and infiltration/biotreatment BMPs as required under the MS4 Permit and local LID requirements, the individual projects will adequately reduce project related impacts to hydrology and water quality to a level less than significant.

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6. TECHNICAL APPENDICES

Appendix A Sewer Flow Calculations

Appendix B City and OCSD Sewer Improvements

Appendix C Water Flow Calculations

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APPENDIX A
SEWER FLOW CALCULATIONS

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Santa Ana GPU Area Existing Condition Sewer Flows

	Building(s)		Parcel	Flow	Unit of Measure	Total Flow
	Units	Square Feet	Acres	GPD		GPD
55 Freeway/Dyer Road						
Residential						
Single Family Residential	-	--	0.00	390	/DU	0
Multi Family Residential	1,221	--	0.00	200	/DU	244,200
Business and Commerce						
Commercial	-	5,666,453	130.08	2262	/acre	294,250
55/Dyer Total	**1,221**	**5,666,453**	**130.08**	--	--	**538,450**
Grand Avenue/17th Street						
Residential						
Single Family Residential	18	--	0.00	390	/DU	7,020
Multi Family Residential	543		0.00	200	/DU	108,600
Business and Commerce						
Commercial	-	1,400,741	32.16	2262	/acre	72,738
17th and Grand Total	**561**	**1,400,741**	**32.16**	--	--	**188,358**
South Bristol Street						
Residential						
Single Family Residential	-	--	0.00	390	/DU	0
Multi Family Residential	220		0.00	200	/DU	44,000
Business and Commerce						
Commercial	-	1,577,511	36.21	2262	/acre	81,918
South Bristol Total	**220**	**1,577,511**	**36.21**	--	--	**125,918**
South Main Street						
Residential						
Single Family Residential	705	--	0.00	390	/DU	274,950
Multi Family Residential	1,015		0.00	200	/DU	203,000
Business and Commerce						
Commercial	-	1,685,978	38.70	2262	/acre	87,550
South Main Total	**1,720**	**1,685,978**	**38.70**	--	--	**565,500**
West Santa Ana Boulevard						
Residential						
Single Family Residential	713	--	0.00	390	/DU	278,070
Multi Family Residential	1,945		0.00	200	/DU	389,000
Business and Commerce						
Commercial	-	3,090,472	70.95	2262	/acre	160,483
West Santa Ana Total	**2,658**	**3,090,472**	**70.95**	--	--	**827,553**
Remaining Citywide						
Residential						
Single Family Residential	55,346	--	0.00	390	/DU	21,584,940
Multi Family Residential	17,066		0.00	200	/DU	3,413,200
Business and Commerce						
Commercial	-	53,697,441	1232.72	2262	/acre	2,788,421
Remaining Citywide Total	**72,412**	**53,697,441**	**1232.72**	--	--	**27,786,561**
Focus Area Total	**6,380**	**13,421,155**	**308.11**			**2,245,779**
Grand Total	**78,792**	**67,118,596**	**1540.83**			**30,032,340**

*Residential flow factors based on water demand factors multiplied by a 0.95 sewer factor

**Commercial flow factors based on OCSD Design and Construction Standards for Sanitary Sewers

Santa Ana GPU Area Proposed Condition Sewer Flow Increases

	Building(s)		Parcel	Flow	Unit of Measure	Total Flow
	Units	Square Feet	Acres	GPD		GPD
55 Freeway/Dyer Road						
Residential						
Single Family Residential	-	--	0.00	351	/DU	0
Multi Family Residential	9,952			181	/DU	1,801,312
Business and Commerce						
Commercial	-	6,142,283	141.01	2262	/acre	318,959
55/Dyer Total	**9,952**	**6,142,283**	**141.01**	--	--	**2,120,271**
Grand Avenue/17th Street						
Residential						
Single Family Residential	9	--	0.00	351	/DU	3,159
Multi Family Residential	2,274			181	/DU	411,594
Business and Commerce						
Commercial	-	703,894	16.16	2262	/acre	36,552
17th and Grand Total	**2,283**	**703,894**	**16.16**	--	--	**451,305**
South Bristol Street						
Residential						
Single Family Residential	-	--	0.00	351	/DU	0
Multi Family Residential	5,492			181	/DU	994,052
Business and Commerce						
Commercial	-	5,082,641	116.68	2262	/acre	263,933
South Bristol Total	**5,492**	**5,082,641**	**116.68**	--	--	**1,257,985**
South Main Street						
Residential						
Single Family Residential	582	--	0.00	351	/DU	204,282
Multi Family Residential	1,726			181	/DU	312,406
Business and Commerce						
Commercial	-	946,662	21.73	2262	/acre	49,159
South Main Total	**2,308**	**946,662**	**21.73**	--	--	**565,847**
West Santa Ana Boulevard						
Residential						
Single Family Residential	507	--	0.00	351	/DU	177,957
Multi Family Residential	3,413			181	/DU	617,753
Business and Commerce						
Commercial	-	2,808,805	64.48	2262	/acre	145,857
West Santa Ana Total	**3,920**	**2,808,805**	**64.48**	--	--	**941,567**
Remaining Citywide						
Residential						
Single Family Residential	55,094	--	0.00	351	/DU	19,337,994
Multi Family Residential	36,004			181	/DU	6,516,724
Business and Commerce						
Commercial	-	57,283,531	1315.05	2262	/acre	2,974,641
Remaining Citywide Total	**91,098**	**57,283,531**	**1315.05**	--	--	**28,829,359**
Focus Area Total	**23,955**	**15,684,285**	**360.06**			**5,336,974**
Grand Total	**115,053**	**72,967,816**	**1675.11**			**34,166,333**

*Residential flow factors based on water demand factors multiplied by a 0.95 sewer factor

**Commercial flow factors based on OCSD Design and Construction Standards for Sanitary Sewers

Santa Ana Changes in Sewer Flows, Current GP to Proposed GPU

	Change in Building(s)		Parcel	Flow	Unit of Measure	Total Flow
	Units	Square Feet	Acres	GPD		GPD
55 Freeway/Dyer Road						
Residential						
Residential Total	7,222	--	0.00	180.5	/DU	1,303,571
Business and Commerce						
Commercial	-	-376,333	-8.64	2262	/acre	-19,542
55/Dyer Total	**7,222**	**-376,333**	**-8.64**	--	--	**1,284,029**
Grand Avenue/17th Street						
Residential						
Residential Total	1,766	--	0.00	180.5	/DU	318,763
Business and Commerce						
Commercial	-	-1,715,794	-39.39	2262	/acre	-89,098
17th and Grand Total	**1,766**	**-1,715,794**	**-39.39**	--	--	**229,665**
South Bristol Street						
Residential						
Residential Total	2,232	--	0.00	180.5	/DU	402,876
Business and Commerce						
Commercial	-	946,213	21.72	2262	/acre	49,135
South Bristol Total	**2,232**	**946,213**	**21.72**	--	--	**452,011**
South Main Street						
Residential						
Residential Total	667	--	0.00	180.5	/DU	120,394
Business and Commerce						
Commercial	-	-1,481,837	-34.02	2262	/acre	-76,949
South Main Total	**667**	**-1,481,837**	**-34.02**	--	--	**43,444**
West Santa Ana Boulevard						
Residential						
Residential Total	1,308	--	0.00	180.5	/DU	236,094
Business and Commerce						
Commercial	-	-38,106	-0.87	2262	/acre	-1,979
West Santa Ana Total	**1,308**	**-38,106**	**-0.87**	--	--	**234,115**
Remaining Citywide						
Residential						
Residential Total	-	--	0.00	180.5	/DU	0
Business and Commerce						
Commercial	-	0	0.00	2262	/acre	0
Remaining Citywide Total	**-**	**0**	**0.00**	--	--	**-**
Focus Area Total	**13,195**	**-2,665,857**	**-61.20**			**2,243,264**
Grand Total	**13,195**	**-2,665,857**	**-61.20**			**2,243,264**

*Residential flow factors based on water demand factors multiplied by a 0.95 sewer factor

**Commercial flow factors based on OCSD Design and Construction Standards for Sanitary Sewers

APPENDIX B

CITY AND OCSD SEWER IMPROVEMENTS

DRAFT

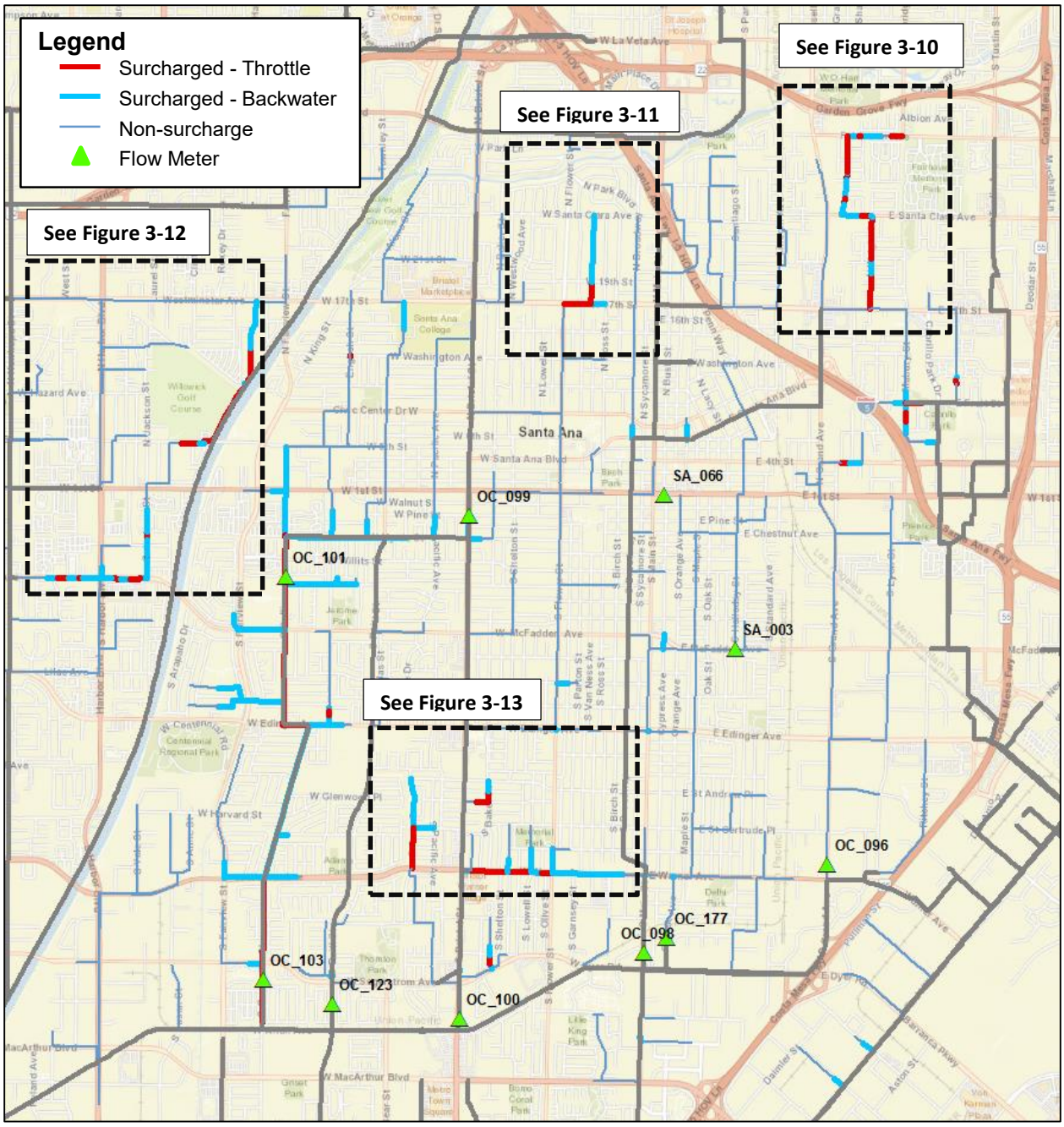


Figure ES4-1: Predicted Surcharge Pipes for Future Flows (2040) and PWWF

ES-5 Condition Assessment

CCTV inspection is the basic method used by the City to gather the data required to assess sewer condition. The City uses a specialist CCTV contractor to inspect pre-defined portions of the City's sewer system with the target of inspecting the entire system over a 5 to 8-year period. The CCTV contractor

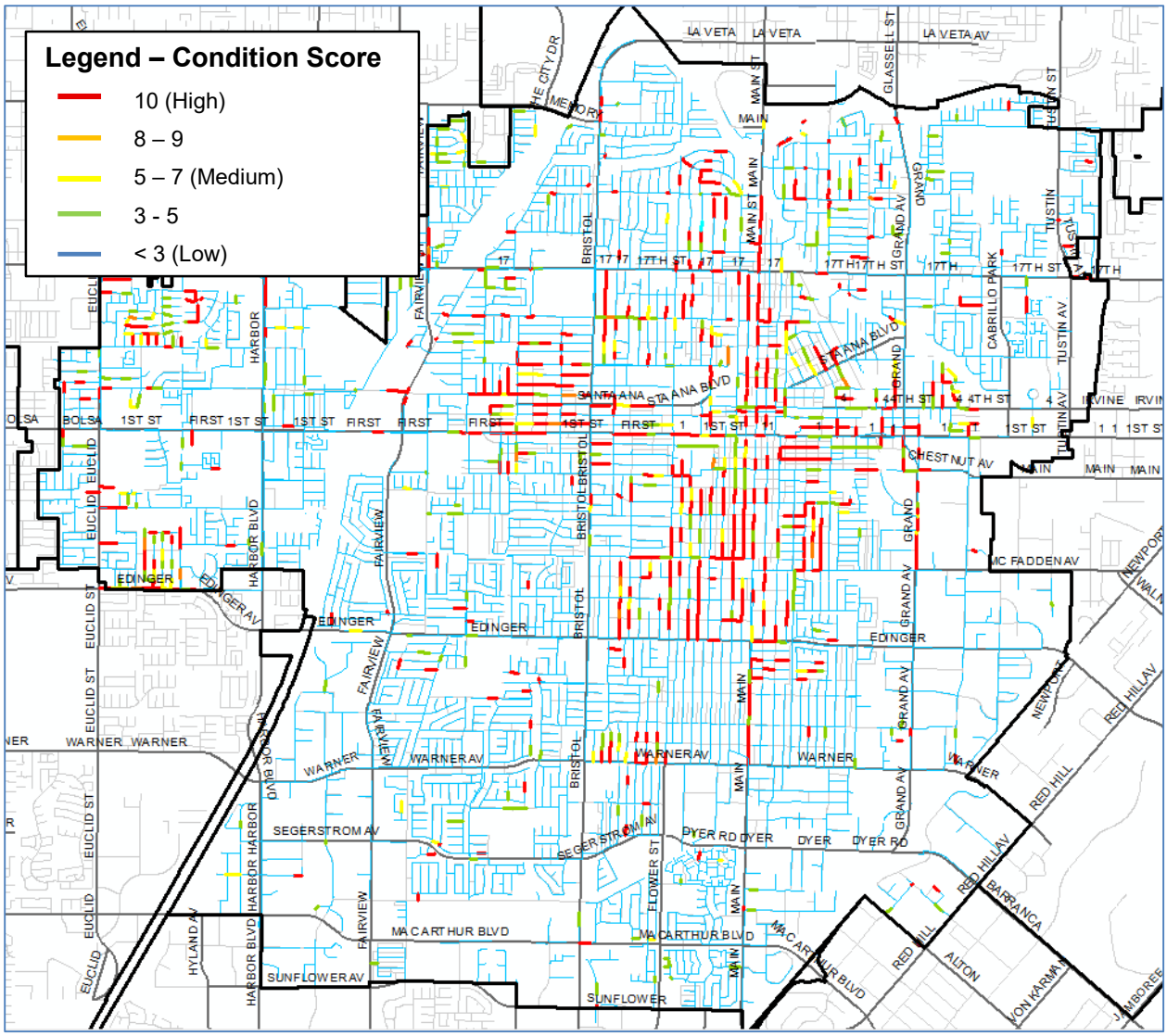
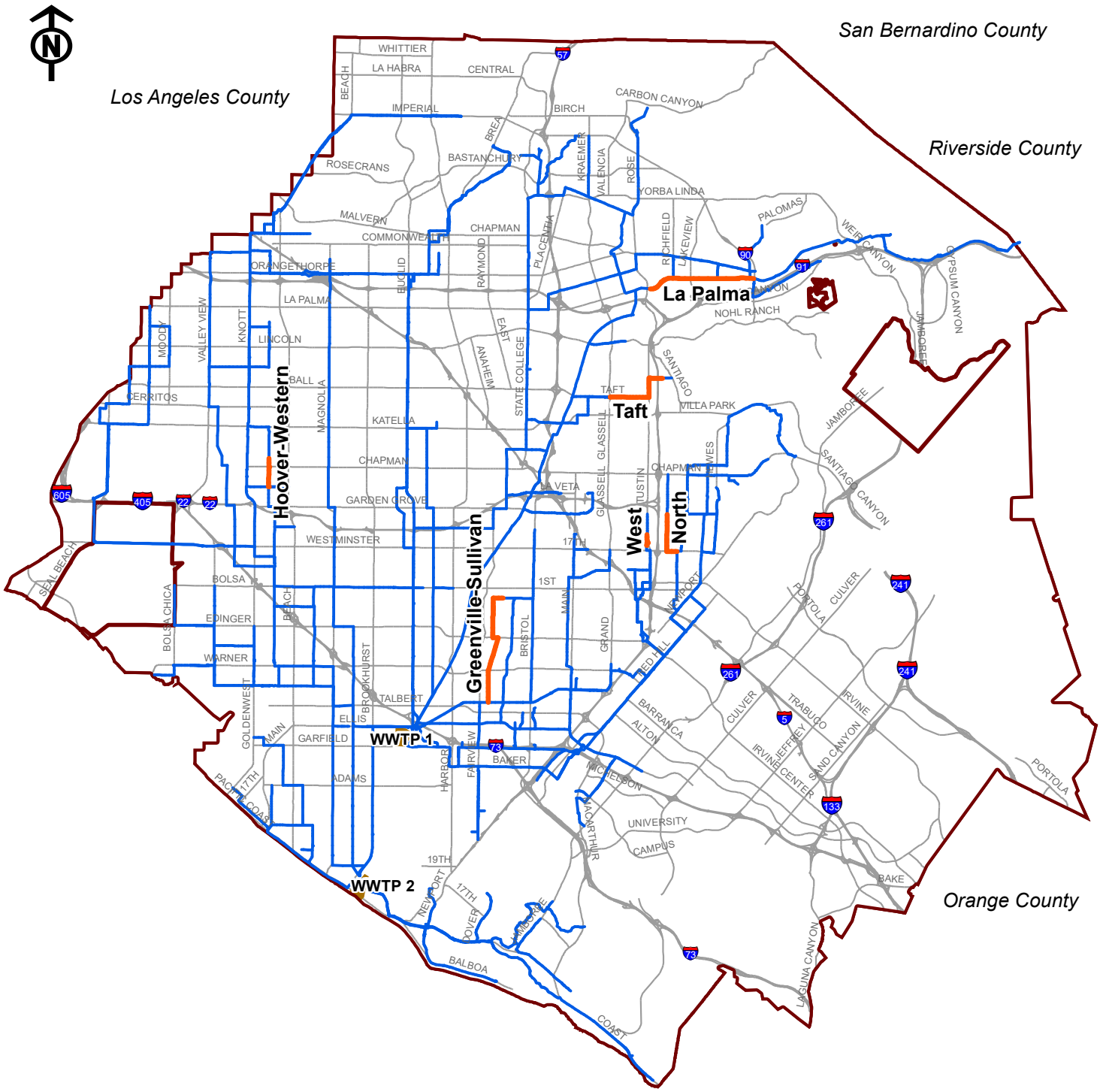


Figure ES5-1: Condition Assessment Map showing Composite Condition Scores

Capital improvement projects for sewer infrastructure are typically divided into two categories: 1) condition-based improvement projects utilizing replacement or rehabilitation (R&R) strategies, and 2) capacity improvement projects utilizing pipe upsizing or flow diversions (if applicable). Projects are triggered when; 1) existing pipe condition indicates risk of structural failure, and 2) existing and future flow projections exceed current hydraulic capacities. For this study, both condition and capacity projects were developed using a systematic process based on the following logical steps:

- Is the pipe surcharged resulting from insufficient capacity? If so, upsize pipe to convey future peak wet-weather flow (PWWF) projections.
- Has the pipe recently been lined? If so, then no project required but recommend on-going pipe inspection (CCTV).



Legend

- Capacity Improvement Project
- Major OCSD Sewers
- Major Streets and Highways
- OCSD Wastewater Treatment Plants
- OCSD Service Area

OCSD Collections Capacity Evaluation Master Plan Update

Capacity Improvement Projects

FIGURE 6-9

WOODARD &CURRAN

Woodard & Curran shall assume no liability for any of the following; 1.Any errors, omissions, or inaccuracies in the information provided regardless of how caused or; 2.Any decision or action taken or not taken by the reader in reliance upon any information or data furnished hereunder.

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DATE: DECEMBER 2019	PROJECT #: 0172-022.00
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APPENDIX C

WATER FLOW CALCULATIONS

DRAFT

Santa Ana GPU Area Existing Condition Water Flows

	Building(s)		Parcel	Flow	Unit of Measure	Total Flow
	Units	Square Feet	Acres	GPD		GPD
55 Freeway/Dyer Road						
Residential						
Single Family Residential	-	--	0.00	411	/DU	0
Multi Family Residential	1,221	--	0.00	211	/DU	257,631
Business and Commerce						
Commercial	-	5,666,453	130.08	2500	/acre	325,210
55/Dyer Total	**1,221**	**5,666,453**	**130.08**	--	--	**582,841**
Grand Avenue/17th Street						
Residential						
Single Family Residential	18	--	0.00	411	/DU	7,398
Multi Family Residential	543		0.00	211	/DU	114,573
Business and Commerce						
Commercial	-	1,400,741	32.16	2500	/acre	80,391
17th and Grand Total	**561**	**1,400,741**	**32.16**	--	--	**202,362**
South Bristol Street						
Residential						
Single Family Residential	-	--	0.00	411	/DU	0
Multi Family Residential	220		0.00	211	/DU	46,420
Business and Commerce						
Commercial	-	1,577,511	36.21	2500	/acre	90,537
South Bristol Total	**220**	**1,577,511**	**36.21**	--	--	**136,957**
South Main Street						
Residential						
Single Family Residential	705	--	0.00	411	/DU	289,755
Multi Family Residential	1,015		0.00	211	/DU	214,165
Business and Commerce						
Commercial	-	1,685,978	38.70	2500	/acre	96,762
South Main Total	**1,720**	**1,685,978**	**38.70**	--	--	**600,682**
West Santa Ana Boulevard						
Residential						
Single Family Residential	713	--	0.00	411	/DU	293,043
Multi Family Residential	1,945		0.00	211	/DU	410,395
Business and Commerce						
Commercial	-	3,090,472	70.95	2500	/acre	177,369
West Santa Ana Total	**2,658**	**3,090,472**	**70.95**	--	--	**880,807**
Remaining Citywide						
Residential						
Single Family Residential	55,346	--	0.00	411	/DU	22,747,206
Multi Family Residential	17,066		0.00	211	/DU	3,600,926
Business and Commerce						
Commercial	-	53,697,441	1232.72	2500	/acre	3,081,809
Remaining Citywide Total	**72,412**	**53,697,441**	**1232.72**	--	--	**29,429,941**
Focus Area Total	**6,380**	**13,421,155**	**308.11**			**2,403,648**
Grand Total	**78,792**	**67,118,596**	**1540.83**			**31,833,589**

*Residential demand factors based on MWDOC Orange County Water Reliability Study, 2015 Demand Factors (2016)

**Commercial demand factors based on City of Santa Ana Guidelines for Water and Sewer Facilities (2017)

Santa Ana Changes in Water Flow, Current GPU to Proposed

	Change in Building(s)		Parcel	Demand	Unit of Measure	Total Demand
	Units	Square Feet	Acres	GPD		GPD
55 Freeway/Dyer Road						
Residential						
Residential Total	7,222	--	0.00	190	/DU	1,372,180
Business and Commerce						
Commercial	-	-376,333	-8.64	2500	/acre	-21,599
55/Dyer Total	**7,222**	**-376,333**	**-8.64**	--	--	**1,350,581**
Grand Avenue/17th Street						
Residential						
Residential Total	1,766	--	0.00	190	/DU	335,540
Business and Commerce						
Commercial	-	-1,715,794	-39.39	2500	/acre	-98,473
17th and Grand Total	**1,766**	**-1,715,794**	**-39.39**	--	--	**237,067**
South Bristol Street						
Residential						
Residential Total	2,232	--	0.00	190	/DU	424,080
Business and Commerce						
Commercial	-	946,213	21.72	2500	/acre	54,305
South Bristol Total	**2,232**	**946,213**	**21.72**	--	--	**478,385**
South Main Street						
Residential						
Residential Total	667	--	0.00	190	/DU	126,730
Business and Commerce						
Commercial	-	-1,481,837	-34.02	2500	/acre	-85,046
South Main Total	**667**	**-1,481,837**	**-34.02**	--	--	**41,684**
West Santa Ana Boulevard						
Residential						
Residential Total	1,308	--	0.00	190	/DU	248,520
Business and Commerce						
Commercial	-	-38,106	-0.87	2500	/acre	-2,187
West Santa Ana Total	**1,308**	**-38,106**	**-0.87**	--	--	**246,333**
Remaining Citywide						
Residential						
Residential Total	-	--	0.00	190	/DU	0
Business and Commerce						
Commercial	-	0	0.00	2500	/acre	0
Remaining Citywide Total	**-**	**0**	**0.00**	--	--	**-**
Focus Area Total Change in Demand	**13,195**	**-2,665,857**	**-61.20**			**2,354,051**
Grand Total Change in Demand	**13,195**	**-2,665,857**	**-61.20**			**2,354,051**

*Residential demand factors based on MWDOC Orange County Water Reliability Study (2016)

**Commercial demand factors based on City of Santa Ana Guidelines for Water and Sewer Facilities (2017)

Santa Ana GPU Area Proposed Condition Water Flow Increases

	Building(s)		Parcel	Flow	Unit of Measure	Total Flow
	Units	Square Feet	Acres	GPD		GPD
55 Freeway/Dyer Road						
Residential						
Single Family Residential	-	--	0.00	369	/DU	0
Multi Family Residential	9,952			190	/DU	1,890,880
Business and Commerce						
Commercial	-	6,142,283	141.01	2500	/acre	352,519
55/Dyer Total	**9,952**	**6,142,283**	**141.01**	--	--	**2,243,399**
Grand Avenue/17th Street						
Residential						
Single Family Residential	9	--	0.00	369	/DU	3,321
Multi Family Residential	2,274			190	/DU	432,060
Business and Commerce						
Commercial	-	703,894	16.16	2500	/acre	40,398
17th and Grand Total	**2,283**	**703,894**	**16.16**	--	--	**475,779**
South Bristol Street						
Residential						
Single Family Residential	-	--	0.00	369	/DU	0
Multi Family Residential	5,492			190	/DU	1,043,480
Business and Commerce						
Commercial	-	5,082,641	116.68	2500	/acre	291,703
South Bristol Total	**5,492**	**5,082,641**	**116.68**	--	--	**1,335,183**
South Main Street						
Residential						
Single Family Residential	582	--	0.00	369	/DU	214,758
Multi Family Residential	1,726			190	/DU	327,940
Business and Commerce						
Commercial	-	946,662	21.73	2500	/acre	54,331
South Main Total	**2,308**	**946,662**	**21.73**	--	--	**597,029**
West Santa Ana Boulevard						
Residential						
Single Family Residential	507	--	0.00	369	/DU	187,083
Multi Family Residential	3,413			190	/DU	648,470
Business and Commerce						
Commercial	-	2,808,805	64.48	2500	/acre	161,203
West Santa Ana Total	**3,920**	**2,808,805**	**64.48**	--	--	**996,756**
Remaining Citywide						
Residential						
Single Family Residential	55,094	--	0.00	369	/DU	20,329,686
Multi Family Residential	36,004			190	/DU	6,840,760
Business and Commerce						
Commercial	-	57,283,531	1315.05	2500	/acre	3,287,622
Remaining Citywide Total	**91,098**	**57,283,531**	**1315.05**	--	--	**30,458,068**
Focus Area Total	**23,955**	**15,684,285**	**360.06**			**5,648,146**
Grand Total	**115,053**	**72,967,816**	**1675.11**			**36,106,214**

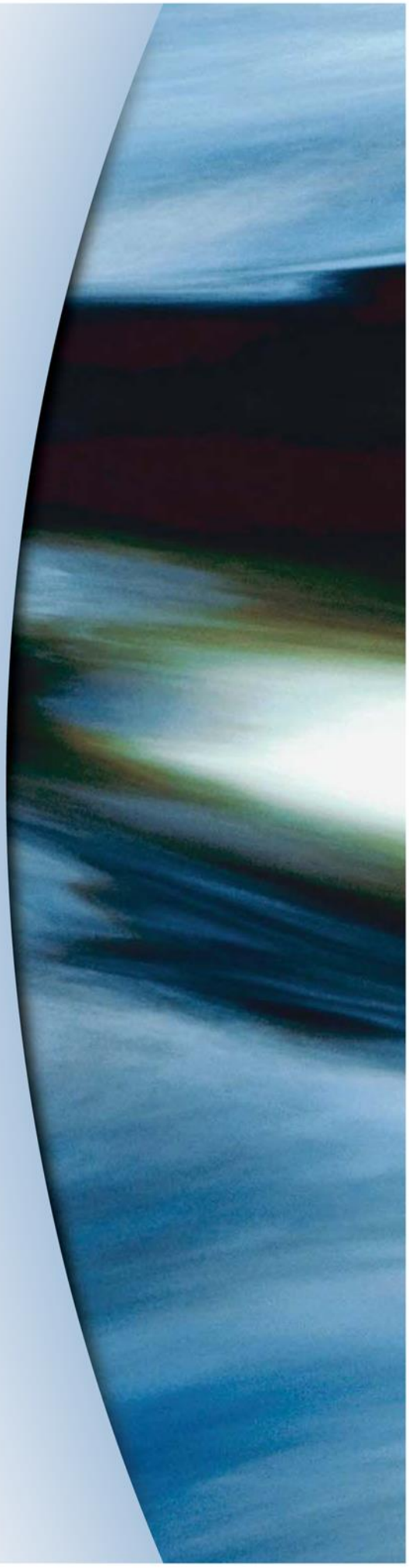
*Residential demand factors based on MWDOC Orange County Water Reliability Study, 2025 to 2040 Demand Factors (2016)

**Commercial demand factors based on City of Santa Ana Guidelines for Water and Sewer Facilities (2017)

Appendix H-b Water Supply & Demand Technical Report

Appendices

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CITY OF SANTA ANA GENERAL PLAN UPDATE

WATER SUPPLY & DEMAND TECHNICAL REPORT

City of Santa Ana
Orange County, California

Prepared For

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full circle thinking®

CITY OF SANTA ANA
GENERAL PLAN UPDATE
WATER SUPPLY & DEMAND TECHNICAL REPORT

CITY OF SANTA ANA
ORANGE COUNTY, CALIFORNIA

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Appendix A Water Demand Calculations

1. INTRODUCTION & BACKGROUND

The City of Santa Ana ("City") is currently undergoing a General Plan Update (GPU) which is intended to shape development in the City over the next 30-plus years. A General Plan is the principal long-range policy and planning document for guiding the physical development, conservation, and enhancement of California cities and counties. As part of the California Environmental Quality Act (CEQA) process associated with General Plan Updates, water supplies that support the existing and proposed land uses will be analyzed at a level consistent with the city-wide program-level planning of an EIR.

The City is located in the center of Orange County and is bounded by the City of Orange to the north, the cities of Irvine and Tustin to the east, Fountain Valley and Westminster to the west, and Costa Mesa to the south. The GPU includes five "Focus Areas" throughout the City. Focus Areas will feature the majority of land use changes and proposed increases in land use density in addition to Citywide land use changes also proposed outside of the Focus Areas. Details of these Focus Areas are listed below and shown in Figure 1:

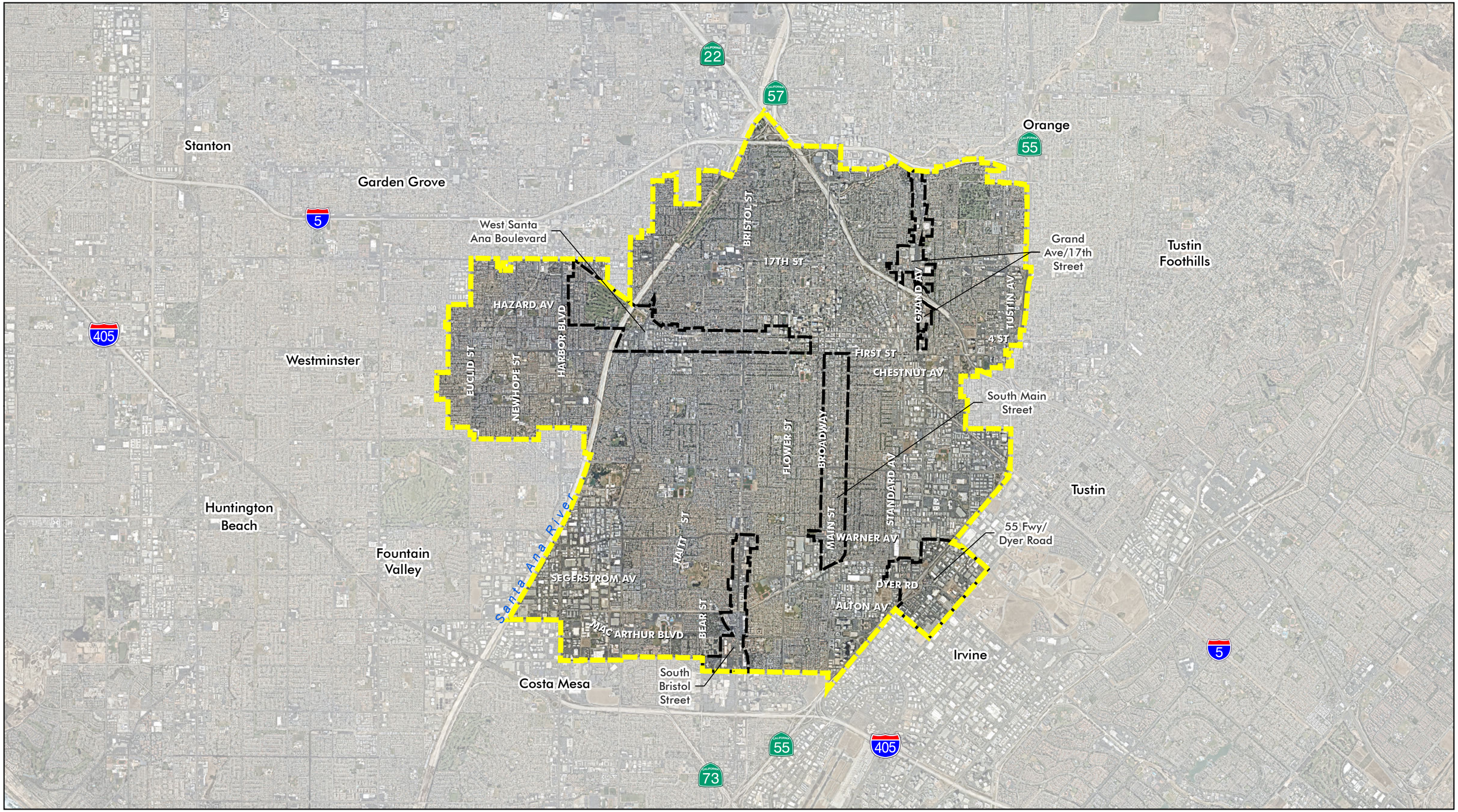
Table 1 City of Santa Ana GPU Focus Areas

Focus Area	Acreage	Location within the City	Primary Existing Land Uses
West Santa Ana Boulevard	604 acres	Central portion of the City between 1st Street and 5th Street	• Low density residential • Industrial • Open Space
South Bristol Street	236 acres	South central portion of City along Bristol Street	• General Commercial • South Bristol Street
Grand Avenue/17th Street	202 acres	North east portion of City along 17th Street	• General Commercial • Professional/Admin Office
South Main Street	408 acres	Central portion of City along the Main Street corridor	• Low density residential • General commercial
55 Freeway/Dyer Road	438 acres	South east portion of City off the 55 Freeway	• General Commercial • Professional/Admin Office

The proposed land use changes will increase residential land uses and commercial square footage. An estimated growth of 36,261 dwelling units is anticipated across the City as compared to existing land use, concentrated mainly among the five Focus Areas and additional specific plan and special zoning areas. Approximately 5.8 million square feet of additional commercial land uses are anticipated across the City as compared to existing land use, and a corresponding increase of 11,436 Citywide jobs is anticipated.

This report analyzes the impacts the proposed GPU will have on existing water supplies from anticipated increases in demands from residential and commercial land use increases. The report will include relevant details on the City's existing and projected water demands, how these demands will be met with the City's portfolio of various sources of water supply, and how the Santa Ana GPU will impact these available supplies. As water is supplied on a Citywide

scale and is consistent throughout the entire City as well as the Focus Areas, the analysis within this report focuses only on Citywide water demands and supplies. Any significant impacts will be identified by analyzing the CEQA thresholds of significance as they relate to water supply. The main documents to support this analysis include the City's 2015 Urban Water Management Plan, the Metropolitan Water District of Southern California (Metropolitan) 2015 UWMP, the 2018/19 Orange County Water District (OCWD) Engineer's Report and internal communication with City staff.



Aerial Date: 09/26/2018

Santa Ana GPU and Focus Areas Aerial Extent

Figure 1

4/10/2020

City of Santa Ana General Plan Update

FUSCOE ENGINEERING
full circle thinking

Santa Ana City Boundary

Focus Area

0 0.5 1 2 Miles

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2. CITY WATER SUPPLIES AND DEMAND

2.1 CITY WATER SUPPLIES

The City's water supply comes from a combination of imported water, local groundwater and recycled water to satisfy water demands. The City receives water supplies from Metropolitan Water District of Southern California (Metropolitan) and the Orange County Water District (OCWD). The City is a member agency of Metropolitan and receives imported water from the State Water Project and the Colorado River under agreements with Metropolitan. OCWD manages the Orange County Groundwater Basin ("OC Basin" or "Basin") and provides groundwater resources to the City.

The City maintains 444 miles of transmission and distribution mains, nine reservoirs with a storage capacity of 49.3 million gallons, seven pumping stations, 20 wells, and seven imported water connections. The seven imported water connections to the Metropolitan System are described in Table 2 below.

Table 2 City of Santa Ana Connections to Metropolitan Facilities

MWD Connection	Name of Connection	Normal Operating Capacity (MGD)	Design Capacity (MGD)
SA-1	Bristol	5.17	6.46
SA-2	First	5.17	9.69
SA-3	McFadden	5.17	6.46
SA-4	Warner	4.85	6.46
SA-5	Alton	4.85	12.93
SA-6	Santa Clara	7.76	12.93
SA-7	Red Hill	4.85	32.31

From 2005-2015, Metropolitan delivered between 3,000 AF or 2.6 MGD (2015, lowest delivery) to 13,000 AF or 11.6 MGD (2005, highest delivery) to the City.[1] The design capacity of the Metropolitan connections is more than adequate to deliver imported to the City as shown in the table above.

The City's Water Utility provides water service within a 27-square mile service area. The service area includes the City of Santa Ana and a small neighborhood in the City of Orange, near Tustin Avenue and Fairhaven by the northeast corner of Santa Ana. See Table 3 which shows the City's recent water supply to satisfy demands from 2015.

Table 3 2015 Projected and Actual Water Supply and Demand (Acre-feet)

Land Use Type	2010 UWMP Projected 2015 Demand	Actual 2015 Demand
Single Family	18,368	14,084
Multi-Family	13,563	10,399

[1] 2015 Metropolitan UWMP.

Other (CII)	15,684	12,025
Landscape	185	147
Total	**47,800**	**36,656**
Notes: Source: 2010 and 2015 City of Santa Ana UWMPs		

As shown in Table 3 above, there was a decrease in water supplied to the City in 2015 as to what was predicted to be delivered in the 2010 UWMP[2] (47,800 AF) by approximately 23%. This is likely due to Senate Bill (SB) x7-7 which requires the State of California to reduce urban water use by 20% by the year 2020 as described in more detail below. Similarly, the Executive Order mandated by California Governor Edmund "Jerry" Brown in April 2015 in response to the drought that started in 2011 further required a collective reduction in statewide urban water use of 25% which would also reduce Citywide demands. In addition, UWMPs are typically developed in a conservative manner and tend to overestimate future water demands.

As of 2018-19, 77% of the City's water supply is from OC Basin groundwater and 23% is from Metropolitan imported water and recycled water.[3]

OCWD Groundwater

The primary source of water for the City is the Orange County Groundwater Basin ("OC Basin") which is managed by the Orange County Water District (OCWD). The OC Basin underlies the north half of Orange County beneath broad lowlands. The OC Basin covers an area of approximately 350 square miles, bordered by the Coyote and Chino Hills to the north, the Santa Ana Mountains to the northeast, the Pacific Ocean to the southwest, and terminates at the Orange County line to the northwest, where its aquifer systems continue into the Central Basin of Los Angeles County.

The OC Basin storage capacity is estimated to be 66 million AF[4], of which only a fraction is available for use to prevent against physical damage to the Basin such as seawater intrusion or land subsidence. To ensure the Basin is not overdrawn, OCWD recharges the Basin with local and imported water. The Basin is recharged primarily by four sources including local rainfall, storm and base flows from the Santa Ana River (SAR), purchased Metropolitan imported water; and highly treated recycled water. Basin recharge occurs largely in the following recharge basins that are located in or adjacent to the City of Anaheim:

- Warner Basin: A 50-foot-deep recharge basin located next to the SAR at the intersection of the 55 and 91 freeways;
- Burris Basin: Located between Lincoln Avenue and Ball Road in the City of Anaheim;
- Kraemer Basin: Located adjacent to Burris Pit;
- Santiago Creek: Located in the City of Orange between Villa Park Road and E. Bond Avenue.

[2] 2010 City of Santa Ana Urban Water Management Plan. Found here: https://water.ca.gov/LegacyFiles/urbanwatermanagement/2010uwmps/Santa%20Ana,%20City%20of/Santa%20Ana%20Final%202010%20UWMP.pdf

[3] 2018/2019 OCWD Engineer's Report.

[4] OCWD Groundwater Management Plan 2015 Update. June 17, 2015.

The OC Basin (also referred to as Basin 8-1) has been designated as a medium-priority basin. As mentioned, SGMA provides authority for agencies like OCWD to develop and implement Groundwater Sustainability Plans or alternative plans ("Alternatives") that demonstrate the basin has operated within its sustainable yield over a period of at least 10 years. OCWD decided to submit an Alternative for evaluation by the California Department of Water Resources (DWR). An Alternative is required to be submitted to DWR for review no later than January 1, 2017, and every 5 years thereafter. In general, Alternatives must be consistent with one of the following (Water Code §10733.6(b)):

- A plan developed pursuant to Part 2.75 (commencing with Section 10750) or other law authorizing groundwater management.
- Management pursuant to an adjudication action.
- An analysis of basin conditions that demonstrates that the basin has operated within its sustainable yield over a period of at least 10 years. The submission of an alternative described by this paragraph shall include a report prepared by a registered professional engineer or geologist who is licensed by the state and submitted under that engineer's or geologist's seal.

OCWD prepared an Alternative that satisfies the third bullet point above to prove the OC Basin has operated within its sustainable yield over a period of at least 10 years. The Basin 8-1 Alternative can be found on OCWD's website. The Alternative states that Basin 8-1 has operated within its sustainable yield for more than 10 years without experiencing significant and unreasonable (1) lowering of groundwater levels, (2) reduction in storage, (3) water quality degradation, (4) seawater intrusion, (5) inelastic land subsidence, or (6) depletions of interconnected surface water that have significant and unreasonable adverse impacts on beneficial uses of the surface water. In addition, Basin 8-1 has not been in conditions of critical overdraft. DWR has one year to evaluate the Basin 8-1 Alterative. The paragraphs below will further explain how OCWD successfully manages the OC Basin to meet these new groundwater monitoring and management requirements.

OCWD manages the Basin through the Basin Production Percentage (BPP) which is determined each water year. The BPP is set based on groundwater conditions, availability of imported water supplies, water year precipitation, SAR runoff, and basin management objectives. The BPP represents an established percentage identifying the amount of groundwater all pumpers in the Basin can pump without paying a "pumping tax" or Basin Equity Assessment (BEA) to OCWD. For example, if the BPP is set to 75%, all pumpers within the Basin, including the City, can supply 75% of their water needs from groundwater supplies at a cost significantly less than the cost of imported water. If groundwater production is equal to or less than the BPP (i.e. less than 75% in the example above), all producers within the Basin pay a replenishment assessment (RA) fee which is used to fund groundwater replenishment and recharge programs aimed at ensuring the long-term viability and stability of the Basin. If groundwater production is greater than the established BPP for that water year (i.e. greater than 75% in the example above), the BEA is determined for the producer of that amount of groundwater provided in excess of the BPP. The BEA is an additional fee paid on each AF of water pumped above the BPP, making the total cost of that additional water equal to the higher cost of imported water from Metropolitan.

According to OCWD's Engineer's Report for fiscal year 2018/19, total water demands within the OCWD jurisdiction were 393,222 AF for the 2018-19 water year, and estimated to be 415,000 for the 2019-20 water year. Groundwater production totaled 303,496 AF. As shown in Table 4 below, the City utilized 25,512.4 AF of groundwater and 7,743.0 AFY of supplemental water in the 2018-19 water year.

Table 4 City of Santa Ana Groundwater Production Data 2018-19

Groundwater Producer	Groundwater	Supplemental Water (AF)	(AF)	Actual BPP
	Total	Deliveries	Grand Total	Non-Irrigation Only
City of Santa Ana	25,512.4	7,743.0	33,255.4	76.7
Source: OCWD 2018-19 Engineer's Report				

Over the recent past, production capability of the Basin has increased as a result of increased wastewater reclamation at the Groundwater Replenishment System (GWRS) located in Fountain Valley. The GWRS, which is designed to turn wastewater into drinking water, is one of the most technologically advanced wastewater treatment plants in the world. A treatment plant expansion of 30 million gallons per day was recently put on line by OCWD increasing the recharge capacity of the GWRS to 100 million gallons per day. This equates to the recycling of over 110,000 AFY of wastewater back into the Basin for future extraction and potable use. A final expansion of the treatment system has been designed and currently under construction to expand to a capacity of 130 million gallons per day. Expansion projects to the GWRS increase local water supply reliability and ensure low-cost water supplies throughout northern Orange County, including the City of Santa Ana.

Metropolitan Imported Water

The City of Santa Ana is one of only three retail member agencies of Metropolitan in Orange County. As a member agency, pursuant to the Metropolitan Act, the City has preferential rights to a certain percentage of water delivered to Metropolitan each year primarily from the State Water Project and/or the Colorado River Aqueduct as well as other Metropolitan storage programs. Being a member agency of Metropolitan puts the City in a better position relative to receiving water directly from Metropolitan, as opposed to other agencies in Orange County which obtain their imported Metropolitan water through MWDOC. The main sources of water Metropolitan provides to the City include water from northern California delivered via the State Water Project (SWP) and water from the Colorado River Basin delivered via the Colorado River Aqueduct. More details on these sources of imported water are explained below.

Colorado River

The Colorado River was Metropolitan's original source of water after Metropolitan's establishment in 1928. Lake Mead and Lake Powell, the two largest reservoirs in the United States, can store four times the annual flow of the Colorado River. River flows are primarily generated from snowpack in the Rocky Mountains. Colorado River water is allocated and delivered to seven states in the US including Colorado, Utah, Wyoming, New Mexico, Arizona,

Nevada and California. Mexico also has an allocation of 1.5 million acre-feet (MAF) along the Colorado River each year.

California's urban water allocation is managed by Metropolitan and imported from the Colorado River via the Colorado River Aqueduct (CRA) which is stored at Diamond Valley Lake and Lake Mathews in Riverside County. The CRA includes supplies from the implementation of the Quantification Settlement Agreement (QSA) and related agreements to transfer water from agricultural agencies in Imperial County to urban uses throughout Southern California including Los Angeles, Orange County and San Diego. The 2003 QSA enabled California to implement major Colorado River water conservation and transfer programs, stabilizing water supplies for 75 years and reducing the state's demand on the river to its 4.4 MAF entitlement. Colorado River transactions are potentially available to supply additional water up to the CRA capacity of 1.25 MAF on an as-needed basis.

California is apportioned the largest allocation on the River of 4.4 MAF of water from the Colorado River each year plus one-half of any surplus that may be available for use collectively in Arizona, California, and Nevada. In addition, California has historically been allowed to use Colorado River water apportioned to but not used by Arizona or Nevada. Metropolitan has a basic entitlement of 550,000 AFY of Colorado River water, plus surplus water up to an additional 662,000 AFY if certain conditions exist. The remainder of California's allocation goes to Imperial County, primarily to the Imperial Irrigation District, and is used mainly for agriculture production.

Over the past 19 years (2000-2018), there have only been three years when the Colorado River flow has been above average.[5] On May 20, 2019, the Department of the Interior, Bureau of Reclamation and representatives from all seven Colorado River Basin states and signed completed drought contingency plans for the Upper and Lower Colorado River basins. These completed plans are designed to reduce risks from ongoing drought and protect the single most important water resource in the western United States. In addition to the voluntary reductions and other measures to which the basin states agreed, Mexico has also agreed to participate in additional measures to protect the Colorado River Basin.[6]

State Water Project

The State Water Project (SWP) collects water from rivers in Northern California and redistributes it to the water-scarce but populous central and southern portions of California through a network of aqueducts, pumping stations and power plants. Approximately 70% of the water provided by the SWP is used for urban areas and industry in Southern California and the San Francisco Bay Area, and 30% is used for irrigation in the Central Valley. The availability of water supplies from the SWP can be highly variable. A wet water year may be followed by a dry water year which restricts the amount of water that can be delivered throughout California. Metropolitan's SWP imported water is stored at Castaic Lake on the western side of Metropolitan's service area and at Silverwood Lake near San Bernardino, as well as in Diamond Valley Lake.

[5] USBR Lake Mead at Hoover Dam Water Elevation Data. Found here: https://usbr.gov/lc/region/g4000/hourly/mead-elv.html

[6] USBR News Releases. Found here: https://www.usbr.gov/newsroom/newsrelease/detail.cfm?RecordID=66103

The Sacramento-San Joaquin River Delta (Delta) is key to the SWP's ability to deliver water to its agricultural and urban contractors. The Delta faces many challenges concerning its long-term sustainability such as climate change posing a threat of increased variability in floods and droughts. Sea level rise complicates efforts in managing salinity levels and preserving water quality in the Delta to ensure a suitable water supply for urban and agricultural use. Furthermore, other challenges include continued subsidence of Delta islands, many of which are below sea level, and the related threat of a catastrophic levee failure as the water pressure increases, or as a result of a major seismic event.

Metropolitan's Board approved a Delta Action Plan in June 2007 that provides a framework for staff to pursue actions with other agencies and stakeholders to build a sustainable Delta and reduce conflicts between water supply conveyance and the environment. The Delta action plan aims to prioritize immediate short-term actions to stabilize the Delta while an ultimate solution is selected, and mid-term steps to maintain the Delta while a long-term solution is implemented. Currently, Metropolitan is working towards addressing three basic elements: Delta ecosystem restoration, water supply conveyance, and flood control protection and storage development.

In April 2015, the Brown Administration announced California WaterFix, as well as a separate ecosystem restoration effort called California EcoRestore. Together, the California WaterFix and California EcoRestore will make significant contributions toward achieving the coequal goals of providing a more reliable water supply for California and protecting, restoring, and enhancing the Delta ecosystem. The WaterFix is aimed at making physical and operational improvements to the SWP system in the Delta necessary to restore and protect ecosystem health, south-of-Delta SWP water supplies, and water quality. The WaterFix includes the construction of two tunnels up to 150 feet below ground and three new intakes, each with 3,000 cubic-feet per second (cfs) capacity and an average annual yield of 4.9 million acre-feet designed to protect California's water supplies. These proposed upgrades would provide protection against water supply disruption from failure of aging levees due to sea-level rise, earthquakes and flood events.

In May 2019, the Newsom Administration revised their stance on the WaterFix in response to multiple legal challenges. The revised project would include the construction of one tunnel instead of the previously proposed two-tunnel system. At this time, the DWR and the US Bureau of Reclamation (BOR) have withdrawn their water rights petition (the WaterFix Petition) and the project has been postponed indefinitely.

Recycled Water

The City depends on OCWD for its recycled water supply for non-potable uses such as irrigation. OCWD provided 352 AF of recycled water to the City of Santa Ana in 2015 as part of the Green Acres Project (GAP). OCWD owns and operates the GAP, a water recycling system that provides up to 8,400 AFY of recycled water as an alternate source of water that is mainly delivered to parks, golf courses, greenbelts, cemeteries, and nurseries in the cities of Costa Mesa, Fountain Valley, Newport Beach, in addition to Santa Ana. The City maintains an agreement with OCWD to supply GAP water to customers where available. It is anticipated that recycled water supplied to the City will maintain around 300 AFY through 2040.

2.2 CITY WATER DEMANDS

The City's Water Utility provides water service within a 27-square mile service area to a population of approximately 335,299 as of 2015.[7] . The City is almost completely built-out. Approximately 67% of the City's water demand is residential including single family and multi-family residential units. Commercial land uses, including dedicated landscape, accounts for the remaining 33% of the total demand. The 2015 UWMP[8] highlighted that water demands throughout the City were 36,656 AF from July 2014 to June 2015. The 2010 UWMP anticipated water demands in 2015 to be much larger at 47,800 AF. As mentioned, the difference is likely because of the mandatory water restrictions from the Governor's Executive Order and the fact that UWMPs are typically developed in a conservative manner and tend to overestimate future water demands.

In April 2015 Governor Brown issued an Executive Order as a result of one of the most severe droughts in California's history, requiring a collective reduction in statewide urban water use of 25% by February 2016, with each agency in the state given a specific reduction target by DWR. In response to the Governor's mandate, the City began to track its water wasting prohibition enforcement activities. On June 2, 2015, the City declared a Phase 2 water supply shortage in Resolution No. 2015-025 by formally requiring all water consumers to reduce use by 12% relative to their 2013 consumption. Additionally, on August 4, 2015, a water wasting penalty rate was established by Resolution No. 2015-047. This new penalty rate permits City staff to penalize those users not meeting their water use reduction targets of 12%. The City of Santa Ana as a whole met its State mandated target; and as a result the City did not have to impose any monetary penalties on any of its users.

As of April 7, 2017, Governor Brown ended the drought State of Emergency in most of California, while maintaining water reporting requirements and prohibitions on wasteful practices such as watering during or right after rainfall.[9] The City continues to promote water use efficiency and currently has a goal to continue to reduce water demands by 3% compared to 2013 consumption. In addition, the City only allows outdoor watering to every other day or Monday, Thursday, and Saturday and only between the hours of 6 PM and 6 AM.[10]

Such restrictions have significantly reduced water demands throughout California. In addition to these mandated restrictions, cities must follow the Water Conservation Act of 2009, also known as Senate Bill (SB) x7-7. This law required the State of California to reduce urban water use by 20% by the year 2020. The City must determine baseline water use during their baseline period and water use targets for the years 2015 and 2020 to meet the state's water reduction goal. The City's 2015 target was 123 gallons per capita per day (GPCD) and the 2020 target is 116 GPCD. The 2015 UWMP reported that the City has already met both the 2015 and 2020 water use targets with an actual use in 2015 of 83 GPCD. This is likely due to increased

[7] Center of Demographics Research (CDR) at California State University, Fullerton
[8] 2015 City of Santa Ana Urban Water Management Plan. Found here: https://www.santa-ana.org/sites/default/files/Documents/urban_water_management_plan.pdf
[9] SWRCB Water Conservation Portal – Emergency Conservation Regulation, accessed on 10/01/2019. Found here: http://www.waterboards.ca.gov/water_issues/programs/conservation_portal/emergency_regulation.shtml
[10] City of Santa Ana – Water Conservation Website, accessed 10/01/2019. Found here: https://www.santa-ana.org/sites/default/files/Documents/Drought_Flyer_Final_Eng_No_Cropmarks.pdf

conservation as required by the Governor's Executive Order during severe drought conditions throughout California.

The City's water demand has been decreasing in recent years due to the combination of the Governor's Executive Order and SBx7-7 goals. More recently, the City has documented a per capita usage of 66 gpcd[11] which highlights the continued conservation efforts.

The City's water demands are then expected to increase by approximately 8% from 2015 to 2040 as shown in the table below.

Table 5 City of Santa Ana Projected Total Water Demands

Water Demand Type	2015	2020	2025	2030	2035	2040
Potable and Raw Water	36,656	36,678	39,397	39,669	39,658	39,716
Recycled Water	352	320	320	320	320	320
Total Water Demand	**37,008**	**36,998**	**39,717**	**39,989**	**39,978**	**40,036**
Source: 2015 City of Santa Ana UWMP						

As shown above, it is projected that water demands will increase from 37,008 AF in 2015 to 40,036 AF in year 2040 representing an increase of 3,028 AF. These estimates are approximately 10,000 AF less than what was predicted in the 2010 UWMP further highlighting the conservative nature of UWMP preparation.

The 2015 Metropolitan UWMP stated that Metropolitan would be able to meet the demands of its member agencies, including the City of Santa Ana, through 2040. Therefore, imported water demands for the City are projected to be met through the 20-year requirements of SB 610 and beyond. The City of Santa Ana 2015 UWMP also confirmed the ability of the local supplies and the OC Basin to meet the growing demands of the City. The ability for the City to meet these growing demands in multiple climate scenarios is explained in the sections below.

[11] City of Santa Ana Website: Water Conservation. Found here: https://www.santa-ana.org/pw/water-conservation

3. SANTA ANA GPU CURRENT WATER DEMANDS

As UWMPs typically overestimate water demand projections, as identified above, the City provided water use data to update water demands estimates since the 2015 UWMP. This assisted in developing an updated estimate for current water demands throughout the City.

For each land use in the City of Santa Ana and its Focus Areas, water demand estimates were developed to provide a baseline condition and to allow for comparisons against any proposed land use changes. Water demands were estimated using the average gallons per capita water use estimate of 66 gallons per capita per day (gpcd).[12] This gpcd estimate was then multiplied by dwelling unit buildout estimates and residents per dwelling unit assumptions provided by Placeworks. Commercial water demand factors were provided from the City of Santa Ana Guidelines for Water and Sewer Facilities (2017). In addition, the City provided data for 2018/2019 water use from irrigation that was also used to establish a total baseline existing condition water demand for 2020.

Table 6 provides a summary of the existing condition water demand for the City. Detailed calculations are provided in Appendix A.

Table 6 Existing Condition Average Daily Water Demand

Land Use	Land Use Count	Residents Per Dwelling Unit	Water Demand Factor	Water Demands (AFY)
Single Family Residential	56,782 DUs	4.60	66 gpcd	19,323
Multifamily Residential	22,010 DUs	3.60	66 gpcd	5,862
Commercial	1,541 acres (67 million sf)	--	2,500 gpd/acre	4,318
Potable and Recycled Irrigation	--	--	--	1,648
Citywide Total	**78,792**	**--**	**67,118,596**	**31,151**
Notes: *Land use data supplied and dwelling unit residence assumptions provided by Placeworks, 2020*				

Under the existing conditions, average daily water demands are estimated at 31,151 AFY through the City. Based on correspondence with City staff, the existing water demand estimate is within range of actual water use based on 2018/19 data thereby confirming this methodology is appropriate in estimating water demands.

It is important to note that the 2015 UWMP projected water demands to be 36,998 AFY in 2020 based on previous population projections. This is nearly 6,000 AFY greater than actual water use within the City within the same time frame. This is likely due to the conservative nature of UWMPs as well as ongoing water conservation efforts employed by the City to reduce potable water demands.

[12] City of Santa Ana Website: Water Conservation. Found here: https://www.santa-ana.org/pw/water-conservation

Existing water demands for the City can be compared to proposed increases in land uses under the Santa Ana GPU to determine if adequate supplies are available to meet increased water demands. See below for the proposed water demand calculations, ability of the City to meet projected water demand increases and the CEQA impact assessment.

4. THRESHOLDS OF SIGNIFICANCE

California Environmental Quality Act (CEQA) significance criteria are used to evaluate the degree of impact caused by a development project on environmental resources such as water supply reliability. According to Appendix G of the CEQA Guidelines, a project would normally have a significant effect on the environment if the project would impact any of the items listed below.

4.1 UTILITIES AND SERVICE SYSTEMS THRESHOLDS (CEQA CHECKLIST SECTION XIX)

Would the Project:

B. Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?

Should the answers to these environmental factors prove to be a potentially significant impact, mitigation measures would be required to reduce those impacts to a less-than-significant threshold.

5. CEQA IMPACT ASSESSMENT

The purpose of the proposed conditions evaluation is to determine potential impacts under CEQA related to water supply from the proposed Santa Ana GPU.

5.1 PROPOSED WATER DEMANDS

Under the proposed land use changes, water demands will increase throughout the City of Santa Ana due to increases in dwelling units and commercial land uses. A total increase of 36,261 dwelling units and increase of approximately 5,849,220 sf of non-residential uses are proposed.

Methodology to estimate increases in water demands is similar to the methodology utilized for establishing the existing condition baseline. However, a 20% reduction factor was employed to the gpcd multi-family residential water demands to account for required reductions in water demands associated with new developments including the California Green Building Code standards (e.g. mandatory low flow toilets and efficient fixtures) as well as model efficiency landscape guidelines. A factor of 53 gpcd was utilized to project multi-family water demands into the future associated with the Santa Ana GPU. A slight decrease in single family residences is anticipated; this decrease assumed 66 gpcd associated with higher usage, older homes. The City has noted that the reduction in per capita water use proposed here has already been observed during recent years (2019-2020) and ranges between 44 gpcd – 58 gpcd based on water usage reporting requirements the City must send to the California Department of Water Resources each month. The commercial water demand factor of 2,500 gpd/acre remained consistent with existing water demand factors although this approach is likely overestimated and therefore conservative.

Table 7 shows the proposed water demands associated with each land use change. Detailed calculations and associated exhibits are included in Appendix A.

Table 7 Existing Condition to Proposed Condition Water Demand Increases

Land Use	Land Use Count	Residents Per Dwelling Unit	Water Demand Factor	Water Demands (AFY)
Single Family Residential	-590 DUs	4.30	66 gpcd	-188
Multifamily Residential	+36,851 DUs	3.10	53 gpcd	6,761
Commercial	+134 acres (+5.85 million sf)	--	2,500 gpd/acre	376
			Citywide Total Projected Increase in Demands	+6,950
			Existing Condition Total Demands	31,151
			Proposed Condition Total Demands	38,101
Notes: *Land use data supplied and dwelling unit residence assumptions provided by Placeworks, 2020*				

Full implementation of the Santa Ana GPU has the potential to increase water demand by 6,950 AFY within the City.

5.2 WATER SUPPLY FINDINGS

As shown above, the proposed GPU will likely increase demands on existing water supplies. As part of proposed GPU impact analysis, existing and proposed water demands were estimated using a combination of City of Santa Ana commercial water demand factors and City-specific per capita water demand data as shown in Table 7. As shown, an increase in 6,950 AFY was estimated from existing land use to the land use under the proposed GPU. The following section highlights the ability of the City to adequate supply water resources to support the increases in demands proposed under the GPU.

5.2.1 City of Santa Ana 2015 UWMP

The findings of the proposed increases in water demands as compared to current water demands were compared to the 2015 UWMP findings for normal, single dry year and multiple dry year water supply/demand scenarios. To determine increases in water supply needed to support anticipated increases in water demands through 2040, the 2015 UWMP utilizes best available buildout data and population projections from a variety of planning documents, including data from Center for Demographic Research, and water supply and climate models.

Forecast Year	2020	2025	2030	2035	2040
Normal Year					
Supply totals	36,998	39,717	39,989	39,978	40,036
Demand totals	36,998	39,717	39,989	39,978	40,036
Single -Dry Year					
Supply totals	39,218	42,100	42,388	42,377	42,438
Demand totals	39,218	42,100	42,388	42,377	42,438
Multiple-Dry Year					
First year					
Supply totals	39,218	42,100	42,388	42,377	42,438
Demand totals	39,218	42,100	42,388	42,377	42,438
Second year					
Supply totals	39,218	42,100	42,388	42,377	42,438
Demand totals	39,218	42,100	42,388	42,377	42,438
Third year					
Supply totals	39,218	42,100	42,388	42,377	42,438
Demand totals	39,218	42,100	42,388	42,377	42,438
Source: 2015 City of Santa Ana UWMP					

As shown above, in all climate scenarios analyzed in the 2015 UWMP, available water supplies are projected to meet demands. Reliability of local water supplies will be ensured through

continued implementation of the City, OCWD and Metropolitan water supply and demand management strategies.

See below for a summary of 2015 UWMP findings as well as water demands calculated as part of this EIR technical report for existing and proposed GPU water use.

Table 8 Water Demand Planning Document Comparison

Source	Water Demand Scenario	Water Demand Estimate
EIR Tech Report	Existing Water Demands Estimate	31,151 AFY
EIR Tech Report	Proposed GPU Water Demand Estimate	36,377 AFY
2015 UWMP	Projected 2020 Water Demands (Normal – Multiple Dry Year)	36,998 – 39,218 AFY
2015 UWMP	Projected 2040 Water Demands (Normal – Multiple Dry Year)	40,036 – 42,438 AFY

As shown above, the projected water demands from the proposed GPU is well within the projected total water demands for 2040 in the 2015 UWMP for normal, dry year and multiple dry year scenarios. It is not anticipated that implementation of the GPU will exceed projected long term water supplies. This is further supported by OCWD and Metropolitan regional water projections and purchase agreements as summarized below.

5.2.2 OCWD 2018-19 Engineer's Report

The 2018-19 OCWD Engineer's report provides data on groundwater usage across its service area, including the City of Santa Ana. Water production for the City consisted of 77% groundwater for the 2018-19 year, with the remaining 23% consisting of imported and recycled water. Total groundwater production for the 2018-19 year was 302,756 AF, which falls within OCWD's sustainable groundwater management goals. Population within OCWD's service area is expected to increase from the current 2.28 million people (based on Census 2010 demographic data) to approximately 2.59 million people by the year 2035. This population growth is expected to increase water demands from the current 393,222 AF per year to 447,000 AF per year in 2035 (a water demand projection that takes into consideration future water conservation savings). This yields an anticipated increase in water demand of 53,779 AFY. The proposed increase of 6,950 AFY under implementation of the Santa Ana GPU is well within the planned increase in water demands from OCWD projections.

5.2.3 Metropolitan Water District Purchase Agreement

In addition to Metropolitan's 2015 UWMP statement that Metropolitan would be able to meet the demands of its member agencies, including the City of Santa Ana, through 2040, a 2014 Purchase Order between the City of Santa Ana and Metropolitan Water District further establishes adequate water supplies to meet current and future demands. The Purchase Order sets terms for maximum deliveries of imported water over a 10 year period, from January 1 2015 through December 31, 2024. Among the stipulations of the purchase agreement was a maximum annual delivery of 19,617 AFY. As noted in the OCWD 2018-19 Engineer's Report, the City of Santa Ana utilized 25,512.4 AF of groundwater further supporting the ~75% groundwater to ~25% imported water supply portfolio for the City. As noted in the City's

UWMP, this ratio of groundwater and imported water is anticipated to continue through 2040. Therefore, an available 11,874 AF of water delivered by Metropolitan is still available if ever needed. This surplus alone is sufficient to meet the proposed increase in demands of 6,950 AFY under implementation of the proposed GPU. When combined with anticipated increases in OCWD groundwater supply capacity, it is not anticipated that the proposed increase in water demands will adversely impact regional water supplies.

5.2.4 Water Supply Impacts

The following impact assessments are based on the significance criteria established in Section 4.1 for water systems.

Impact B **Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry, and multiple dry years?**

Impact Analysis: Under full buildout of the proposed land use changes as part of the GPU, water demands would increase from approximately 31,151 AFY to 38,101 AFY. The 2015 UWMP projected a 2040 total water demand of 40,036– 42,438 AFY (depending on climate conditions) which is greater than the total of 38,101 AFY associated with the implementation of the proposed GPU. OCWD and Metropolitan both have concluded adequate supplies to meet the growing demands of their member agencies, including the City of Santa Ana. The proposed water demand increases documented in this report as a result of the Santa Ana GPU are within the planned supplies from the City, OCWD and Metropolitan during normal dry and multiple dry year scenarios.

6. CONCLUSION

The City of Santa Ana works together with OCWD and Metropolitan to provide water supply to its various customers. The City, OCWD and Metropolitan have managed regional and local water supplies successfully for decades and water management documentation summarized above conclude that there are adequate supplies to meet increased water demands from the proposed Santa Ana GPU. There are adverse supply effects anticipated related to water supply in normal, single dry and multiple dry year climate scenarios associated with the implementation of the Santa Ana GPU.

7. TECHNICAL APPENDICES

Appendix A Water Demand Calculations

APPENDIX A
WATER DEMAND CALCULATIONS

Santa Ana GPU Area Existing Condition Water Demands

	Building(s)		Building	Flow	Unit of Measure	Total Demands	Total Demands
	Units	People Per Household	Acres	GPD		GPD	AFY
Residential							
Single Family Residential	56,782	4.6	0.00	66	/capita	17,239,015	19,323
Multi Family Residential	22,010	3.6	0.00	66	/capita	5,229,576	5,862
Business and Commerce							
Commercial	-		1540.83	2500	/acre	3,852,077	4,318
Other Water Demands							
Potable and Recycled Irrigation							1,648
Citywide Total	**78,792**	**-**	**1540.83**	**--**	**--**	**26,320,669**	**31,151**

*Residential demand factors based on average per capita water use estimates

**Commercial demand factors based on City of Santa Ana Guidelines for Water and Sewer Facilities (2017)

Santa Ana GPU Area Proposed Condition Water Demand Increases

	Building(s)		Building	Flow	Unit of Measure	Total Demands	Total Demands
	Units	People Per Household	Acres	GPD		GPD	AFY
Residential							
Single Family Residential	(590)	4.3	0.00	66	/capita	-167,442	-188
Multi Family Residential	36,851	3.1	0.00	53	/capita	6,031,772	6,761
Business and Commerce							
Commercial	-		134.28	2500	/acre	335,699	376
Citywide Increases	**36,261**	**-**	**134.28**	**--**	**--**	**6,200,029**	**6,950**
						Existing Condition Total Demands	**31,151**
						Proposed Condition Total Demands	**38,101**

*Proposed residential demand factors based on average per capita water use estimates with a 20% efficiency demand reduction

**Commercial demand factors based on City of Santa Ana Guidelines for Water and Sewer Facilities (2017)

Appendix I-a Noise Existing Condition Report

Appendices

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TECHNICAL MEMORANDUM

DATE	July 26, 2019
TO	City of Santa Ana Planning and Building Agency
ADDRESS	20 Civic Center Plaza, M-20 Santa Ana, CA 92701
CONTACT	Melanie McCann, AICP, Senior Planner
FROM	Joshua Carman, Senior Associate, Noise and Vibration Isabel Garcia, Project Planner, Noise and Vibration
SUBJECT	Santa Ana Noise Existing Conditions Report
PROJECT NUMBER	SNT-20

This memorandum presents existing noise and vibration conditions for the City of Santa Ana, California, and its sphere of influence. Long-term noise monitoring data, traffic and rail noise modeling inputs and outputs, common noise and vibration definitions, and local regulations are included in Attachment A.

Sound Fundamentals

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the loudness of sound is the decibel (dB). Changes of 1 to 3 dB are detectable under quiet, controlled conditions and changes of less than 1 dB are usually indiscernible. A 3 dB change in noise levels is considered the minimum change that is detectable with human hearing in outside environments. A change of 5 dB is readily discernable to most people in an exterior environment whereas a 10 dB change is perceived as a doubling (or halving) of the sound.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are "felt" more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by weighting frequencies in a manner approximating the sensitivity of the human ear.

Noise is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California, and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

SOUND MEASUREMENT

Unlike linear units such as inches or pounds, decibels are measured on a logarithmic scale, representing points on a sharply rising curve. On a logarithmic scale, an increase of 10 dBA is 10 times more intense than 1 dBA, while 20 dBA is 100 times more intense, and 30 dBA is 1,000 times more intense. A sound as soft as human breathing is about 10 times greater than 0 dBA. The decibel system of measuring sound gives a rough connection between the physical intensity of sound and its perceived loudness to the human ear. Ambient sounds generally range from 30 dBA (very quiet) to 100 dBA (very loud).

Sound levels are generated from a source and their decibel level decreases as the distance from that source increases. Sound dissipates exponentially with distance from the noise source. This phenomenon is known as "spreading loss." For a single point source, sound levels decrease by approximately 6 dBA for each doubling of distance from the source. This drop-off rate is appropriate for noise generated by on-site operations from stationary equipment or activity at a project site. If noise is produced by a line source, such as highway traffic, the sound decreases by 3 dBA for each doubling of distance in a hard site environment. Line source noise in a relatively flat environment with absorptive vegetation decreases by 4.5 dBA for each doubling of distance.

Time variation in noise exposure is typically expressed in terms of a steady-state energy level equal to the energy content of the time varying period (called L_{eq}), or alternately, as a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_2, L_8 and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time, or 1, 5, and 15 minutes per hour. These "L_n" values are typically used to demonstrate compliance for stationary noise sources with a city's noise ordinance, as discussed below. Other values typically noted during a noise survey are the L_{min} and L_{max}. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Because community receptors are more sensitive to unwanted noise intrusion during the evening and at night, state law and the County require that, for planning purposes, an artificial dB increment be added to quiet time noise levels in a 24-hour noise descriptor called the Community Noise Equivalent Level (CNEL) or Day-Night Noise Level (Ldn). The CNEL descriptor requires that an artificial increment of 5 dBA be added to the actual noise level for the hours from 7:00 p.m. to 10:00 p.m. and 10 dBA for the hours from 10:00 p.m. to 7:00 a.m. The Ldn descriptor uses the same methodology but only adds a 10 dBA increment between 10:00 p.m. and 7:00 a.m. Both descriptors give roughly the same 24-hour level, with the CNEL being only slightly more restrictive (i.e., higher).

PSYCHOLOGICAL AND PHYSIOLOGICAL EFFECTS OF NOISE

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure, the heart, and the nervous system. Extended periods of noise exposure above 90 dBA could result in permanent hearing damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure—this is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by pain in the ear, and this is called the threshold of pain. Table 1 shows typical noise levels from familiar noise sources.

Table 1 Typical Noise Levels

Common Outdoor Activities	Noise Level (dBA)	Common Indoor Activities
Onset of physical discomfort	120+	
	110	Rock Band (near amplification system)
Jet Flyover at 1,000 feet		
	100	
Gas Lawn Mower at three feet		
	90	
Diesel Truck at 50 feet, at 50 mph		Food Blender at 3 feet
	80	Garbage Disposal at 3 feet
Noisy Urban Area, Daytime		
	70	Vacuum Cleaner at 10 feet
Commercial Area		Normal speech at 3 feet
Heavy Traffic at 300 feet	60	
		Large Business Office
Quiet Urban Daytime	50	Dishwasher Next Room
Quiet Urban Nighttime	40	Theater, Large Conference Room (background)
Quiet Suburban Nighttime		
	30	Library
Quiet Rural Nighttime		Bedroom at Night, Concert Hall (background)
	20	
		Broadcast/Recording Studio
	10	
Lowest Threshold of Human Hearing	0	Lowest Threshold of Human Hearing

Source: Caltrans 2013a.

Vibration Fundamentals

Vibration is an oscillating motion in the earth. Like noise, vibration is transmitted in waves, but in this case through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is felt rather than heard. Vibration can be either natural, such as from earthquakes, volcanic eruptions, or landslides, or man-made, such as from explosions, heavy machinery, or trains. Both natural and man-made vibration may be continuous, such as from operating machinery, or impulsive, as from an explosion.

As with noise, vibration can be described by both its amplitude and frequency. Amplitude can be characterized in three ways—displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position; for the purposes of soil displacement, it is typically measured in inches or millimeters. Particle velocity is the speed at which soil particles move, in

inches per second or millimeters per second. Particle acceleration is the rate of change in velocity over time and is measured in inches per second per second or millimeters per second per second. Vibration amplitudes are usually described in terms of either the peak particle velocity (PPV) or the root mean square (RMS) velocity. PPV is the maximum instantaneous peak of the vibration signal, and RMS is the square root of the average of the squared amplitudes of the signal. PPV is more appropriate for evaluating potential building damage, and RMS is typically more suitable for evaluating human response.

The units for PPV are normally inches per second (in/sec), but in order to compress the range of numbers, RMS vibration levels are often discussed in dB units relative to 1 micro-inch per second (abbreviated as VdB). Typically, groundborne vibration generated by human activities attenuates rapidly with distance from the source of the vibration. Table 2 presents the human reaction to various levels of peak particle velocity.

Table 2 Human Reaction to Typical Vibration Levels

Vibration Level Peak Particle Velocity (in/sec)	Human Reaction	Effect on Buildings
0.006–0.019	Threshold of perception, possibility of intrusion	Vibrations unlikely to cause damage of any type
0.08	Vibrations readily perceptible	Recommended upper level of vibration to which ruins and ancient monuments should be subjected
0.10	Level at which continuous vibration begins to annoy people	Virtually no risk of "architectural" (i.e., not structural) damage to normal buildings
0.20	Vibrations annoying to people in buildings	Threshold at which there is a risk to "architectural" damage to normal dwellings, i.e., houses with plastered walls and ceilings
0.4–0.6	Vibrations considered unpleasant by people subjected to continuous vibrations and unacceptable to some people walking on bridges	Vibrations at a greater level than normally expected from traffic, but would cause "architectural" damage and possibly minor structural damage

Source: Caltrans 2013b.

The way in which vibration is transmitted through the earth is called propagation. As vibration waves propagate from a source, the energy is spread over an ever-increasing area so that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provided by material damping varies with soil type and condition as well as the frequency of the wave.

Regulatory Framework

To limit population exposure to physically and/or psychologically damaging as well as intrusive noise levels, the federal government, the State of California, and local governments have established standards and ordinances to control noise.

FEDERAL REGULATIONS

Federal Highway Administration

Proposed federal or federal-aided highway construction projects at a new location, or the physical alteration of an existing highway that significantly changes the horizontal or vertical alignment or increases the number of through-traffic lanes, require an assessment of noise and consideration of noise abatement per 23 CFR Part 772, "Procedures for Abatement of Highway Traffic Noise and Construction Noise." The Federal Highway Administration (FHWA) has adopted noise abatement criteria (NAC) for sensitive receivers—such as picnic areas, recreation areas, playgrounds, active sport areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals—when "worst-hour" noise levels approach or exceed 67 dBA L_{eq} (Caltrans 2011).

US Environmental Protection Agency

In addition to FHWA standards, the EPA has identified the relationship between noise levels and human response. The EPA has determined that over a 24-hour period, an L_{eq} of 70 dBA will result in some hearing loss. Interference with activity and annoyance will not occur if exterior levels are maintained at an L_{eq} of 55 dBA and interior levels at or below 45 dBA. These levels are relevant to planning and design and useful for informational purposes, but they are not land use planning criteria because they do not consider economic cost, technical feasibility, or the needs of the community, and are, therefore, not mandated.

The EPA also set 55 dBA Ldn as the basic goal for exterior residential noise intrusion. However, other federal agencies, in consideration of their own program requirements and goals, as well as the difficulty of actually achieving a goal of 55 dBA Ldn, have settled on the 65 dBA Ldn level as their standard. At 65 dBA Ldn, activity interference is kept to a minimum, and annoyance levels are still low. It is also a level that can realistically be achieved.

Occupational Health and Safety Administration

The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the EPA. Such limitations would apply to the operation of construction equipment and could also apply to any proposed industrial land uses. Noise exposure of this type is dependent on work conditions and is addressed through a facility's Health and Safety Plan, as required under OSHA, and is therefore not addressed further in this analysis.

US Department of Housing and Urban Development

The US Department of Housing and Urban Development (HUD) has set the goal of 65 dBA Ldn as a desirable maximum exterior standard for residential units developed under HUD funding. (This level is also generally accepted within the State of California.) Although HUD does not specify acceptable interior noise levels, standard construction of residential dwellings typically provides 20 dBA or more of attenuation with the windows closed. Based on this premise, the interior Ldn should not exceed 45 dBA.

STATE REGULATIONS

General Plan Guidelines

The State of California, through its General Plan Guidelines, discusses how ambient noise should influence land use and development decisions and includes a table of normally acceptable, conditionally acceptable, normally unacceptable, and clearly unacceptable uses at different noise levels, expressed in CNEL. A

conditionally acceptable designation implies new construction or development should be undertaken only after a detailed analysis of the noise reduction requirements for each land use and needed noise insulation features are incorporated in the design. By comparison, a normally acceptable designation indicates that standard construction can occur with no special noise reduction requirements. The general plan guidelines provide cities with recommended community noise and land use compatibility standards that can be adopted or modified at the local level based on conditions and types of land uses specific to that jurisdiction.

California Building Code

The California Building Code (CBC), Title 24, Part 2, Volume 1, Chapter 12, Interior Environment, Section 1207.11.2, Allowable Interior Noise Levels, requires that interior noise levels attributable to exterior sources not exceed 45 dBA in any habitable room. The noise metric is evaluated as either the day-night average sound level (Ldn) or the community noise equivalent level (CNEL), whichever is consistent with the noise element of the local general plan.

The California Green Building Standards Code (CALGreen), Chapter 5, Division 5.5, has additional requirements for insulation that affect exterior-interior noise transmission for nonresidential structures. Pursuant to CALGreen Section 5.507.4.1, Exterior Noise Transmission, an architectural acoustics study may be required when a project site is within a 65 dBA CNEL or Ldn noise contour of an airport, freeway or expressway, railroad, industrial source, or fixed-guideway source. Where noise contours are not readily available, if buildings are exposed to a noise level of 65 dBA L_{eq} during any hour of operation, specific wall and ceiling assembly and sound-rated windows may be necessary to reduce interior noise to acceptable levels. A performance method may also be used per Section 5.507.4.2 to show compliance with state interior noise requirements.

LOCAL REGULATIONS

City of Santa Ana General Plan Noise Element

The Noise Element of the Santa Ana General Plan contains objectives, policies, and programs to prevent significant increases in noise levels in the community and minimize the adverse effects of existing noise sources. Table 3 summarizes the City's noise and land use compatibility standards when siting new noise-sensitive development. The General Plan is currently in the process of being updated.

Table 3 Noise and Land Use Compatibility Standards

Categories	Land Use Categories	Interior CNEL[1]	Exterior CNEL[2]
Residential	Single-family, duplex, multi-family	45[3]	65
Institutional	Hospital, school classroom/playgrounds	45	65
	Church, library	45	--
Open Space	Parks	--	65

Source: Santa Ana General Plan.

Notes:

[1] Interior areas (to include but are not limited to: bedrooms, bathrooms, kitchens, living rooms, dining rooms, closets, corridors/hallways, private offices, and conference rooms.

[2] Exterior areas shall mean: private yards of single family homes, park picnic areas, school playgrounds, common areas, private open space, such as atriums on balconies, shall be excluded form exterior areas provided sufficient common area is included within the project.

[3] Interior noise level requirements contemplate a closed window condition. Mechanical ventilation system or other means of natural ventilation shall be provided per Chapter 12, Section 1305 of the Uniform Building Code.

City of Santa Ana Municipal Code

Chapter 18, Article VI, Noise Control, of the municipal code provides criteria for ambient noise measurements as well as noise standards for residential, school, hospital, and church uses. When nontransportation (stationary) noise is the noise source of concern, the City applies performance standards from Section 18.312 of the municipal code to ensure that noise producers do not adversely affect noise-sensitive land uses. Table 4, *Exterior Noise Standards*, summarizes the City's exterior noise standards.

Table 4 Exterior Noise Standards

Time Period	Noise Level (dBA)				
	L_{50}	L_{25}	L_8	L_2	L_{max}
7:00 a.m.–10:00 p.m.	55	60	65	70	75
10:00 p.m.–7:00 a.m.	50	55	60	65	70

Source: City of Santa Ana Municipal Code.
Note: A 5 dBA penalty shall be applied in the event of an alleged offensive noise such as impact noise, simple tones, speech, music, or any combination of thereof.
If the measured ambient level exceeds any of the first four noise limit categories, the allowable noise exposure standard shall be increased to reflect the ambient noise level. If the ambient noise level exceeds the fifth noise limit category, the maximum allowable noise level under this category shall be increased to reflect the maximum ambient noise level.

CONSTRUCTION

The City of Santa Ana's noise ordinance exempts noise from construction activities that occur during the daytime. No construction is permitted outside of the hours specified in Section 18-314(e) of the Santa Ana Municipal Code, which restricts construction activities to the daytime hours of 7:00 AM to 8:00 PM Monday through Saturday.

VIBRATION

The City of Santa Ana does not have specific limits or thresholds for construction vibration. The Federal Transit Administration (FTA) provides criteria for acceptable levels of groundborne vibration for various types of buildings. Structures amplify groundborne vibration; wood-frame buildings, such as typical residential structures, are more affected by ground vibration than heavier buildings. The level at which groundborne vibration is strong enough to cause architectural damage has not been determined conclusively, but the standards recommended by the FTA are shown in Table 5.

Table 5 Building Architectural Damage Limits

Building Category		PPV (in/sec)
I.	Reinforced concrete, steel, or timber (no plaster)	0.5
II.	Engineered concrete and masonry (no plaster)	0.3
III.	Non-engineered timber and masonry buildings	0.2
IV.	Buildings extremely susceptible to vibration damage	0.12

Source: FTA 2018.

Existing Conditions

AMBIENT NOISE MONITORING

To determine a baseline noise level at different environments within the planning area, ambient noise monitoring was conducted in the City of Santa Ana by PlaceWorks staff in May 2019. Measurements were made during the weekday morning and evening commutes, that is, 7:00 am to 10:00 am and 3:00 pm to 7:00 pm. Long-term (48-hour) measurements were conducted at 5 locations, and short-term (15-minute) measurements were conducted at 16 locations in the planning area. The monitoring locations were generally chosen in the five focus areas. All measurements were conducted Monday, May 13, through Wednesday, May 15, 2019.

The primary noise sources during measurements were traffic, aircraft overflights, and railroad noise. Commercial, industrial and government operations, and animal activity (such as dogs barking and birds chirping) also contributed to the overall noise environment at some locations. Meteorological conditions during the measurement periods were favorable for outdoor sound measurements and were noted as representative of the typical conditions for the season. Generally, conditions included mostly cloudy, partly cloudy, and clear skies with daytime temperatures from 64 to 73 degrees Fahrenheit (°F), and average wind speeds between 1 to 5 miles per hour (mph). All sound level meters were equipped with a windscreen during measurements.

All sound level meters used for noise monitoring satisfy the American National Standards Institute (ANSI) standard for Type 1 instrumentation (Larson Davis LxT and 820 sound level meters were used). The sound level meters were set to "slow" response and "A" weighting (dBA). The meters were calibrated prior to and after the monitoring period. All measurements were at least five feet above the ground and away from reflective surfaces. Noise measurement locations are described below and shown in Figure 1, *Approximate Noise Monitoring Locations*.

» Long-Term Location 1 (LT-1) was in front of 2944 Fernwood Drive at the end of the street, south of State Route 22 (SR-22). A 48-hour noise measurement began at 8:00 PM on Monday, May 13, 2019. The noise environment of this site is characterized primarily by highway traffic on SR-22 and traffic on local roadways.

» Long-Term Location 2 (LT-2) was in front of 1406 N. Harbor Boulevard next to the Sunset Ridge Apartments. A 48-hour noise measurement began at 9:00 PM on Monday, May 13, 2019. The noise environment of this site is characterized primarily by traffic on Harbor Boulevard.

» Long-Term Location 3 (LT-3) was across from 1507 N. Fairmont Street. A 48-hour noise measurement began at 7:00 PM Monday, May 13, 2019. The noise environment of this site is characterized primarily by traffic on Lincoln Avenue, Fairmont Street, and railroad activity adjacent to Lincoln Avenue.

» Long-Term Location 4 (LT-4) was at the southeast corner of Normandy Place and Lyon Street. A 48-hour noise measurement began at 4:00 PM on Monday, May 13, 2019. The noise environment of this site is characterized primarily by traffic on Lyon Street and nearby railroad activity. While on-site, PlaceWorks staff observed several train pass-bys—two Amtrak Surfliners and one Metrolink.

» Long-Term Location 5 (LT-5) was southeast of 7 Hutton Center Drive (DoubleTree by Hilton) next to SR-55. A 48-hour noise measurement began at 3:00 PM on Monday, May 13, 2019. The noise environment of this site is characterized primarily by traffic on SR-55 and traffic on local roadways.

» Short-Term Location 1 (ST-1) was off Bristol Street south of Park Lane behind 2530 N. Greenbrier Street, approximately 45 feet east of the Bristol Street northbound centerline. A 15-minute noise measurement began at 7:17 AM on Tuesday, May 14, 2019. The noise environment of this site is characterized primarily by traffic on Bristol Street. Traffic noise levels generally ranged from 75 dBA to 83 dBA. Buses, work trucks, and garbage trucks were observed to be loudest, ranging from 79 dBA to 88 dBA. The background noise level was noted as low as 62 dBA during moments of slower speeds due to traffic signals and congestion.

» Short-Term Location 2 (ST-2) was outside of Main Place Mall off Main Street, approximately 35 feet west of the southbound centerline. A 15-minute noise measurement began at 7:54 AM on Tuesday, May 14, 2019. The noise environment of this site is characterized primarily by traffic noise. Secondary noise sources included distant landscape maintenance. Traffic noise levels generally ranged from 72 dBA to 80 dBA. Buses, work trucks, and semi-trailers were observed to be loudest, ranging from 78 dBA to 83 dBA. The background noise level was noted as low as 53 dBA during intermittent periods of little to no traffic.

» Short-Term Location 3 (ST-3) was near 13962 Nautilus Drive, off Westminster Avenue, approximately 42 feet north of the westbound centerline. A 15-minute noise measurement began at 4:59 PM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic. Traffic noise levels generally ranged from 68 dBA to 78 dBA. Buses, trucks, semis, and vehicles with modified mufflers were observed to be loudest, ranging from 76 dBA to 89 dBA. The background noise level was noted as low as 55 dBA during intermittent periods of little to no traffic.

» Short-Term Location 4 (ST-4) was outside Santa Ana Community College off West 17th Street, approximately 37 feet south of the eastbound centerline. A 15-minute noise measurement began at 3:16 PM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 70 dBA to 77 dBA. Buses, motorcycles, and vehicles with modified mufflers were observed to be loudest, ranging from 81 dBA to 91 dBA. The background noise level was noted as low as 51 dBA during the few intermittent periods of little to no traffic due to traffic signals.

» Short-Term Location 5 (ST-5) was across from the Santa Ana Regional Transportation Center off Santiago Street, approximately 30 feet west of the southbound centerline. A 15-minute noise measurement began at 8:29 AM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 70 dBA to 72 dBA. Buses and work trucks were observed to be loudest, ranging from 78 dBA to 80 dBA. The background noise level was noted as low as 50 dBA during periods of little to no traffic.

» Short-Term Location 6 (ST-6) was in front of 330 Euclid Street approximately 45 feet west of the southbound centerline. A 15-minute noise measurement began at 5:58 PM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 76 dBA to 82 dBA. Vehicles such as motorcycles, buses, and sports cars were observed to be loudest, ranging from 83 dBA to 87 dBA. The background noise level was noted as low as 61 dBA during intermittent periods of little to no traffic.

» Short-Term Location 7 (ST-7) was in front of 2335 1st Street approximately 45 feet north of the westbound centerline. A 15-minute noise measurement began at 4:03 PM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 72 dBA to 78 dBA. Vehicles such as buses, work trucks, and semis were observed to be

loudest, ranging from 75 dBA to 87 dBA. The background noise level was noted as low as 59 dBA during intermittent periods of little to no traffic.

» Short-Term Location 8 (ST-8) was near 412 Flower Street approximately 45 feet west of the southbound centerline. A 15-minute noise measurement began at 9:36 AM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 69 dBA to 76 dBA. Vehicles such as motorcycles and sport cars were observed to be loudest, ranging from 75 dBA to 80 dBA. The background noise level was noted as low as 48 dBA.

» Short-Term Location 9 (ST-9) was outside the Advanced Learning Academy off 1st Street near the southwest corner of 1st and Maple Street, approximately 40 feet south from the eastbound centerline. A 15-minute noise measurement began at 8:59 AM on Tuesday, May 14, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 78 dBA to 80 dBA. Vehicles such as buses, work trucks, and semi-trailers were observed to be loudest, ranging from 81 dBA to 88 dBA. The background noise level was noted as low as 59 dBA during intermittent moments of little to no traffic.

» Short-Term Location 10 (ST-10) was at Centennial Park. A 15-minute noise measurement began at 3:19 PM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by bird calls and park users. Noise levels generally ranged from 46 dBA to 74 dBA. Bird calls were up to 74 dBA when in flight overhead. Secondary noise sources were distant traffic noise from adjacent roadways and dogs barking in the distance.

» Short-Term Location 11 (ST-11) was across from 218 Edinger Street approximately 40 feet north of the westbound centerline. A 15-minute noise measurement began at 4:03 PM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 75 dBA to 80 dBA. Vehicles such as motorcycles, buses, and sports cars were observed to be loudest, ranging from 81 dBA to 87 dBA. The background noise level was noted as low as 50 dBA during moments of congestion.

» Short-Term Location 12 (ST-12) was in front of 2620 S. Bristol Street, approximately 40 feet west of southbound centerline. A 15-minute noise measurement began at 8:49 AM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 63 dBA to 76 dBA. Vehicles such as buses and sports cars were observed to be loudest, ranging from 75 dBA to 87 dBA. The background noise level was noted as low as 53 dBA during intermittent moments of little to no traffic.

» Short-Term Location 13 (ST-13) was in front of 2519 Main Street, approximately 42 feet west of the southbound centerline. A 15-minute noise measurement began at 9:27 AM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 68 dBA to 78 dBA. Buses were observed to be loudest at 80 dBA. The background noise level was noted as low as 51 dBA.

» Short-Term Location 14 (ST-14) was in front of 1821 Dyer Street, approximately 42 feet north of the westbound centerline. A 15-minute noise measurement began at 4:41 PM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by traffic noise and aircraft overflights. The John Wayne Airport is approximately 2 miles southwest of this location. Traffic noise levels generally ranged from 57 dBA to 72 dBA, and aircraft overflights ranged from 78 dBA to 83 dBA. Overflights were all observed to be commercial aircraft. Traffic noise levels were lower than at other, similar locations

due to congestion and low travel speeds. The background noise level was noted to be 57 dBA, characterized by idling traffic.

» **Short-Term Location 15 (ST-15)** was in front of 2500 MacArthur Boulevard, approximately 45 feet south of the eastbound centerline. A 15-minute noise measurement began at 7:31 AM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 79 dBA to 82 dBA. Vehicles such as buses, work trucks, and semi-trailers were observed to be loudest, ranging from 82 dBA to 84 dBA. The background noise level was noted as low as 59 dBA during intermittent moments of light traffic.

» **Short-Term Location 16 (ST-16)** was in front of 3650 Bristol Street, approximately 55 feet west of the southbound centerline. A 15-minute noise measurement began at 8:11 AM on Wednesday, May 15, 2019. The noise environment of the site is primarily characterized by traffic noise. Traffic noise levels generally ranged from 74 dBA to 83 dBA. Vehicles such as buses, garbage trucks, and semi-trailers were observed to be loudest, ranging from 81 dBA to 87 dBA. The background noise level was noted as low as 55 dBA during intermittent moments of little to no traffic.

Ambient Noise Monitoring Results

During the ambient noise survey, the CNEL noise levels at monitoring locations ranged from 69 to 80 dBA CNEL. The long-term noise measurement results are summarized in Table 6, *Long-Term Noise Measurements Summary*. A graphical summary of the daily trend during long-term noise measurements is provided in Attachment A. The short-term noise measurement results are summarized in Table 7, *Short-Term Noise Measurements Summary*.

Table 6 Long-Term Noise Measurements Summary (dBA)

Monitoring Location	Description	CNEL	Lowest $L_{eq, 1\text{-}hr}$	Highest $L_{eq, 1\text{-}hr}$
LT-1	2944 Fernwood Drive	69	56.5	72.9
LT-2	1406 N Harbor Boulevard	78	64.8	79.0
LT-3	1507 North Fairmont Street	73	58.6	73.4
LT-4	Normandy and Lyon Street	79	52.9	78.4
LT-5	7 Hutton Center Drive, east of Double Tree Hotel	80	66.4	77.5

See Attachment A for a graphical display of long-term noise monitoring data.

Table 7 Short-Term Noise Measurements Summary (dBA)

Monitoring Location	Description	15-minute Noise Level, dBA						
		L_{eq}	L_{max}	L_{min}	L_2	L_8	L_{25}	L_{50}
ST-1	Bristol Street south of Park Lane ≈ 45 ft east of NB centerline 7:17 AM, 5/14/2019	78.5	87.9	62.4	83.5	82.1	79.8	77.5
ST-2	Main Street north of Memory Lane ≈ 35 ft west of SB centerline 7:54 AM, 5/14/2019	73.2	82.6	52.5	79.9	77.9	75.0	69.4
ST-3	Westminster near Nautilus Drive ≈ 42 ft north of WB centerline 4:59 PM, 5/14/2019	70.1	89.0	55.1	77.3	73.1	70.5	67.5
ST-4	17th Street west of Bristol Street ≈ 37 ft south of EB centerline 3:16 PM, 5/14/2019	73.3	90.9	51.2	79.6	77.2	74.5	70.5
ST-5	Santiago Street, Near Santa Ana Regional Transportation Center ≈ 30 ft west of SB centerline 8:29 AM, 5/14/2019	65.0	79.8	50.4	73.3	69.6	64.1	60.1
ST-6	Near 330 Euclid Street ≈ 45 ft west of SB centerline 5:58 PM, 5/14/2019	76.9	87.6	60.7	83.3	80.7	77.8	74.9
ST-7	Near 2335 1st Street ≈ 45 ft north of WB centerline 4:03 PM, 5/14/2019	73.6	87.5	59.0	80.5	77.3	74.3	71.6
ST-8	412 Flower Street ≈ 45 ft west of SB centerline 9:36 AM, 5/14/2019	68.7	80.2	48.3	75.9	73.7	70.0	64.7
ST-9	1st Street near Maple Street ≈ 40 ft south of EB centerline 8:59 AM, 5/14/2019	75.5	88.3	59.4	82.3	80.1	76.6	71.8
ST-10	Centennial Regional Park 3:19 PM, 5/15/2019	54.6	73.5	46.1	60.9	57.4	54.2	52.0
ST-11	Near 218 Edinger Street ≈ 40 ft north of WB centerline 4:03 PM, 5/15/2019	72.2	87.2	49.7	78.5	76.1	73.3	70.4
ST-12	Near 2620 South Bristol Street ≈ 40 ft west of SB centerline 8:49 AM, 5/15/2019	69.8	88.0	53.2	75.9	73.6	70.8	67.1
ST-13	Near 2519 Main Street ≈ 42 ft west of SB centerline 9:27 AM, 5/15/2019	70.8	80.7	51.0	77.1	75.2	72.4	68.9
ST-14	Near 1821 Dyer Street ≈ 42 ft north of WB centerline 4:41 PM, 5/15/2019	70.0	83.9	56.8	77.3	74.1	70.8	65.4
ST-15	Near 2500 MacArthur Boulevard ≈ 45 ft south of EB centerline 7:31 AM, 5/15/2019	76.4	84.3	59.3	81.8	80.5	78.0	75.0
ST-16	Near 3650 South Bristol Street ≈ 55 ft west of SB centerline 8:11 AM, 5/15/2019	76.1	86.9	55.2	82.3	80.5	78.0	73.1

Notes: ft = feet, NB = northbound, SB = southbound, EB = eastbound, WB = westbound

Summary of Ambient Noise Monitoring

The noise environment within the planning area is variable depending on location. However, freeway, rail, and local roadway traffic noise tends to dominate the noise environment, with the exception of ST-10 (Centennial Park) and ST-8 (412 Flower Street). The majority of Centennial Park is set back from adjacent roadways, and Flower Street is a lower-capacity roadway.

EXISTING TRAFFIC NOISE

On-road vehicles represent the most prominent source of noise in the plan area. Existing traffic noise conditions were modeled using the FHWA Highway Traffic Noise Prediction Model and average daily traffic volumes, vehicle mix, time of day splits, speed, and number of travel lanes data provided by IBI for highway and roadway segments in the plan area. Table 8 summarizes the calculated existing noise levels from roadways in the plan area at a distance of 50 feet from the roadway centerline, and shows the distances to the 60 dBA CNEL, 65 dBA CNEL, and 70+ dBA CNEL noise contours. The distances, conservatively, do not account for any noise reduction from topography or intervening features. Figures 2 through 5 illustrate the modeled roadways and existing noise contours for 60 dBA CNEL, 65 dBA CNEL, and 70+ dBA CNEL. Attachment A contains the inputs and outputs used in existing traffic noise modeling.

Table 8 Existing Roadway Noise Levels and Distances to Contour Lines

Roadway Segment	CNEL (dBA) at 50 Feet	Distance to Noise Contours (Feet)		
		70+ dBA CNEL	65 dBA CNEL	60 dBA CNEL
1st Street – Euclid Street to Newhope Street	72.6	75	162	348
Euclid Street – 1st Street to McFadden Avenue	75.0	107	231	497
Westminster Avenue – Harbor Boulevard to Fairview Street	74.2	95	205	442
Harbor Boulevard – Westminster Avenue/17th Street to Hazard Avenue	76.6	137	294	634
Edinger Avenue – Harbor Boulevard to Fairview Street	73.7	89	191	412
Warner Avenue – Harbor Boulevard to Fairview Street	74.8	104	224	483
Harbor Boulevard – Segerstrom Avenue to MacArthur Boulevard	76.6	138	297	641
Fairview Street – 1st Street to Willits Street	76.6	138	296	639
1st Street – Sullivan Street to Raitt Street	74.2	96	206	443
Bristol Street – 17th Street to Santa Clara Avenue	76.7	140	302	651
17th Street – College Avenue to Bristol Street	74.0	93	199	430
Bristol Street – 17th Street to Washington Avenue	75.7	119	257	554
Fairview Street – Trask Avenue to 17th Street	76.5	136	292	630
Bristol Street – 1st Street to Bishop Street	75.2	111	239	515
Civic Center Drive – Bristol Street to Flower Street	69.1	43	93	201
Flower Street – 1st Street to Bishop Street	68.9	42	91	195

Table 8 Existing Roadway Noise Levels and Distances to Contour Lines

Roadway Segment	CNEL (dBA) at 50 Feet	Distance to Noise Contours (Feet)		
		70+ dBA CNEL	65 dBA CNEL	60 dBA CNEL
Main Street – 17th Street to 20th Street	72.6	75	162	348
Main Street – Washington Street to Civic Center Drive	71.4	62	133	286
Civic Center Drive – Flower Street to Broadway	66.0	27	59	127
Santa Ana Boulevard – Flower Street to Broadway	67.3	33	71	153
1st Street – Main Street to Standard Avenue	75.2	111	240	517
Main Street – 1st Street to Bishop Street	72.2	70	150	323
Grand Avenue – Santa Clara Avenue to 17th Street	72.2	70	151	325
Grand Avenue – Santa Ana Boulevard to 4th Street	74.3	97	209	451
17th Street – Cabrillo Park Drive to Tustin Avenue	72.9	78	168	362
Tustin Avenue – Fruit Street to 4th Street	70.7	55	119	257
1st Street – Cabrillo Park Drive to Tustin Avenue	71.3	61	132	284
Fairview Street – Edinger Avenue to Harvard Street	76.6	138	297	640
Fairview Street – Warner Avenue to Segerstrom Avenue	76.0	125	269	579
Edinger Avenue – Fairview Street to Greenvile Street	72.2	70	151	325
McFadden Avenue – Fairview Street to Raitt Street	70.9	57	123	265
MacArthur Boulevard – Fairview Street to Raitt Street	72.3	72	154	333
Segerstrom Avenue – Fairview Street to Raitt Street	71.4	62	133	286
Bristol Street – Edinger Avenue to Warner Avenue	74.5	100	215	464
Bristol Street – Warner Avenue to Segerstrom Avenue	74.4	98	211	455
Warner Avenue – Raitt Street to Bristol Street	75.1	109	235	505
Bristol Street – MacArthur Boulevard to Sunflower Avenue	74.7	103	223	480
Flower Street – Warner Avenue to Segerstrom Avenue	70.0	50	107	231
Edinger Avenue – Flower Street to Main Street	73.5	86	184	397
Main Street – McFadden Avenue to Edinger Avenue	71.9	67	143	309
Main Street –Warner Avenue to Segerstrom Avenue	73.8	89	193	415
Dyer Road – Main Street to Halladay Street	74.8	104	225	484
MacArthur Boulevard – Flower Street to Main Street	74.1	93	201	434
Main Street – MacArthur Boulevard to Sunflower Avenue	72.9	78	168	362
Grand Avenue – Edinger Avenue to Saint Andrews Place	74.2	95	205	442

Table 8 Existing Roadway Noise Levels and Distances to Contour Lines

Roadway Segment	CNEL (dBA) at 50 Feet	Distance to Noise Contours (Feet)		
		70+ dBA CNEL	65 dBA CNEL	60 dBA CNEL
Edinger Avenue – Richie Street to Newport Avenue	76.0	126	271	585
Warner Avenue – Grand Avenue to Red Hill Avenue	73.0	79	169	365
Warner Avenue – Main Street to Standard Avenue	73.0	79	170	366
McFadden Avenue – Standard Avenue to Grand Avenue	71.0	58	125	269
1st Street – Bristol Street to Flower Street	75.0	108	233	502
I-5 – Chapman Avenue to Katella Avenue	87.2	700	1,508	3,249
I-5 – SR-22 to Main Street	88.6	868	1,869	4,028
I-5 – 17th Street /Penn Way to Grand Avenue	88.5	857	1,847	3,979
I-5 – 1st Street to SR-55	88.0	796	1,714	3,693
I-5 – Newport Avenue to Red Hill Avenue	88.0	787	1,696	3,654
I-405 – Brookhurst Avenue to Euclid Street	87.0	678	1,461	3,148
I-405 – Euclid Street to Harbor Boulevard	87.3	711	1,531	3,298
I-405 – Harbor Boulevard to SR-73	87.0	680	1,465	3,156
I-405 – Bristol Street to SR-55	86.3	608	1,310	2,821
I-405 – SR-55 to MacArthur Boulevard	86.9	674	1,452	3,128
SR-55 – 4th Street to 17th Street	87.1	694	1,495	3,221
SR-55 – Edinger Avenue to Dyer Road	87.6	750	1,615	3,480
SR-55 – Dyer Road to MacArthur Boulevard	86.9	669	1,442	3,106
SR-55 – MacArthur Boulevard to I-405	85.9	577	1,244	2,680
SR-55 – I-405 to SR-73	84.4	454	978	2,108
SR-22 – Euclid Street to Harbor Boulevard	85.9	578	1,245	2,683
SR-22 – The City Drive to Bristol Street	86.1	596	1,284	2,766
SR-22 – I-5 to Main Street	84.1	435	937	2,018
SR-22 – Glassell Street to Tustin Avenue	83.8	413	890	1,918

Source: Calculated using FHWA RD-77-108 model based on traffic data provided by IBI. See Attachment A.

AIRCRAFT NOISE

Aircraft noise is typically characterized as “occasional” throughout the City, but can be intrusive to nearby sensitive receptors closer to take-off and landing. There is one airport in the City of Santa Ana, John Wayne

Airport, for which existing noise contours are shown in Figure 6. The John Wayne Airport services commercial and private aircraft.

John Wayne Airport participates in a noise abatement program as part of California Airport Noise Standards and generates quarterly reports of long-term CNEL dB values. The noise abatement program has 10 noise monitoring sites (NMS) within the airport's neighboring cities, and one of them, NMS-9N, is at 1300 S Grand Avenue in Santa Ana.

RAILROAD NOISE

Railroad operations in the City are also a substantial source of noise in some areas. Day-night average noise levels vary throughout the county depending on the number of trains per day along a given rail line, the timing and duration of train pass-by events, and whether or not trains must sound their warning whistles near "at-grade" crossings. Noise levels commonly range from 65 to 75 dBA CNEL at land uses adjoining a railroad right-of-way. When trains approach a passenger station or at-grade crossing, they are required to sound their warning whistle within ¼ mile. Train warning whistles typically generate maximum noise levels of 105 to 110 dBA at 100 feet. The day-night average noise level at locations immediately adjacent to at-grade crossings and exposed to multiple train pass-by events per day can exceed 85 dBA Ldn/CNEL.

Existing railroad noise levels were projected using the FTA CREATE rail noise model and the Federal Rail Administration (FRA) Grade Crossing Horn Model, the average number of pass-bys, time of day, number of locomotives and type, number of rail cars and type, and speed. Santa Anta currently has two sets of rail lines that run within and through the City, owned by the Union Pacific (UP) and Southern California Regional Rail Authority (SCRRA). The SCRRA Orange subdivision services a mix of freight and passenger trains, such as Metrolink (Orange County and Inland Empire lines), Amtrak (Pacific Surfliner), and BNSF freight trains. The UP Santa Ana industrial lead services freight only. There are several crossings in Santa Ana that are designated "quiet zones," from 4th Street north to Santa Clara Avenue. In these locations, trains are not required to sound their warning whistle (though still may if the conductor deems it necessary for safety reasons). Table 9 contains the calculated distances to the 65 dBA CNEL contours from existing railroad noise, both from the mainline and within ¼ mile of grade crossings where horn warnings are required. The noise contours are displayed graphically in Figures 3 through 5.

Table 9 Existing Railroad Noise Levels

Operator	Subdivision	Distance (feet) to 65 dBA CNEL Contour (Mainline)	Distance (feet) to 65 dBA CNEL Contour (Within ¼ Mile of Grade Crossing)
UP	Santa Ana Industrial Lead	30	361
SCRRA	Orange Subdivision	210	978

Source: Calculated using the FTA CREATE Model and FRA Grade Crossing Horn Model. See Attachment A.

STATIONARY SOURCE NOISE

Stationary sources of noises may occur from all types of land uses. Residential uses would generate noise from landscaping, maintenance activities, and air conditioning systems. Commercial uses would generate noise from heating, ventilation, and air conditioning (HVAC) systems; loading docks; and other sources. Industrial uses may generate noise from HVAC systems, loading docks, and possibly machinery. Noise

generated by residential or commercial uses is generally short and intermittent. Industrial uses may generate noise on a more continual basis. Nightclubs, outdoor dining areas, gas stations, car washes, fire stations, drive-throughs, swimming pool pumps, school playgrounds, athletic and music events (such as at the Santa Ana Stadium), and public parks are other common noise sources.

EXISTING VIBRATION

Commercial and industrial operations in the City can generate varying degrees of ground vibration, depending on the operational procedures and equipment. Such equipment-generated vibrations spread through the ground and diminish with distance from the source. The effect on buildings in the vicinity of the vibration source varies depending on soil type, ground strata, and receptor-building construction. The results from vibration can range from no perceptible effects at the lowest vibration levels, to low rumbling sounds and perceptible vibrations at moderate levels, to slight structural damage at the highest levels. In addition, future sensitive receptors could be placed within close proximity to existing railroad lines through buildout in the General Plan Area. Screening distances for new vibration-sensitive development in the plan area will be addressed in the EIR.

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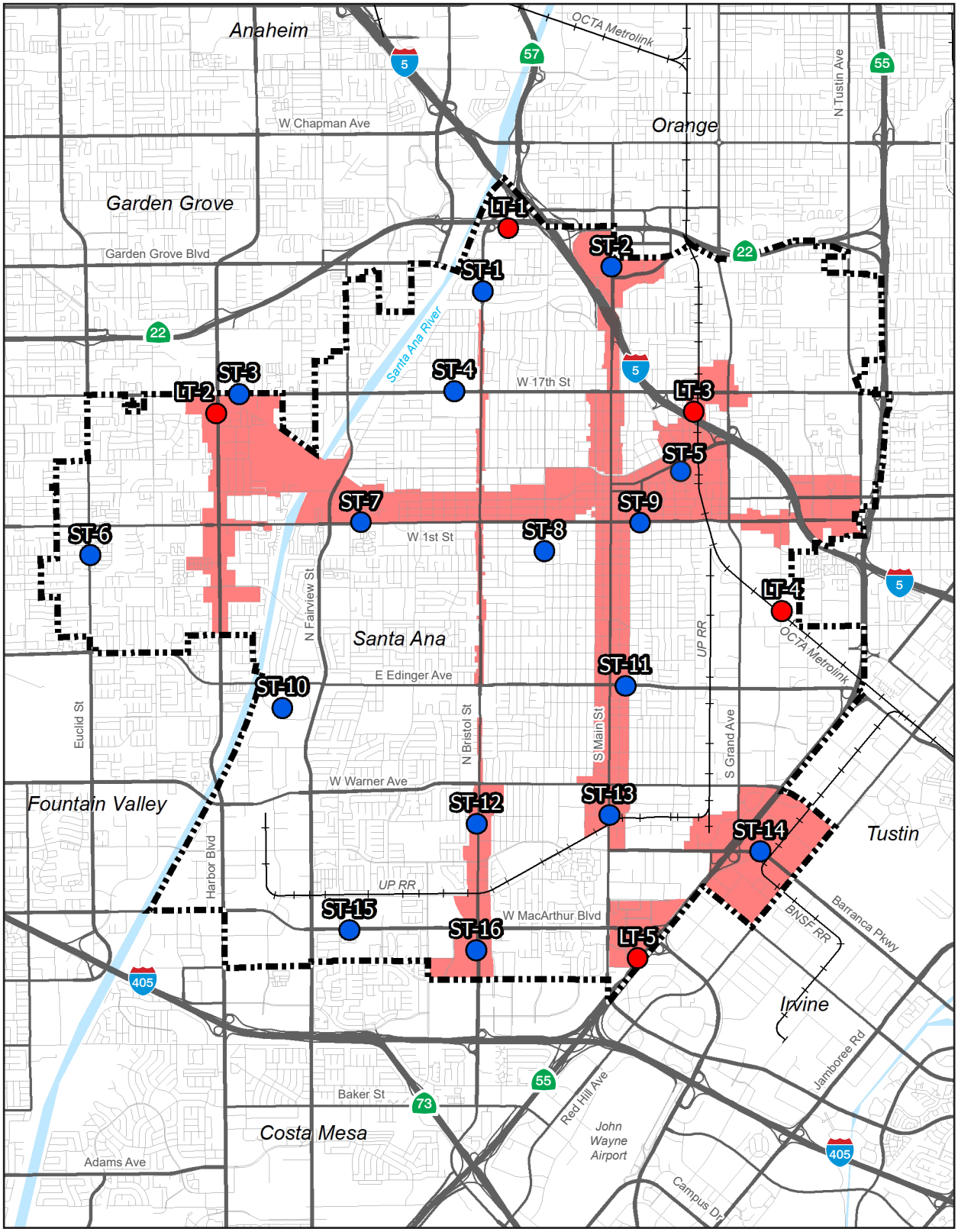
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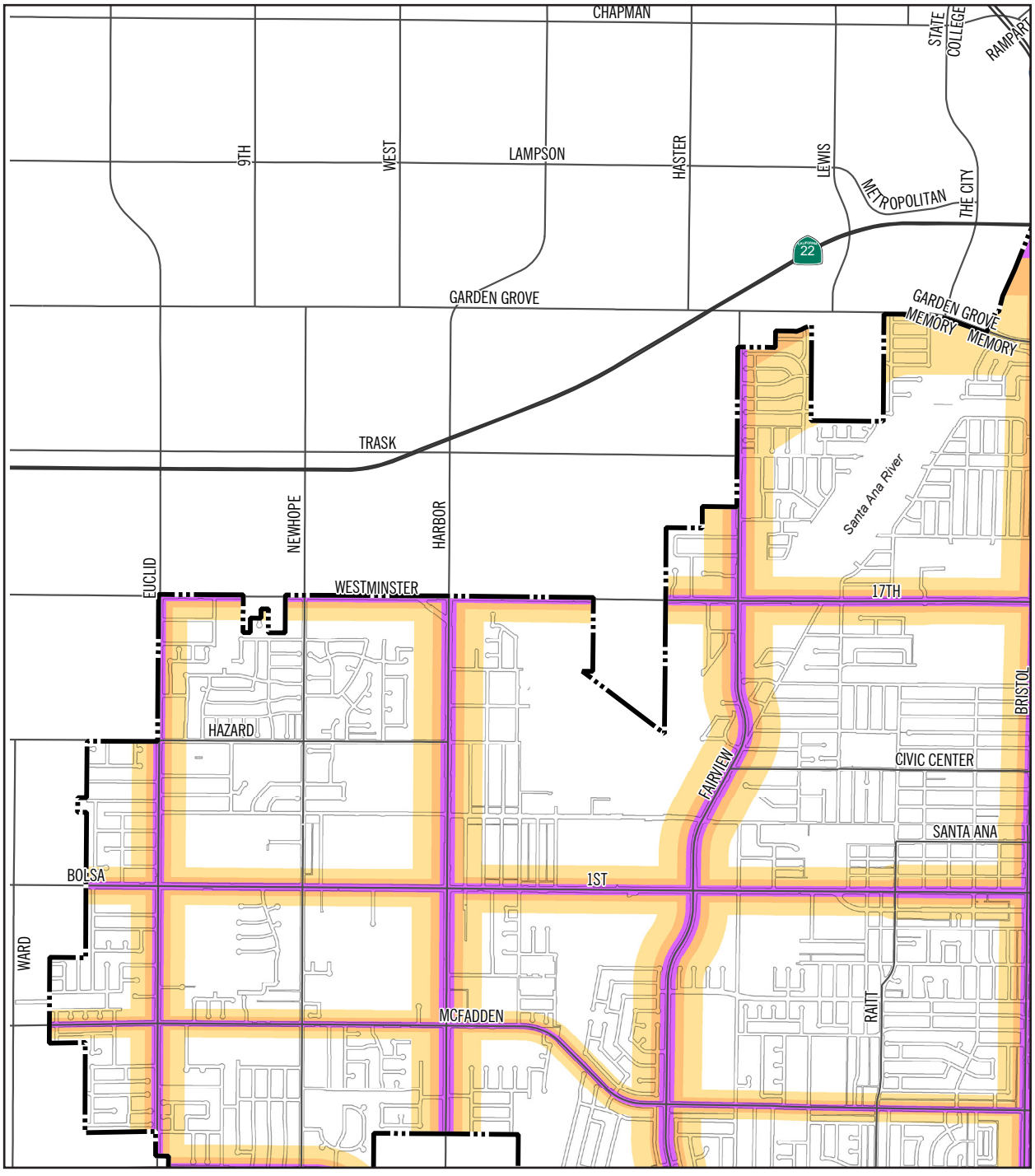
Figure 1 - Approximate Noise Monitoring Locations



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Figure 2 - Existing Transportation CNEL Noise Levels (Northwest Quadrant)



Existing Noise Contour

- 70+ dBA
- 65 dBA
- 60 dBA
- City of Santa Ana Boundary
- City of Santa Ana SOI
- Railway



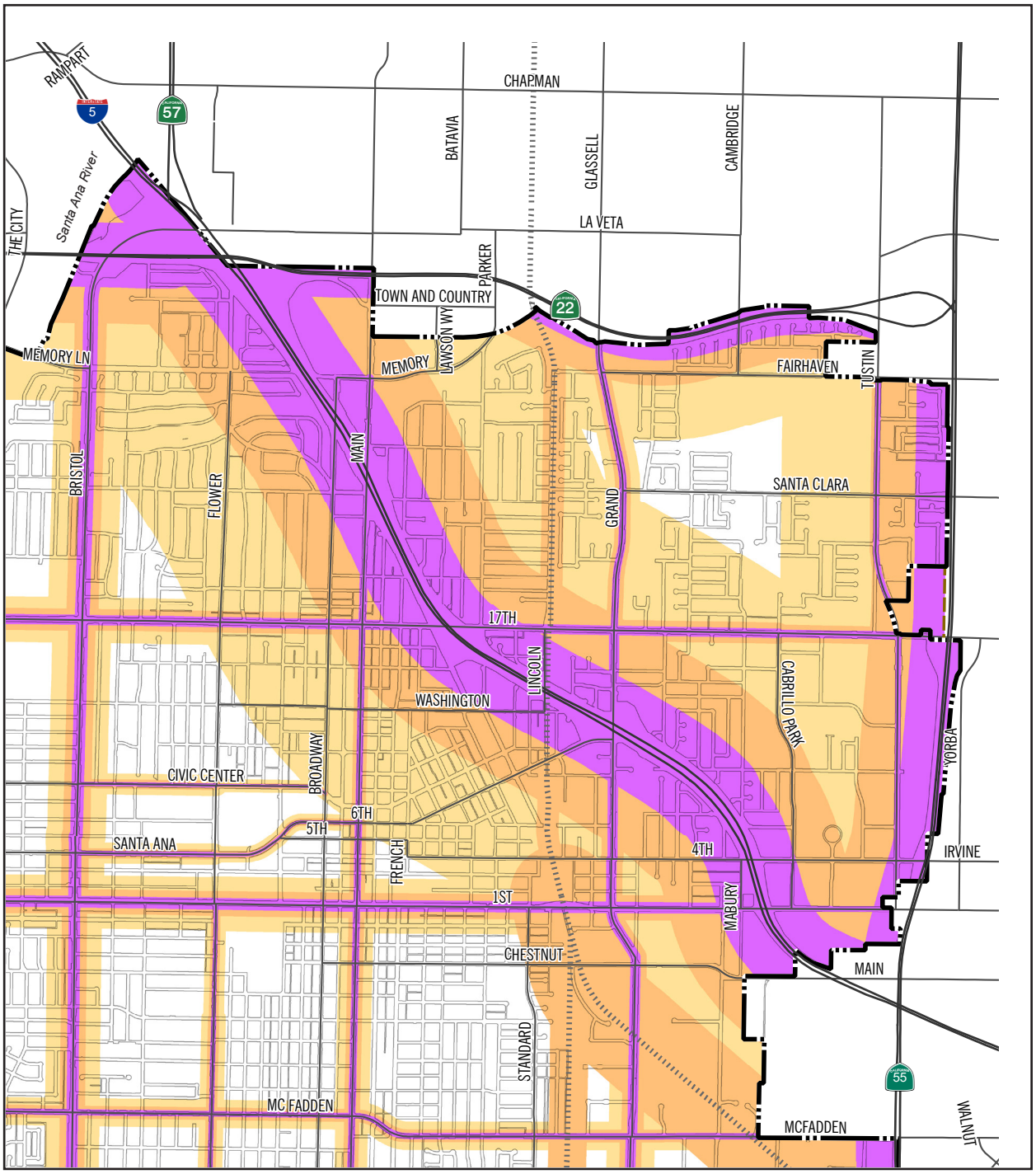
Key Map

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Scale (Feet)

Source: ESRI, 2019

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Figure 3 - Existing Transportation CNEL Noise Levels (Northeast Quadrant)



Existing Noise Contour

- 70+ dBA
- 65 dBA
- 60 dBA
- City of Santa Ana Boundary
- City of Santa Ana SOI
- Railway



Key Map

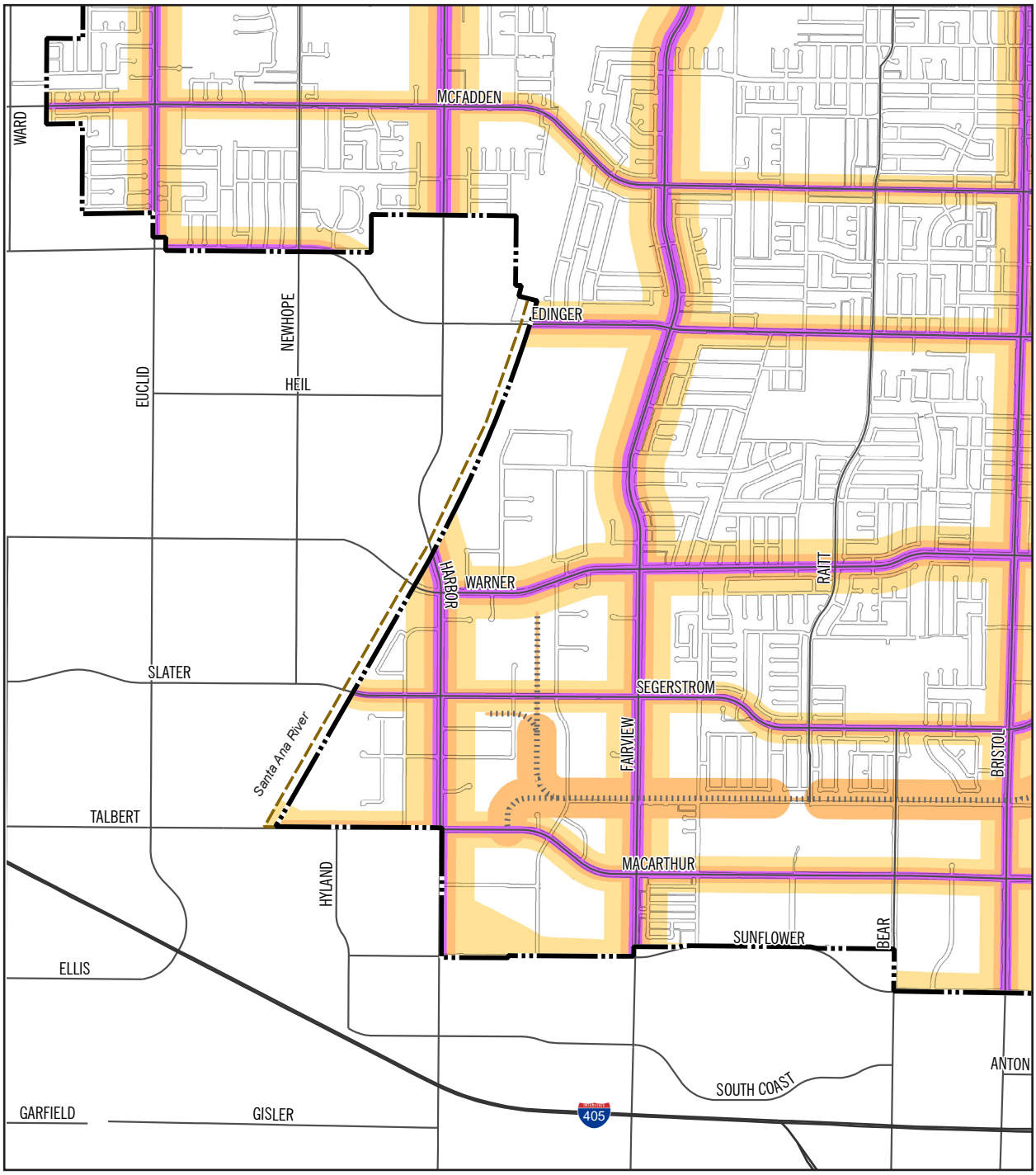
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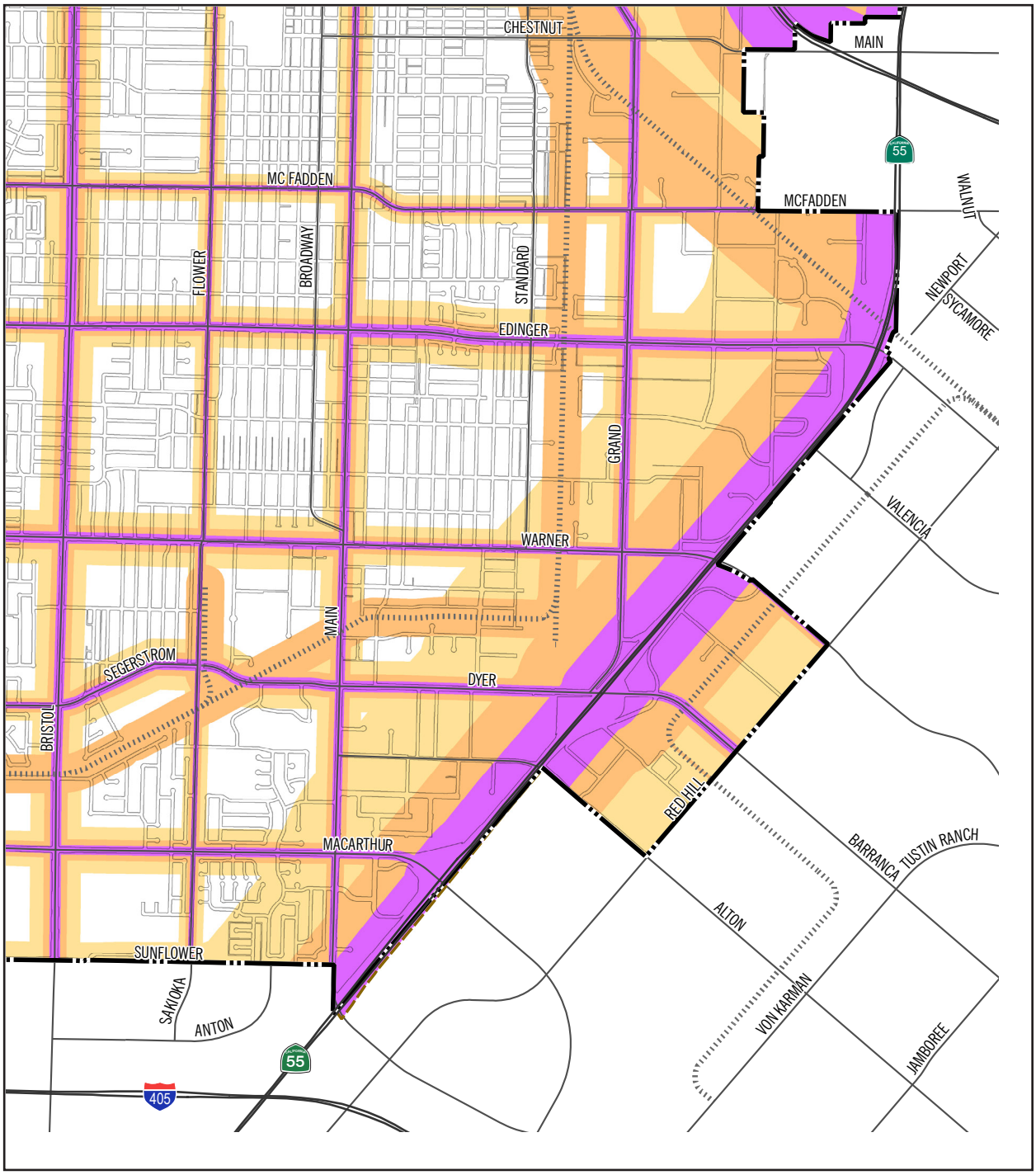
Figure 4 - Existing Transportation CNEL Noise Levels (Southwest Quadrant)



Source: ESRI, 2019

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Figure 5 - Existing Transportation CNEL Noise Levels (Southeast Quadrant)



Existing Noise Contour

- 70+ dBA
- 65 dBA
- 60 dBA
- City of Santa Ana Boundary
- City of Santa Ana SOI
- Railway



Key Map

0 3,000
Scale (Feet)

Source: ESRI, 2019

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Figure 6 - Existing John Wayne Airport Noise Contours



Source: John Wayne Airport, 2019

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Attachment A

Noise and Vibration Descriptors

The following are brief definitions of terminology used in this memo:

- **Sound.** A disturbance created by a vibrating object, which, when transmitted by pressure waves through a medium such as air, is capable of being detected by a receiving mechanism, such as the human ear or a microphone.

- **Noise.** Sound that is loud, unpleasant, unexpected, or otherwise undesirable.

- **Decibel (dB).** A unitless measure of sound, expressed on a logarithmic scale and with respect to a defined reference sound pressure. The standard reference pressure is 20 micropascals (20 μPa).

- **Vibration Decibel (VdB).** A unitless measure of vibration, expressed on a logarithmic scale and with respect to a defined reference vibration velocity. In the U.S., the standard reference velocity is 1 micro-inch per second ($1x10^{-6}$ in/sec).

- **A-Weighted Decibel (dBA).** An overall frequency-weighted sound level in decibels that approximates the frequency response of the human ear.

- **Equivalent Continuous Noise Level (L_{eq}); also called the Energy-Equivalent Noise Level.** The value of an equivalent, steady sound level which, in a stated time period (often over an hour) and at a stated location, has the same A-weighted sound energy as the time-varying sound. Thus, the L_{eq} metric is a single numerical value that represents the equivalent amount of variable sound energy received by a receptor over the specified duration.

- **Statistical Sound Level (L_n).** The sound level that is exceeded "n" percent of time during a given sample period. For example, the L_{50} level is the statistical indicator of the time-varying noise signal that is exceeded 50 percent of the time (during each sampling period); that is, half of the sampling time, the changing noise levels are above this value and half of the time they are below it. This is called the "median sound level." The L_{10} level, likewise, is the value that is exceeded 10 percent of the time (i.e., near the maximum) and this is often known as the "intrusive sound level." The L_{90} is the sound level exceeded 90 percent of the time and is often considered the "effective background level" or "residual noise level."

- **Day-Night Sound Level (L_{dn} or DNL).** The energy-average of the A-weighted sound levels occurring during a 24-hour period, with 10 dB added to the sound levels occurring during the period from 10:00 PM to 7:00 AM.

- **Community Noise Equivalent Level (CNEL).** The energy average of the A-weighted sound levels occurring during a 24-hour period, with 5 dB added from 7:00 PM to 10:00 PM and 10 dB from 10:00 PM to 7:00 AM. NOTE: For general community/environmental noise, CNEL and L_{dn} values rarely differ by more than 1 dB (with the CNEL being only slightly more restrictive – that is, higher than the L_{dn} value). As a matter of practice, L_{dn} and CNEL values are interchangeable and are treated as equivalent in this assessment.

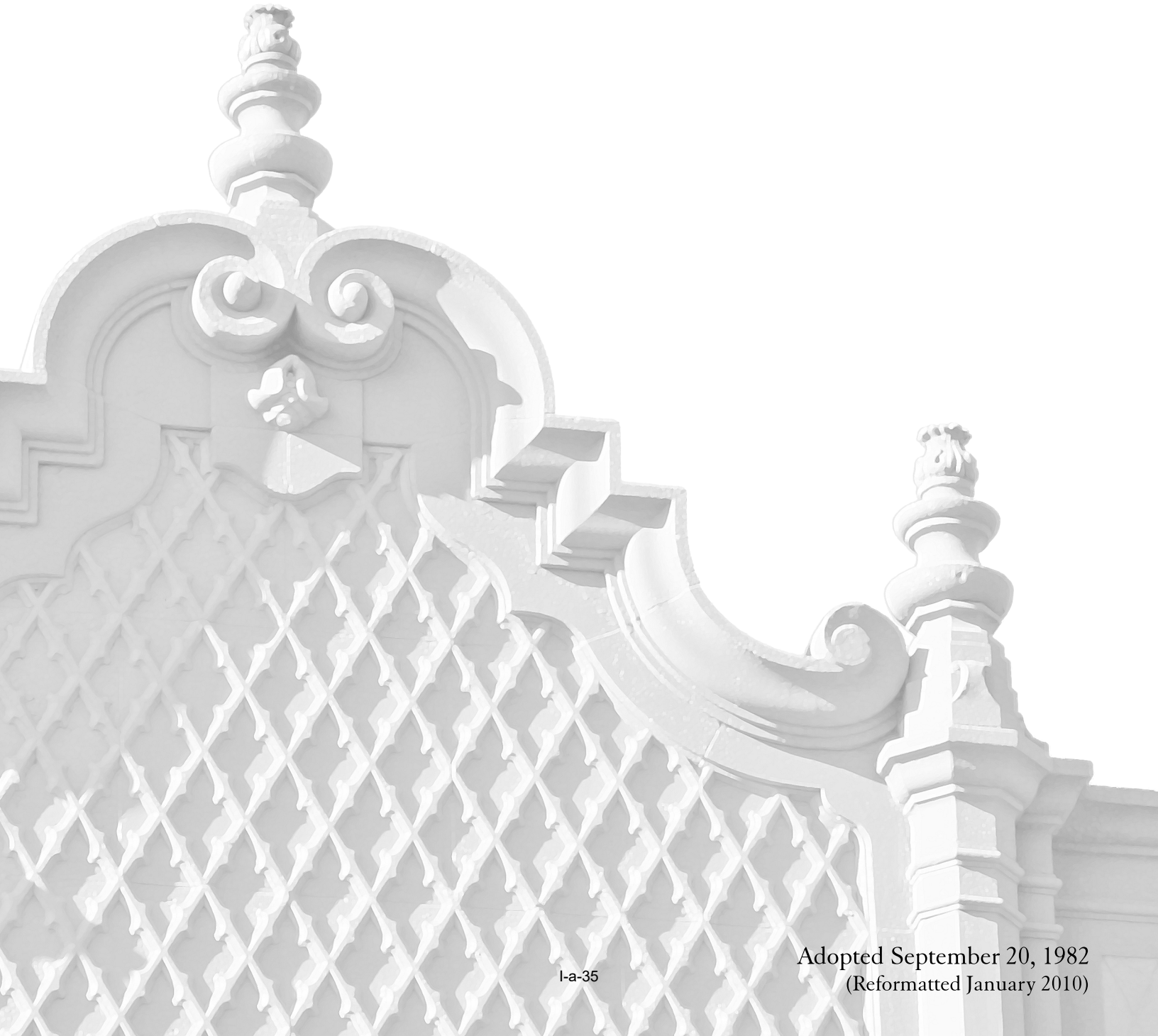
- **Peak Particle Velocity (PPV).** The peak rate of speed at which soil particles move (e.g., inches per second) due to ground vibration.

- **Sensitive Receptor.** Noise- and vibration-sensitive receptors include land uses where quiet environments are necessary for enjoyment and public health and safety. Residences, schools, motels and hotels, libraries, religious institutions, hospitals, and nursing homes are examples.

LOCAL NOISE STANDARDS

City of Santa Ana General Plan

Noise Element



Adopted September 20, 1982
(Reformatted January 2010)

City of Santa Ana General Plan

Noise Element

1982

City of Santa Ana
Planning Division

Adopted

September 20, 1982
(Reformatted January 2010)

This document includes revisions adopted by Santa Ana City Council February 2, 2009 (GPA 2004-03).

REL:adg
8/24/82

RESOLUTION NO. 82-122

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SANTA ANA CERTIFYING THE COMPLETION OF A FINAL ENVIRONMENTAL IMPACT REPORT FOR THE REVISION OF THE GENERAL PLAN OF THE CITY OF SANTA ANA AND ADOPTING THE SAID REVISED GENERAL PLAN

WHEREAS, a proposed revision of the General Plan of the City of Santa Ana (hereinafter referred to as the "Revised General Plan") has been approved by the Planning Commission after public hearing in the manner required by law, and is now on file in the office of the Clerk of the Council; and

WHEREAS, the Revised General Plan includes a draft environmental impact report which has been duly noticed for public review and comment; and

WHEREAS, this Council has held a public hearing on the Revised General Plan, including the said draft environmental impact report, after notice in the manner required by law;

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF SANTA ANA AS FOLLOWS:

1. The City Council has evaluated all comments and recommendations written and oral, received from persons who have reviewed the draft environmental impact report, and all responses thereto, including those made at the public hearing. The Clerk of the Council is hereby directed to attach all such written comments and responses and the minutes of the said public hearing to the draft environmental impact report, together with a list of persons, organizations and public agencies commenting on the draft environmental impact report. The said comments, responses, and list are hereby incorporated herein as part of the record and, together with the draft environmental impact report, are declared to constitute the final environmental impact report for the Revised General Plan.

2. The City Council hereby certifies that the final environmental impact report for the Revised General Plan has been completed in accordance with the California Environmental Quality Act, the State CEQA Guidelines and local procedures, and that the City Council has reviewed and considered the information contained in the final environmental impact report.

3. The City Council hereby finds, on the basis of the final environmental impact report and other substantial evidence in the record, that changes or alterations have been incorporated into the Revised General Plan which mitigate or avoid the following significant environmental effects identified in the final environmetal impact report: (1) additional traffic (2) reduced air quality (3) increases in noise levels, and (4) increases in energy consumption, and that such significant environmental effect have thereby been substantially lessened. This finding is supported by the following statement of facts:

(a) Although identified as significant effects of the project in the environmental impact report, such effects are not in fact caused by the adoption of the Revised General Plan, but rather by the expected growth and development of the City of Santa Ana and the surrounding region. Such effects would occur to an equal or greater extent under the previously adopted general plan or in the absence of any general plan.

(b) The Revised General Plan contains "Circulation," "Conservation," "Energy" and "Noise" elements of which the policies and programs are specifically designed to mitigate the said identified significant effects in a rational, coordinated manner so as to achieve minimal adverse effects consistent with reasonable growth and development.

4. The City Council hereby finds, on the basis of the final environmental impact report and other substantial evidence in the record, that specific economic, social and other consideration make infeasible the alternatives to the Revised General Plan identified in the final environmental impact report. This finding is supported by the following statement of facts:

(a) The Revised General Plan represents the best balance of competing goals and objectives: preservation of residential community integrity; maintenance of affordable housing; encouragement of economic development; avoidance of unacceptable levels of congestion and disruption.

(b) Greater restriction of residential development would discourage the new development of housing available to persons of low or moderate income. Increasing

population, with its consequent increased demand for housing, would result in increasing the cost of the existing housing supply. Less restriction of residential development would result in the disruption of established residential communities.

(c) Greater restriction of commercial-industrial development would reduce employment opportunities in the City of Santa Ana; would deny to City government a tax revenue base sufficient to meet the demand for governmental services; and would lead to stagnation and blight conditions in established commercial areas. Less restriction of commercial-industrial development would allow the inter-mixture of incompatible land uses and development which is beyond the capacity of streets and other public improvements to serve.

5. The City Council hereby finds, on the basis of the final environmental impact report and other substantial evidence in the record, that the changes in planned land use for areas of the City of Santa Ana accomplished by the adoption of the Revised General Plan are acceptable. Such changes are necessary for the general welfare of the people of the City of Santa Ana over the long-term, in order to achieve a balance between competing needs, as referenced in Section 4 herein, and in order to channel new development into areas in which it will be both financially feasible and compatible with existing uses.

6. The City Council hereby approves and adopts the Revised General Plan. Said Revised General Plan, together with the Revised Housing Element of the General Plan, adopted by the City Council by its Resolution No. 82-7 on January 18, 1982, shall constitute the General Plan of the City of Santa Ana required by Section 65300 of the Government Code of the State of California and the master plan required by Chapter 27 of the Santa Ana Municipal Code. All elements of the general or master plan or amendments thereto previously adopted or approved by the City Council, excepting only the aforesaid Revised Housing Element of the General Plan, are hereby repealed.

7. The Clerk of the Council is hereby directed to endorse the Revised General Plan to show that it has been adopted by the City Council and to retain the same on file in her office.

8. The Director of Planning and Development Services is hereby directed to:

(a) Send a copy of the Revised General Plan to the Planning Agency of Orange County.

(b) File a Notice of Determination with the County Clerk of Orange County pursuant to Section 21152 of the Public Resources Code and the State CEQA Guidelines.

ADOPTED this 20th day of September, 1982.

Gordon Bricken
Gordon Bricken, Mayor

ATTEST:

Janice C. Guy, Clerk of the Council

COUNCILMEMBERS:

Bricken	Aye
Luxembourger	Aye
Acosta	Aye
Serrato	Aye
Griset	Aye
Markel	Nay
McGuigan	Aye

Approved as to Form:

Edward J. Cooper by REL
Edward J. Cooper, City Attorney

Acknowledgments

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Alfred C. Serrato
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Noise Element

SUMMARY

The new City of Santa Ana General Plan was developed through an extensive process of public participation involving citizens, elected and appointed City officials and City Staff.

The General Plan has been developed to conform to state law and to meet local planning needs through the year 2000. Periodic updates of the new General Plan are anticipated.

The General Plan builds upon Santa Ana's historical assets including the City's heritage as the governmental and financial center of Orange County and the buildings, districts and streetscapes which reflect this heritage.

The General Plan anticipates two major potentials that can shape Santa Ana over the next several decades. The plan anticipates and maximizes the probability of the Countywide rapid transit system to be located in Santa Ana and encourages mixed use development and preservation m corridors and centers relating to this new access and visibility.

The General Plan has three major sections: the Framework Plan, Policy Plan, and Environmental Impact Report.

1. The Framework Plan describes Santa Ana's overall planning strategy and program. This strategy reorganizes the City's land use and urban design structure to take maximum advantage of:

    - the economic development advantages offered by Santa Ana's historic regional location and functions
    - an improved multi-modal transportation system including:
        - Countywide rapid transit access to Santa Ana
        - improved local transit
        - improved auto access to major activity centers
        - a new Amtrak station
        - a downtown multi-modal transportation and bus center

  - a downtown shuttle system
  - new pedestrian connections within and between land use districts and to public transportation facilities.

The Framework Plan provides an overview of the City's implementation program which includes:

- continuing involvement of the community in developing the detailed implementation plans that will be developed for subareas of the Framework Plan
- efficient processing of development and rehabilitation proposals by means of a Development Review Team
- a carefully coordinated development program to foster and assist private investment through:
  - land assembly
  - coordinated provision of public improvements
  - Specific Plans
  - citizen participation coordination
  - low interest loans and grants
  - project promotion

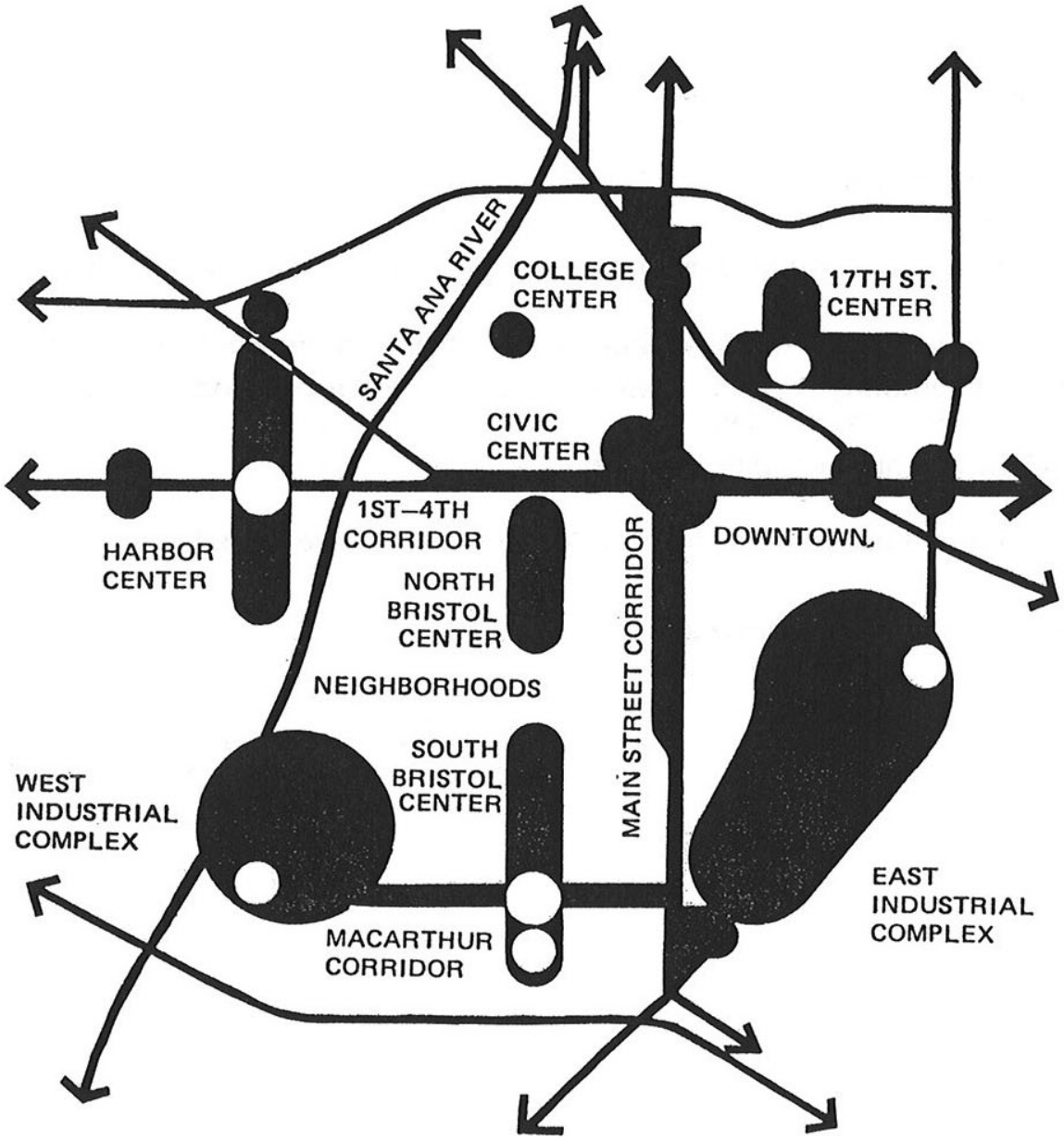
2. The Policy Plan spells out the:

- goals and objectives which underlie the Framework Plan
- greater detail regarding implementation policies and programs supporting the Framework Plan.

Together, the Framework Plan and Policy Plan envision a new image for Santa Ana consisting of:

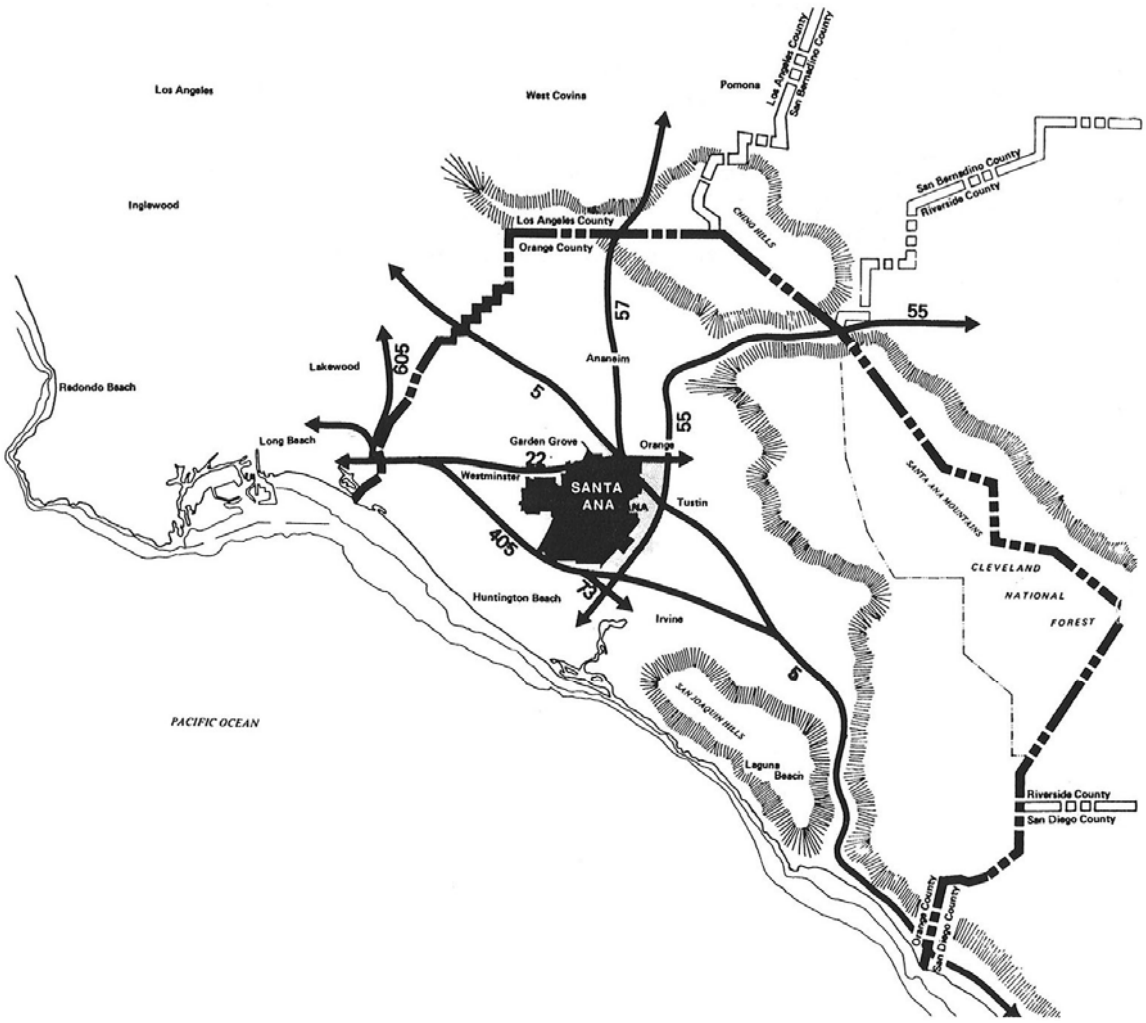
- increased economic activity to provide jobs and maintain a solid financial base for city services
- improvement of Santa Ana's housing stock for a full range of income groups and lifestyles
- the finest multi-modal transportation system in Orange County
- a new physical environment consisting of:
  - preserved and enhanced viable Neighborhoods
  - District Centers combining new shopping facilities with recreational, cultural, education, employment and special housing types
  - improvement of Santa Ana's major Industrial Districts
  - Mixed Use Corridors with a range of uses similar to the District Centers but with more facilities related to regional transit and auto access.

Exhibit 1 Framework Concept



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Exhibit 2 Regional Context



3. The Environmental Impact Report contains:

   - an analysis of the impacts of implementation of the General Plan
   - an evaluation of alternative strategies and
   - mitigation means to insure compatibility of the proposed plans and policies.

PLANNING CONTEXT

HISTORICAL

Santa Ana's rich history provides a legacy for community planning and revitalization in the 1980's. Santa Ana was founded in 1869 by William Spurgeon. The original town, laid out by Mr. Spurgeon, consisted of 24 blocks. The town served as a shopping center and post office for surrounding agricultural areas.

In 1878 the Southern Pacific Railroad arrived and the Santa Fe Railroad followed in 1886. This encouraged development of the City. In 1889 the County seat was located in Santa Ana and this further stimulated the development of businesses, stores, financial institutions and hotels serving the metropolitan population. Citrus and walnut farms were still plentiful and buying and selling land became the number one enterprise. The First to 17th Street area was subdivided during the building boom of the 1880's. Many of the structures in downtown and the surrounding bungalow homes were built in the early 1900's and 1920's.

The City is retaining and building upon its important governmental, retailing and employment roles in the County and the rich architectural and streetscapes heritage associated with the City's history.

REGIONAL

Santa Ana is geographically central to the developable land within Orange County. The City has excellent relationships to freeways, rail services via Amtrak and air transportation at the John Wayne Airport. Because of Santa Ana's geographic centrality and functional importance to the County, the Orange County Transit District is planning major fixed rail transit corridors in the Main Street and Pacific Electric right-of-ways. These regional transportation improvements, combined with improvements to freeway access points and local streets, provide Santa Ana with abundant development opportunities for the 1980's.

PLANNING PROCESS

The Planning Process used in creating the Santa Ana General Plan is summarized in Exhibit 3 and related photographs. The process involved:

- a 150-person Citizen Advisory Committee (CAC) to which all citizens applying were appointed by the City Council
- the Planning Commissioners who served as chairpersons of five CAC subcommittees: Land Use and Urban Design, Circulation, Housing, Economic Development and Environmental Factors
- the City Council who participated in goal setting and policy making workshops
- the public-at-large who participated in a series of Town Forums and Public Hearings
- City Staff who worked with The Arroyo Group (TAG) in conducting the planning process and who evaluated the program as it evolved.

The six key steps in the planning process were:

1. **Data Collection and Analysis.** The data base for the previous General Plan was outdated and up-to-date census data was not available. Emphasis was placed on community definition of problems and opportunities through CAC and Staff Steering Committee workshops and mapping. TAG subcontractors also gathered key data in areas such as market demand, traffic, seismic, etc. This data was summarized and analyzed in a separate Problems and Opportunities Report.

2. **Formulation of Goals and Objectives.** Initial goals and objectives were developed through workshops, with the CAC and City staff. Several cycles of refinement were done by TAG based on input from the Planning Commission, City Council, CAC and staff.

3. **Formulation of Subarea Alternatives.** Santa Ana has a large number of fixed elements such as streets and land uses. Therefore, subarea plans were developed to provide alternative land use patterns in different parts of the City. Each subarea plan was related to an urban design framework previously approved by the CAC, Planning Commission and City staff.

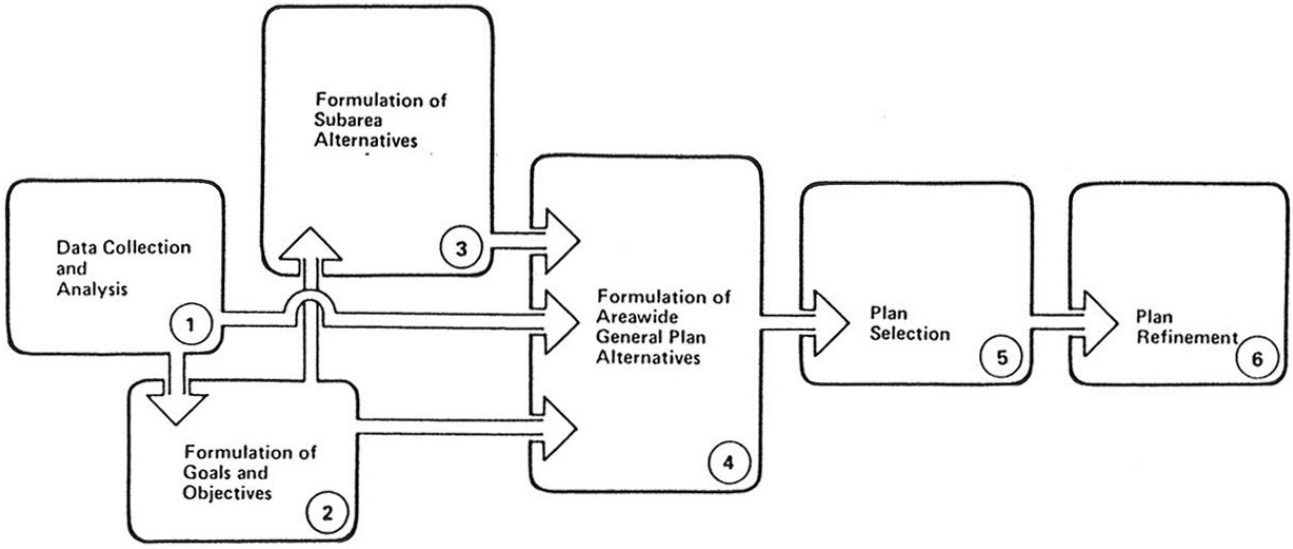
4. **Formulation of Areawide General Plan Alternatives.** Areawide General Plan alternatives focused on different combinations of subarea plans.

5. **Plan Selection Plan.** Selection was done through a series of meetings with the CAC, Planning Commission and City staff.

6. **Plan Refinement.** Plan refinement was accomplished by staff review of a Preliminary Draft, and CAC, Planning Commission and Public-at-Large comments on a Public Hearing Draft.

Exhibit 3 illustrates some of the materials utilized during the planning process.

Exhibit 3 Planning Process



POLICY PLAN

INTRODUCTION

The Policy Plan section of the General Plan sets forth the detailed policies of the City relative to the framework Plan described in Section 1.

Each element of the Policy Plan contains goals, objectives, implementation policies and implementation programs.

Each element also contains a Planning Factors section which reflects the major issues identified through the citizen participation process.

The Plan Components section of each element describes the planning and design concepts illustrated in the maps and provides an overview of implementation considerations.

Noise has many sources, including industrial processes, vehicular transportation, use of amplified sound, construction, and human speech. Through careful land use planning, Santa Ana can ensure that the activities which produce result in minimal interference with the activities which are sensitive to noise.

The City's goal is to minimize noise problems in areas sensitive to noise because Santa Ana is almost fully developed, the main focus of the Noise section is on remedial measures to deal with existing noise problems, prevention of new noise problems through proper arrangement of noise sensitive land uses in relationship to circulation systems and establishment of appropriate noise emission or insulation standards for the various land uses.

PLANNING FACTORS

Definition of undesirable or unhealthful noise levels must precede the goal of minimizing noise problems. The City adopts the following standards and guidelines for noise levels for land uses:

Table 1
Interior and Exterior Noise Standards

Categories	*Land Use Categories*	*Interior*[1]	*Exterior*[2]
Residential	Single-family, duplex, multi-family	45[3]	65
Institutional	Hospital, school classroom/playgrounds	45	65
	Church, library	45	--
Open Space	Parks	--	65

Notes:
[1] Interior areas (to include but are not limited to: bedrooms, bathrooms, kitchens, living rooms, dining rooms, closets, corridors/hallways, private offices, and conference rooms.
[2] Exterior areas shall mean: private yards of single family homes, park picnic areas, school playgrounds, common areas, private open space, such as atriums on balconies, shall be excluded form exterior areas provided sufficient common area is included within the project.
[3] Interior noise level requirements contemplate a closed window condition. Mechanical ventilation system or other means of natural ventilation shall be provided per Chapter 12, Section 1305 of the Uniform Building Code.

All Residential uses should be protected with sounds insulation over and above that provided by normal building construction when constructed in areas exposed to greater than 60 dB CNEL.

The above standards and guidelines represent an appreciation that higher intensity land uses bring with them higher noise levels simply because more people are using these areas. Insuring low noise levels will help to insure that housing is kept will-maintained and keeps value over time, reducing municipal expenditures and maintaining revenues.

NOISE ABATEMENT

Some areas of Santa Ana are exposed to levels of freeway or rail noise that are considered unacceptable for new residential development. Noise conflicts in such cases can be mitigated by providing barriers between the noise source and the residential use, or by providing sound insulation in existing residences. Generally, barriers should be provided to protect residential uses.

Exhibit 4 illustrates transportation noise sources in the City and classifies arterial streets by the expected distance from the arterial where the noise level will exceed 60 dB CNEL or Ldn and sound insulation or barriers should be provided to protect residential uses.

NOISE PREVENTION

Potential noise problems may be prevented by ensuring that planning for residential uses carefully considers proximity to major transportations corridors and other noise generators. Adherence to proper noise-related setbacks for noise sensitive uses can reduce noise to acceptable or desirable levels for those uses. The distance required varies with the expected volume of traffic. The distance may be reduced by providing walls or berms between the noise source and the use.

The graph below indicates the required distance from transportation noise sources to achieve desired noise levels for a range of traffic flows. At the time development takes place, developments proposed in zones that would be incompatible under standards of the noise abatement plan are required to include a report indicating how these standards will be achieved.

GOALS, OBJECTIVES, POLICIES AND PROGRAMS

GOALS

Goal 1

Prevent significant increases in noise levels in the community and minimize the adverse effects of currently-existing noise sources.

OBJECTIVES

1.1 Prevent creation of new and additional sources of noise.

1.2 Reduce current noise levels to acceptable standards.

POLICIES

- Require consideration of noise generation potential and susceptibility to noise impacts in the sitting, design and construction of new developments.
- Require mitigating site and building design features, traffic circulation alternatives, insulation, and other noise prevention

measures of those new developments which generate high noise levels.

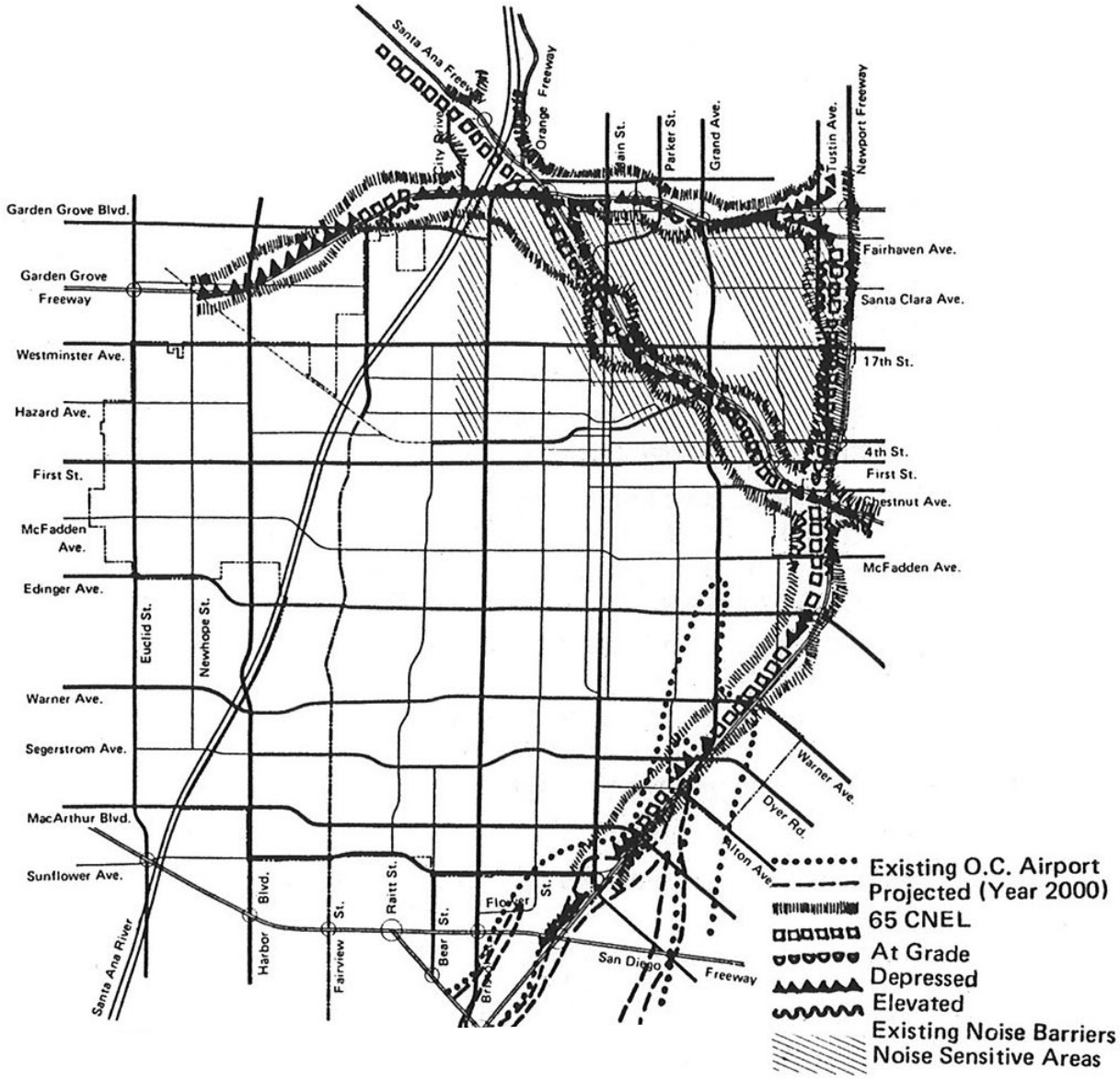
- Sound insulate and/or buffer sensitive land uses such as housing from adverse noise impacts in noise-prone areas.
- Minimize noise generation in residential neighborhoods through control or elimination of truck traffic and through-traffic from these areas.

PROGRAMS

- Restrict new zoning in noise impact or abatement areas to non-residential uses.
- Review zoning ordinances and modify as necessary to assure appropriate insulation and/or other noise reduction actions with respect to interior and exterior power and mechanical equipment.
- Utilize the development approval process to assure that buildings are sited and internal and external traffic circulation systems designed so as to minimize the impact of noise-generating activities on nearby neighborhoods and noise-sensitive land uses.
- Work with the California Department of Transportation to develop a freeway noise mitigation program.
- Prohibit truck traffic in residential neighborhoods.
- Alleviate through-vehicular traffic in residential neighborhoods via implementation of recommendations in the Circulation section.

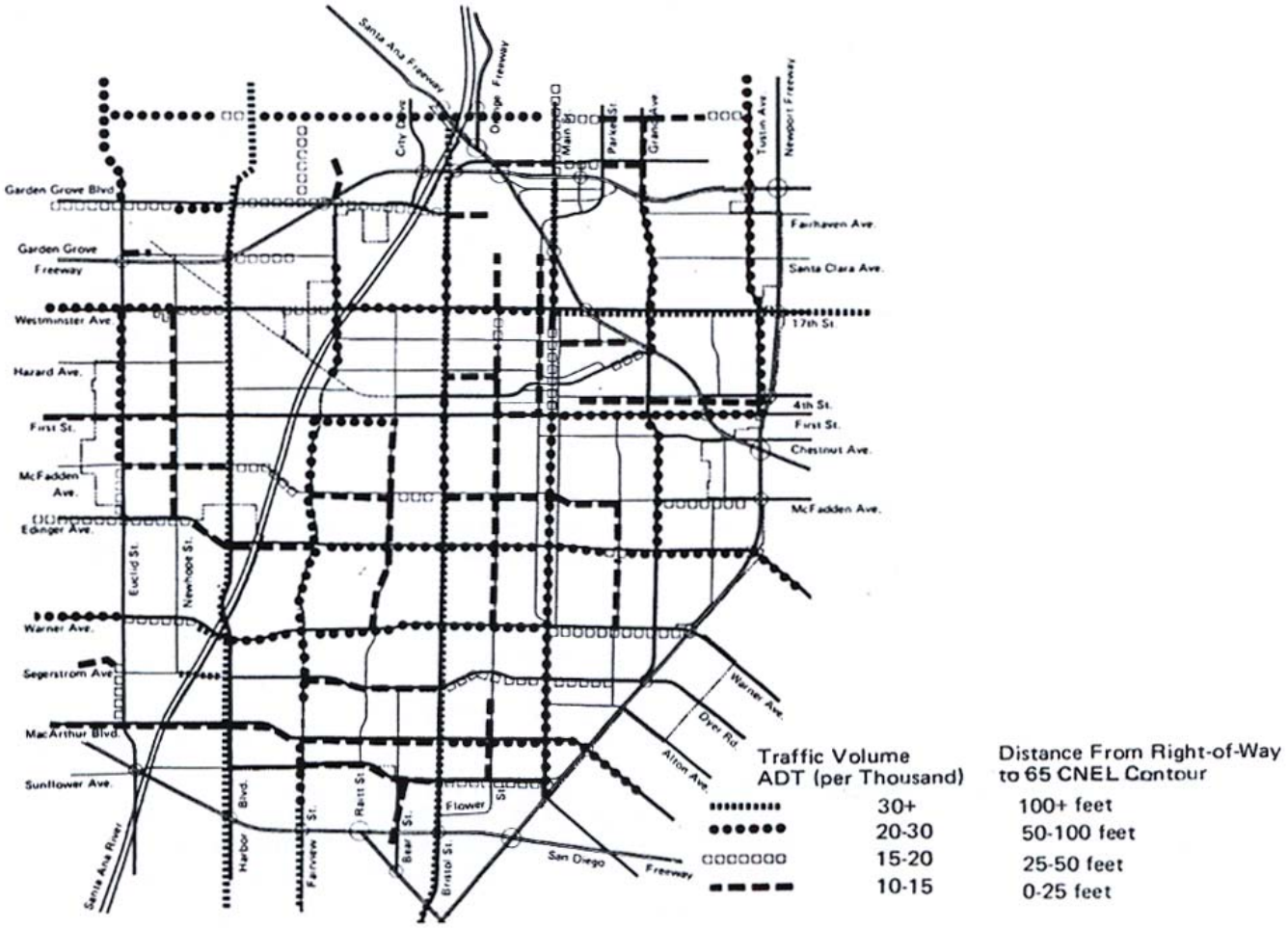
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Exhibit 4 Noise Abatement Areas



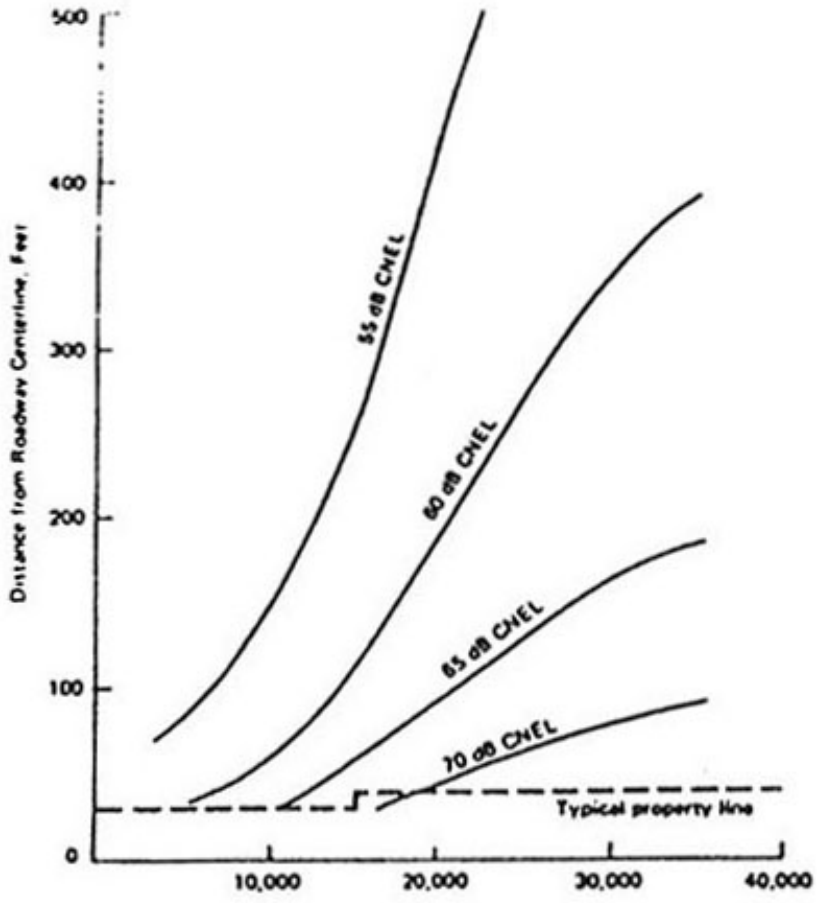
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Exhibit 5 Transportation Noise Sources



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Exhibit 6 Required Distances from Transportation Noise Sources



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ARTICLE VI. - NOISE CONTROL

Sec. 18-308. - Declaration of policy.

In order to control unnecessary, excessive and annoying sounds emanating from areas of the city, it is hereby declared to be the policy of the city to prohibit such sounds generated from all sources as specified in this article.

It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest.

(Ord. No. NS-1441, 1, 8-21-78)

Sec. 18-309. - Definitions.

The following words, phrases and terms as used in this article shall have the meaning as indicated below:

Ambient noise level shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

Decibel (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: The number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

Dwelling unit shall mean a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

Emergency machinery, vehicle or work shall mean any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

Fixed noise source shall mean a stationary device which creates sounds while fixed or motionless, including, but not limited to, industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

Grading shall mean any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

Impact noise shall mean the noise produced by the collision of one mass which may be either in motion or at rest.

Mobile noise source shall mean any noise source other than a fixed noise source.

Noise level shall mean the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB (A).

Person shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

Residential property shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

Simple tone noise shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

Sound level meter shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

Sound pressure level of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-310. - Noise level measurement criteria.

Any noise level measurements made pursuant to the provisions of this article shall be performed using a sound level meter as defined in section 18-309.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-311. - Designated noise zone.

The entire City of Santa Ana is hereby designated as "Noise Zone 1."

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-312. - Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.— 7:00 a.m.

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).

(b) 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:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) 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.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-313. - Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.—7:00 a.m.

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).

(b) 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:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) dB(A) for a cumulative period of more than one minute in any hour; or

(3) The interior noise standard plus ten (10) dB(A) for any period of time.

(c) 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.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-314. - Special provisions.

The following activities shall be exempted from the provisions of this article:

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.

(b) Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a license issued by the City of Santa Ana.

(c) Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) 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.

(f) 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 conditions.

(g) 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.

(h) 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.

(i) 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.

(j) Any activity to the extent regulation thereof has been preempted by state or federal law.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-315. - Schools, hospitals and churches; special provisions.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in section 18-312 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth (1/10) of a mile of the institution indicating the presence of a school, church or hospital.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-316. - Air conditioning and refrigeration; special provisions.

During the five-year period following the effective date of this article, the noise standards enumerated in sections 18-312 and 18-313 shall be increased eight (8) dB(A) where the alleged offensive noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of this article.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-317. - Noise level measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected property. 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.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-318. - Manner of enforcement.

The chief of police, the Orange County health officer and their duly authorized representatives are directed to enforce the provisions of this article. The chief of police, the Orange County health officer and their duly authorized representatives are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this article while such person is engaged in the performance of his duty.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-319. - Variance procedure.

The owner or operator of a noise source which violates any of the provisions of this article may file an application with the Orange County health officer for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee as established by resolution of the city council. A separate application shall be filed for each noise source; provided however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Upon receipt of said application and fee, the health officer shall refer it with his recommendation thereon within thirty (30) days to the Orange County Noise Variance Board for action thereon in accordance with the provisions of applicable law.

An applicant for a variance shall remain subject to prosecution under the terms of this article until a variance is granted.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-320. - Appeals.

Within fifteen (15) days following the decision of the Orange County Variance Board on an application, the applicant, the health officer, or any member of the city council, may appeal the decision to the city council by filing a notice of appeal with the secretary of the Orange County Variance Board. In the case of an appeal by the applicant for a variance, the notice of

appeal shall be accompanied by a fee to be computed by the secretary of the Orange County Variance Board on the basis of the estimated cost of preparing the materials required to be forwarded to the city council as discussed hereafter. If the actual cost of such preparation differs from the estimated cost appropriate payments shall be made either to or by the secretary of the Orange County Variance Board.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee, the secretary of the Variance Board shall forward to the city council copies of the application for variance; the recommendation of the health officer; the notice of appeal; all evidence concerning said application received by the variance board and its decision thereon. In addition, any person may file with the clerk of the city council written arguments supporting or attacking said decision and the city council may in its discretion hear oral arguments thereon. The clerk of the city council shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten (10) days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of appeal, the city council shall either affirm, modify or reverse the decision, of the variance board. Such decision shall be based upon the city council's evaluation of the matters submitted to the city council in light of the powers conferred on the variance board and the factors to be considered, both as enumerated in section 18-319 and Orange County Ordinance section 4-6-13.

As part of its decision, the city council may direct the variance board to conduct further proceedings on said application. Failure of the city council to affirm, modify or reverse the decision of the variance board within said sixty-day period shall constitute an affirmance of the decision.

(Ord. No. NS-1441, § 1, 8-21-78)

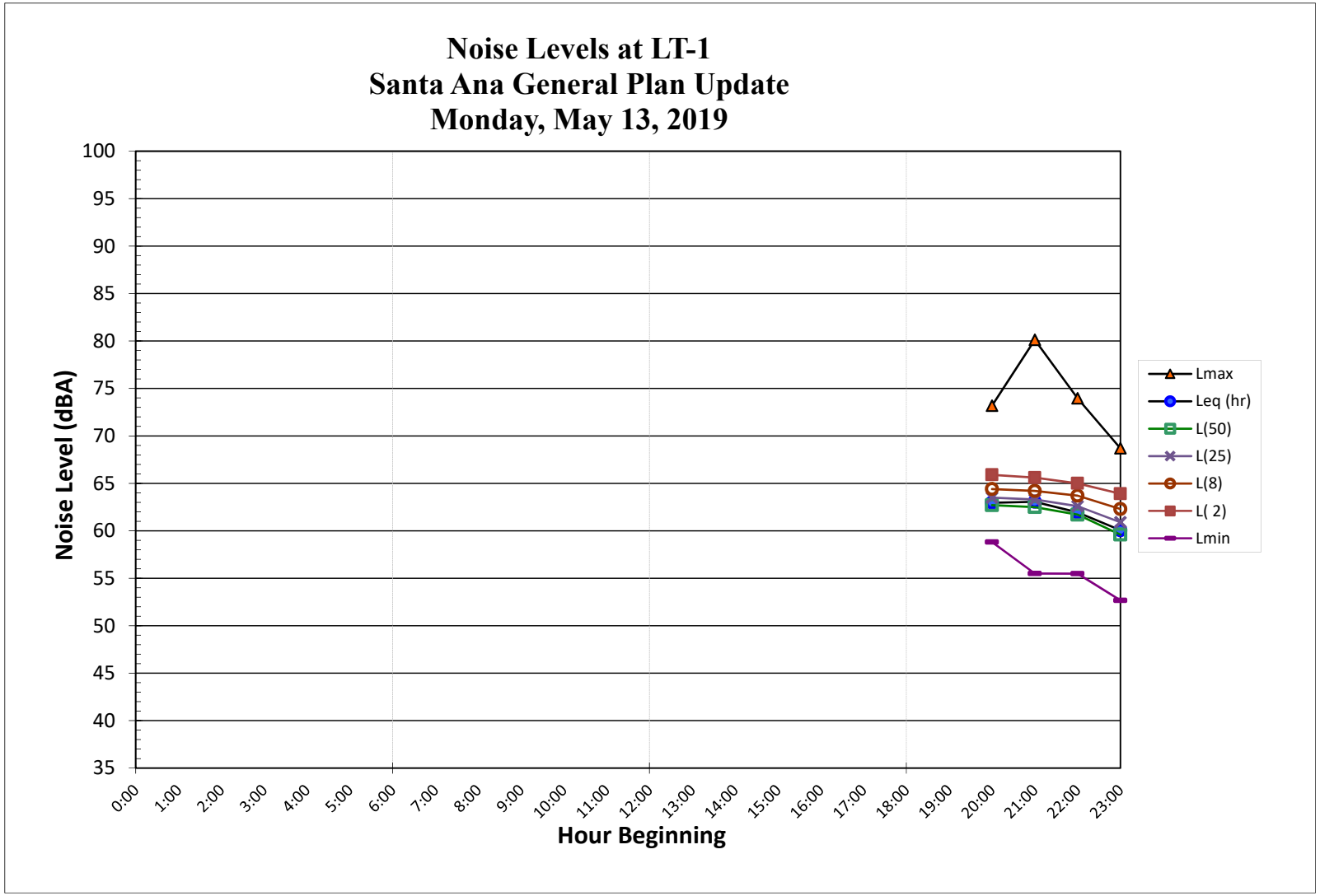
Sec. 18-321. - Violations; misdemeanors.

Any person violating any or the provisions of this article shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this article shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law.

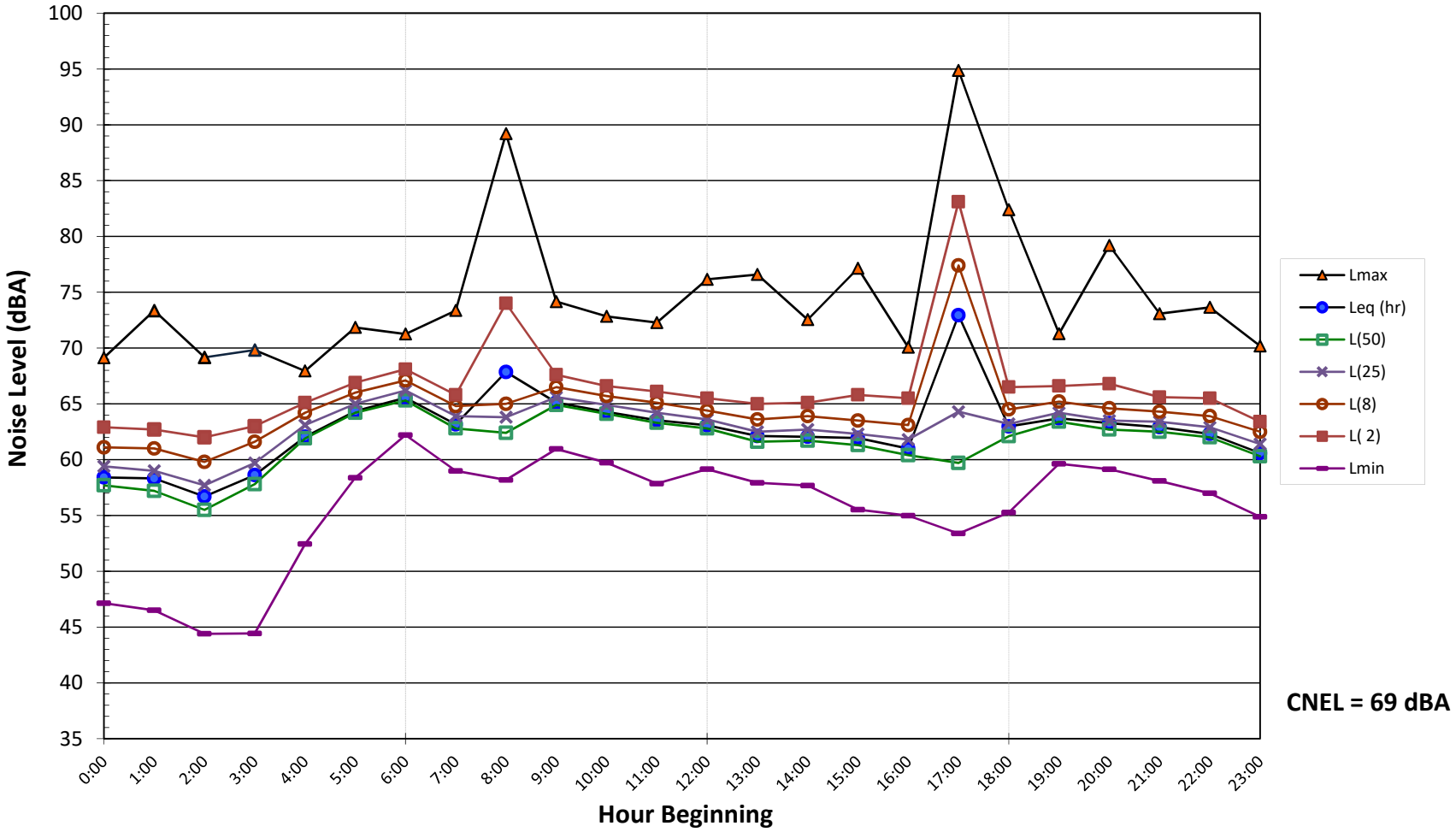
(Ord. No. NS-1441, § 1, 8-21-78)

Secs. 18-322—18-350. - Reserved.

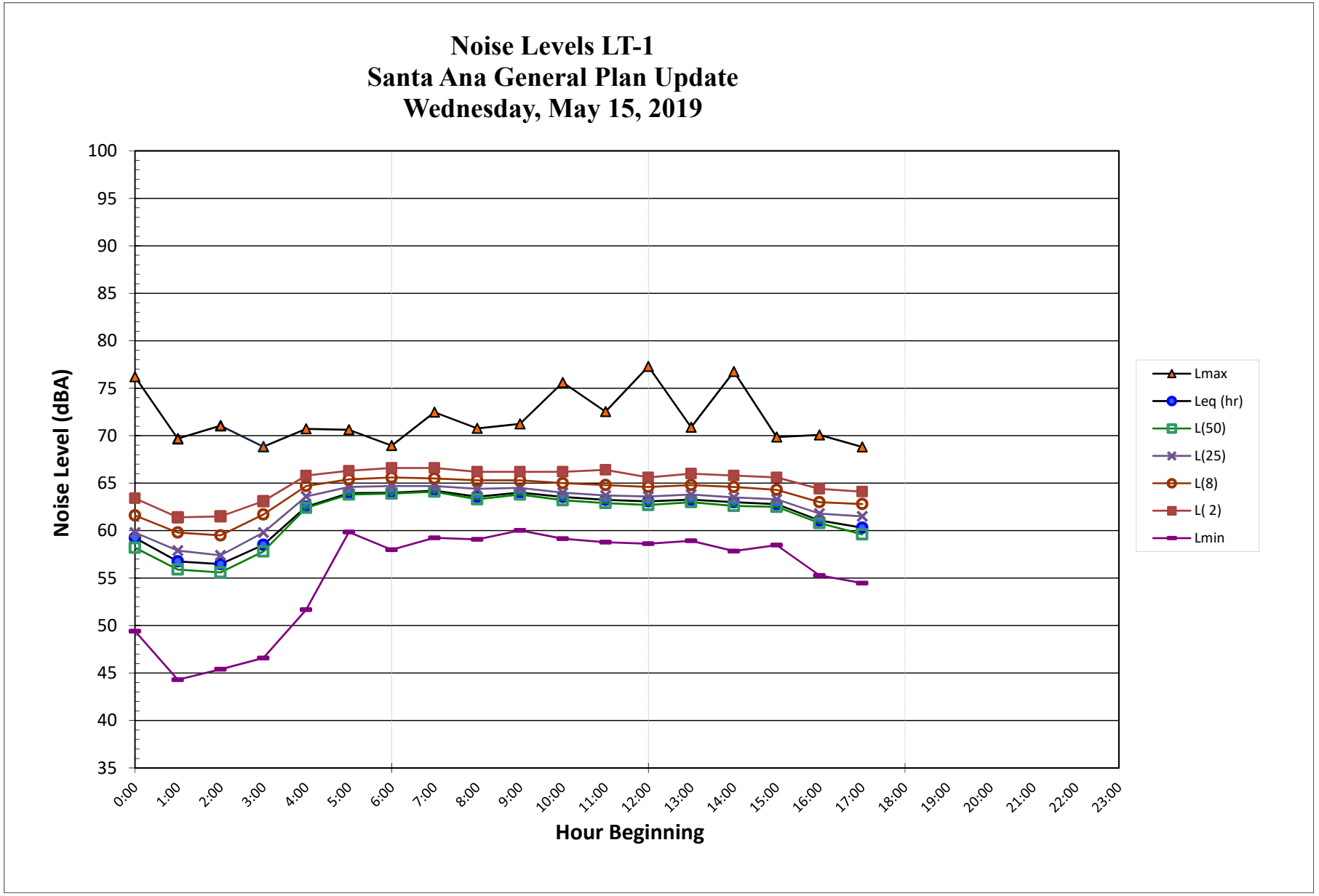
AMBIENT NOISE MONITORING RESULTS

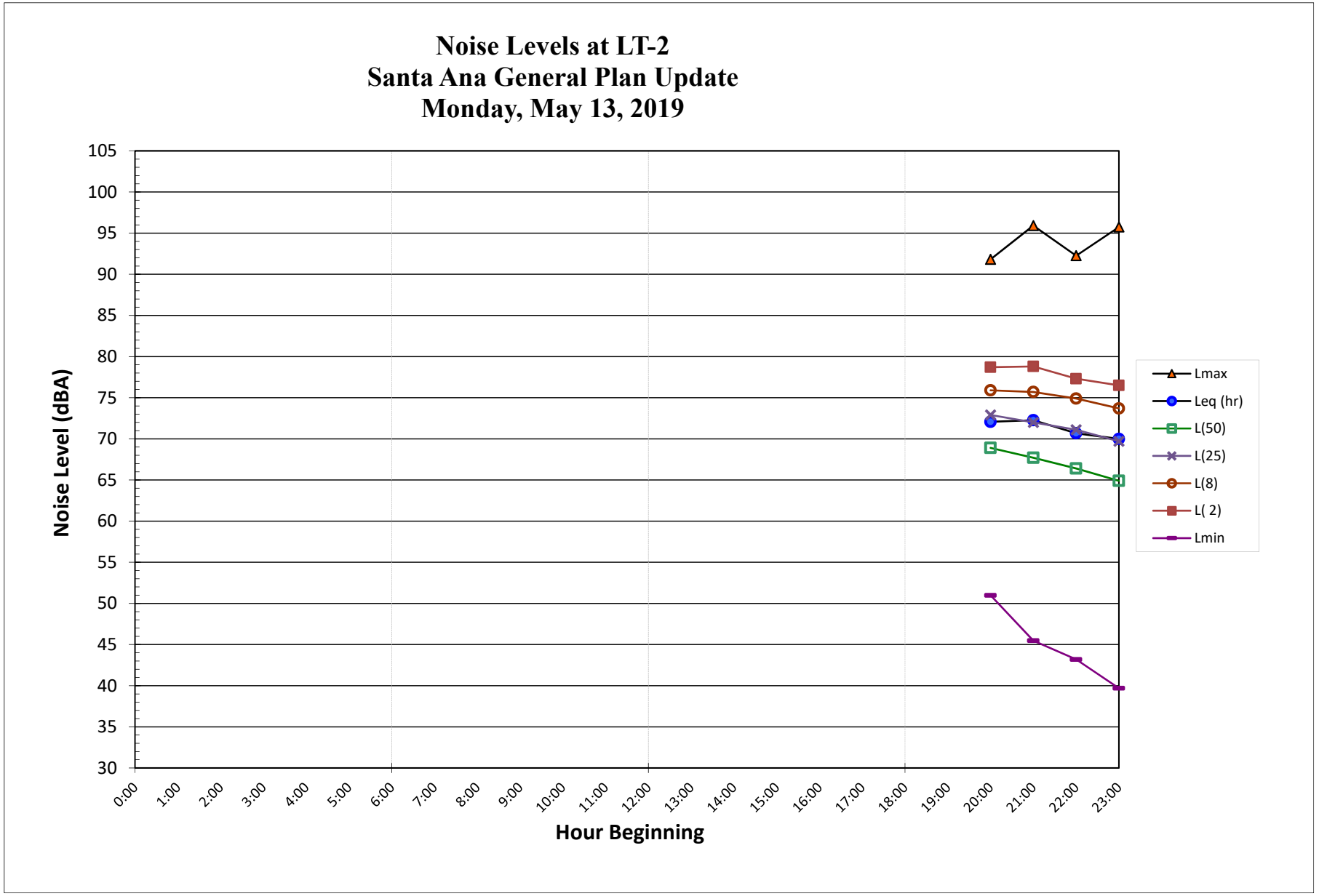

Noise Levels at LT-1
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
35
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
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23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

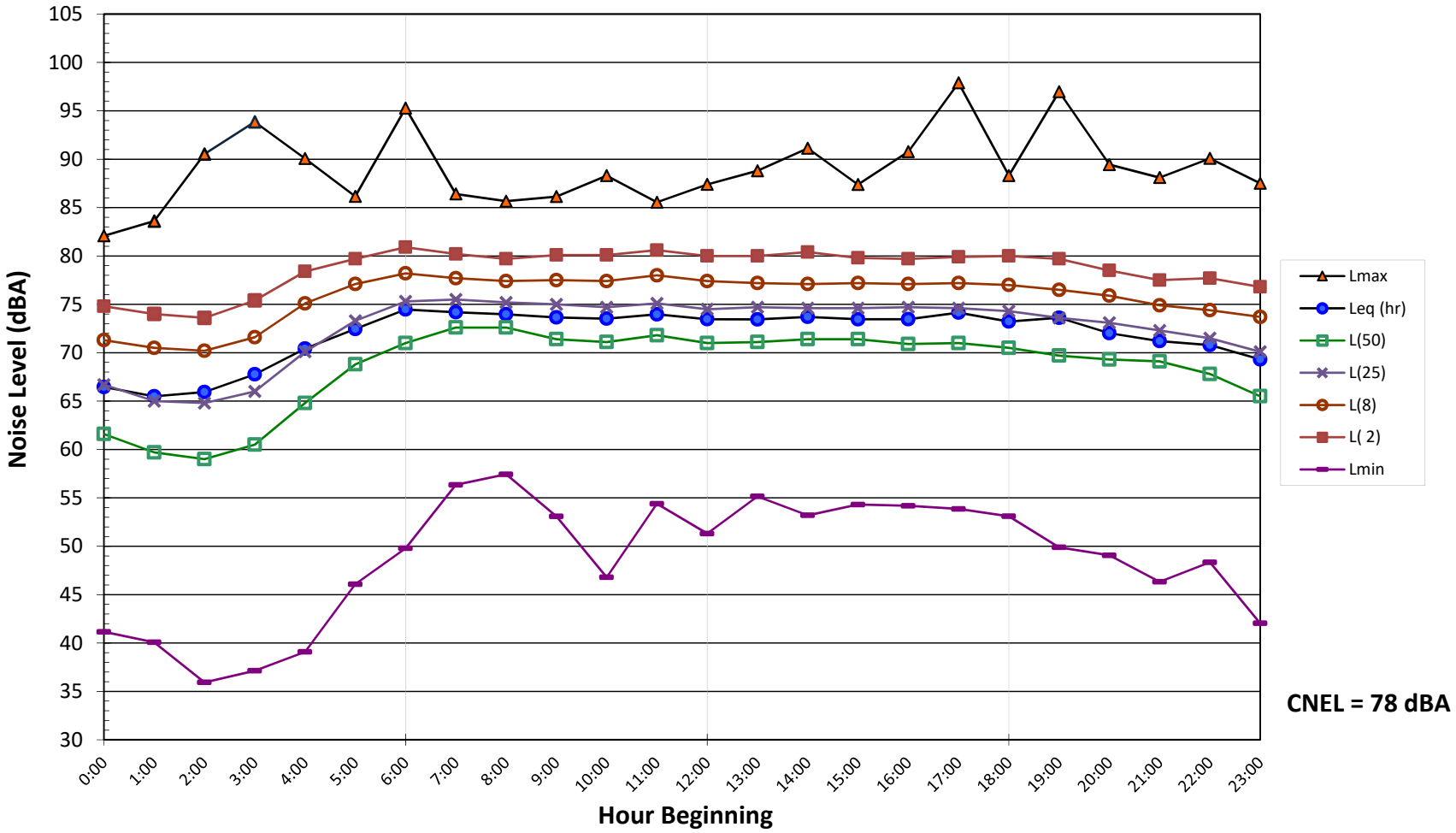
Noise Levels LT-1
Santa Ana General Plan Update
Tuesday, May 14, 2019

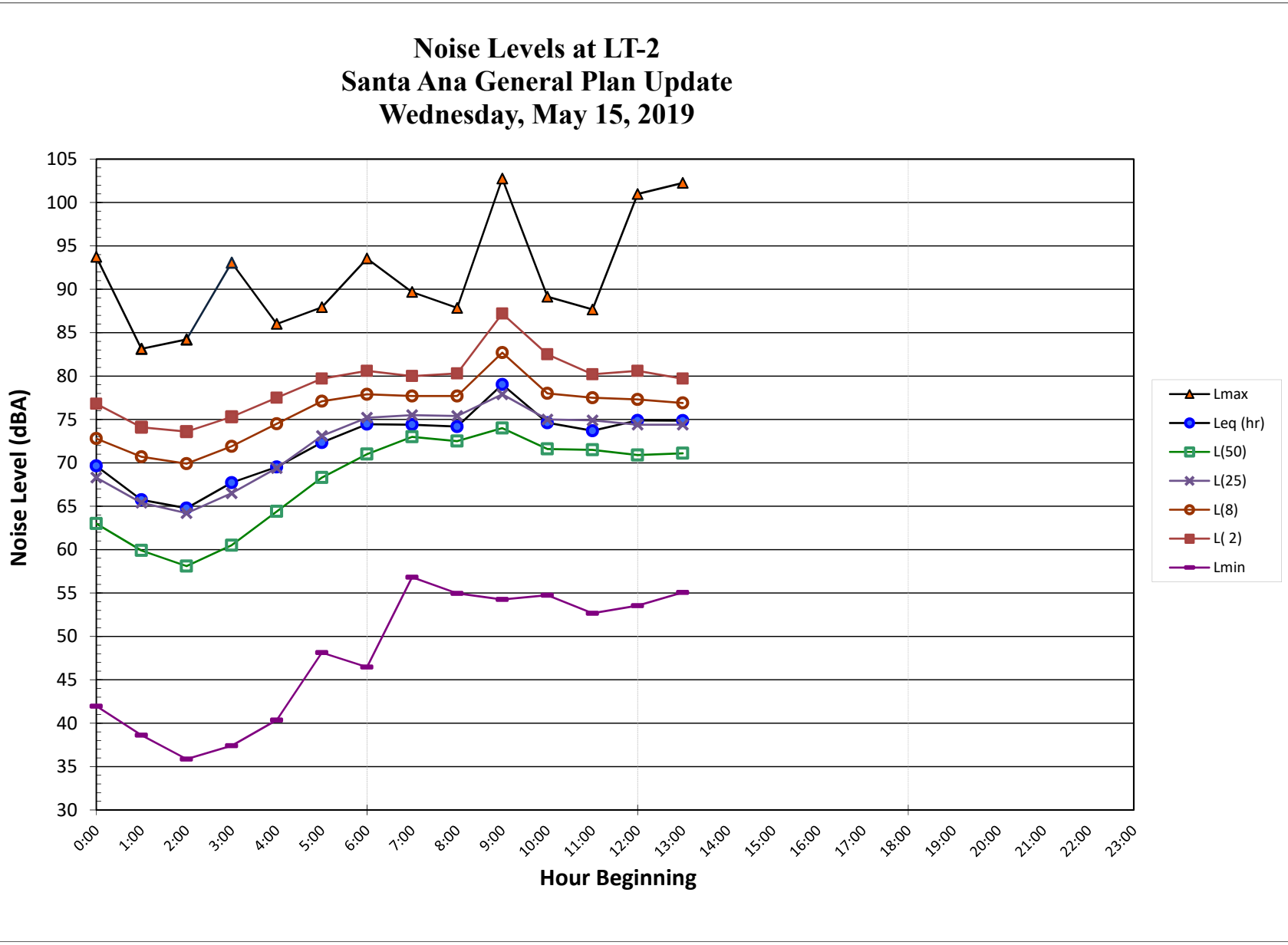


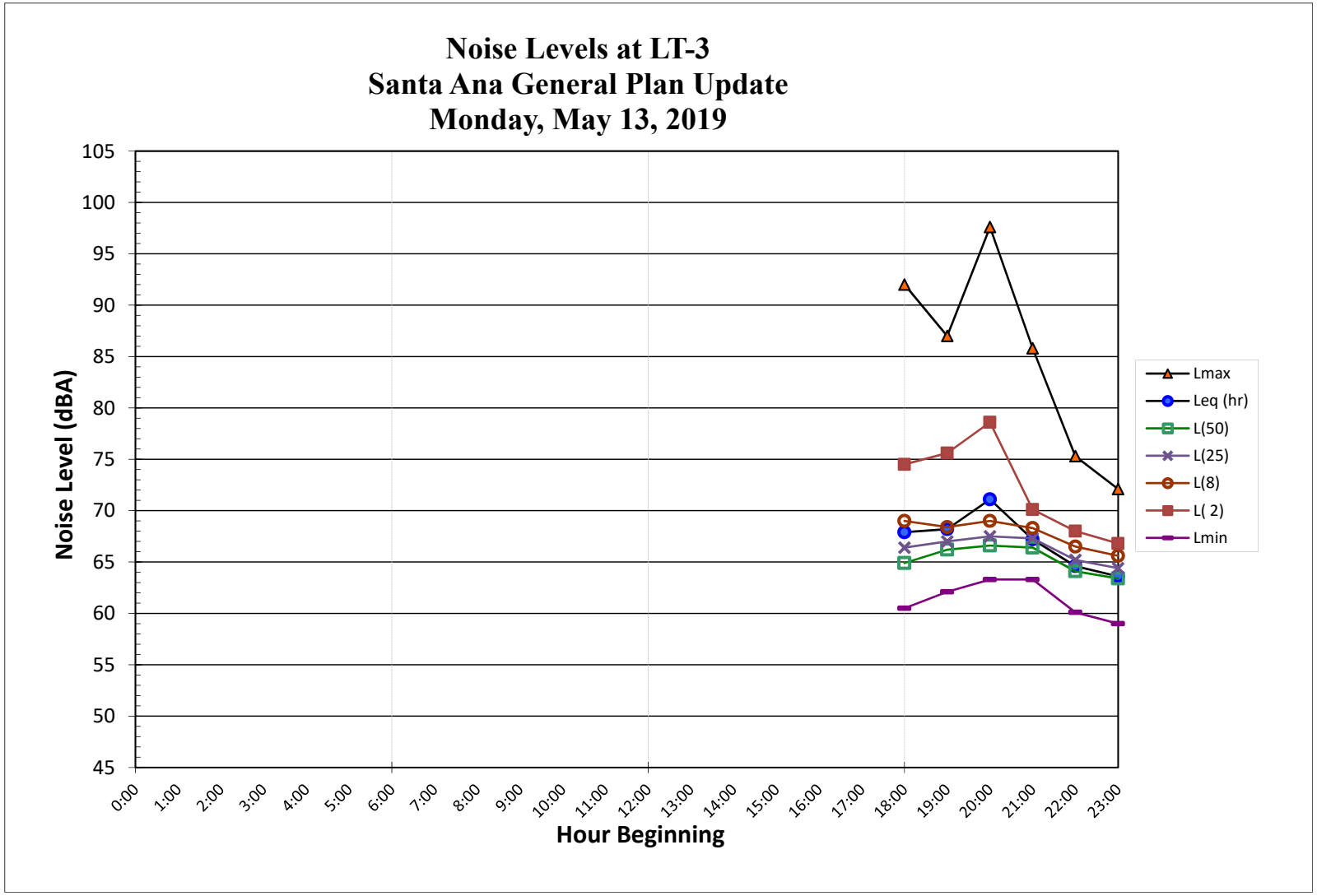
CNEL = 69 dBA


Noise Levels LT-1
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
35
0:00
1:00
2:00
3:00
4:00
5:00
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Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

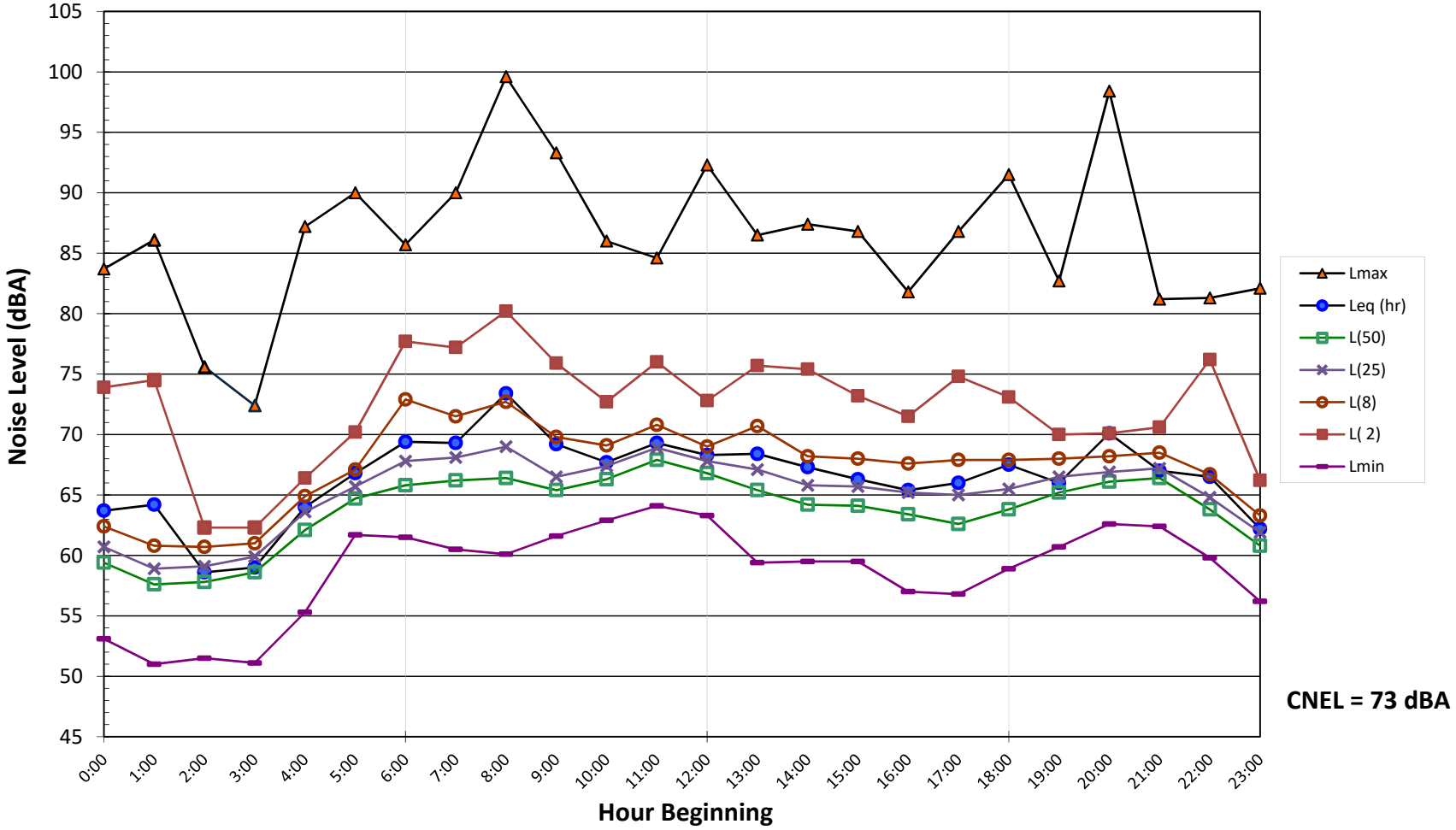

Noise Levels at LT-2
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
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Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin


Noise Levels at LT-2
Santa Ana General Plan Update
Tuesday, May 14, 2019
Noise Level (dBA)
105
100
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90
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80
75
70
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60
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45
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Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin
CNEL = 78 dBA

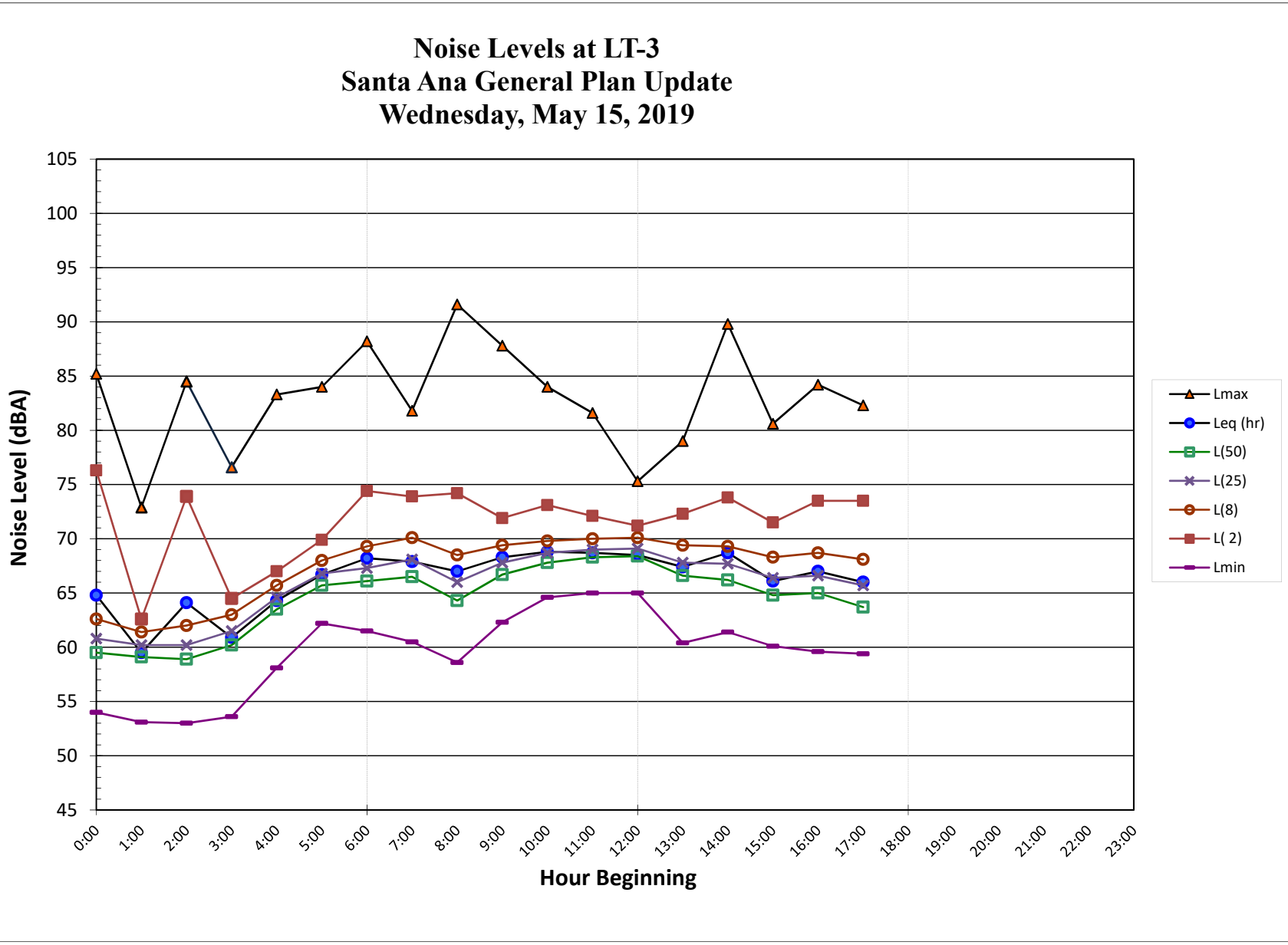

Noise Levels at LT-2
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
105
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65
60
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45
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35
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Hour Beginning
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Leq (hr)
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L(25)
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L(2)
Lmin

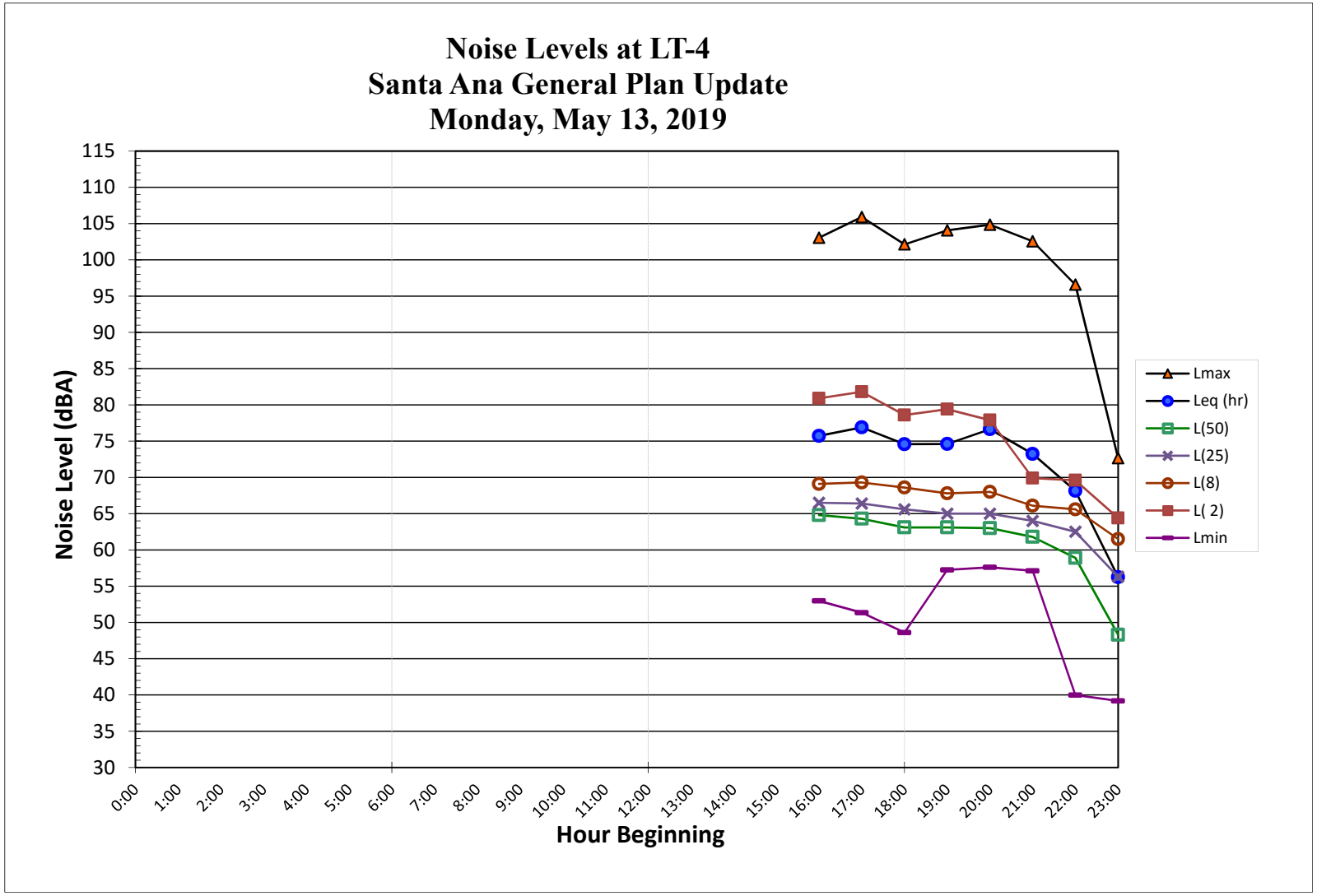

Noise Levels at LT-3
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
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65
60
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Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

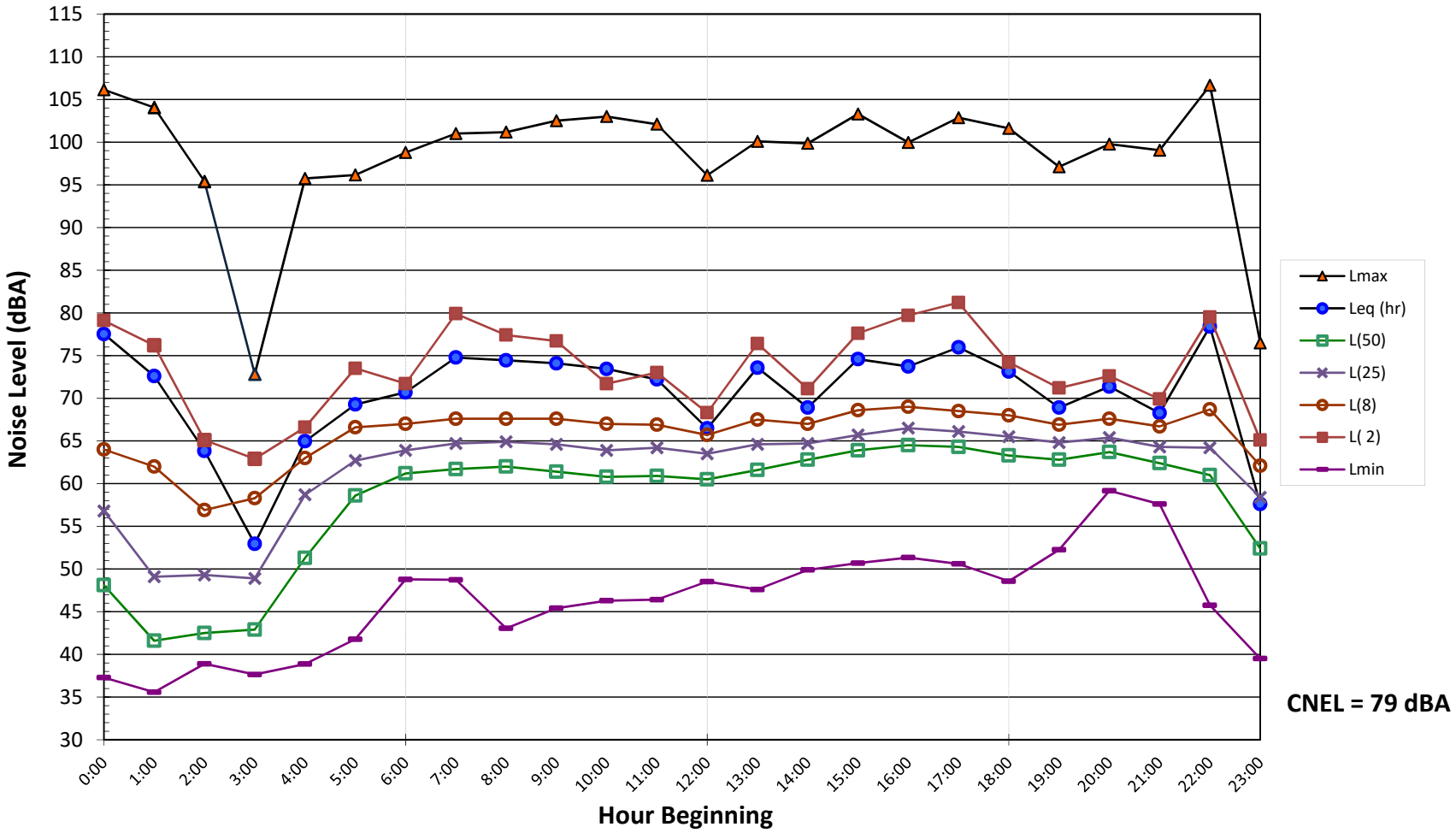
Noise Levels at LT-3
Santa Ana General Plan Update
Tuesday, May 14, 2019

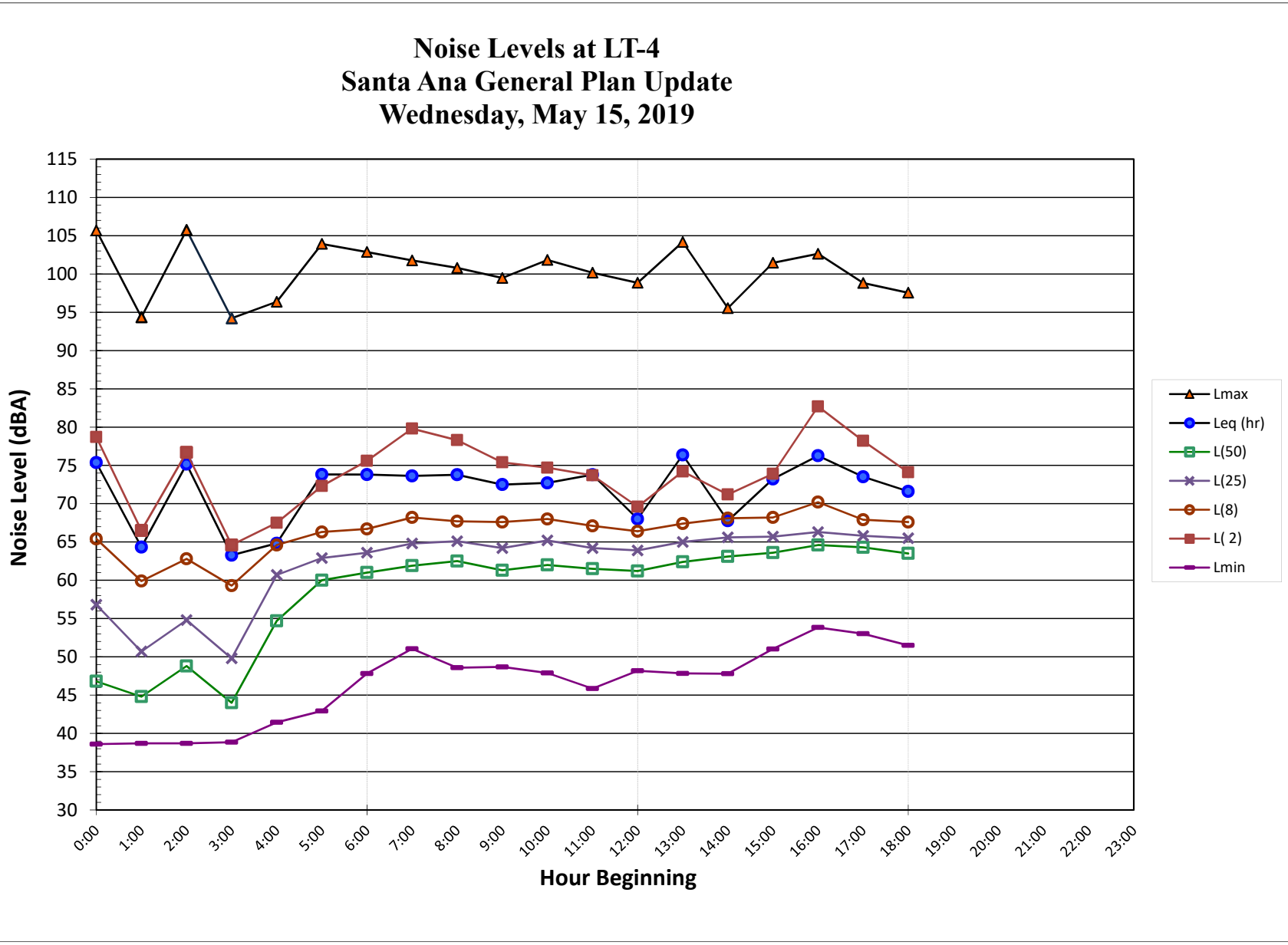


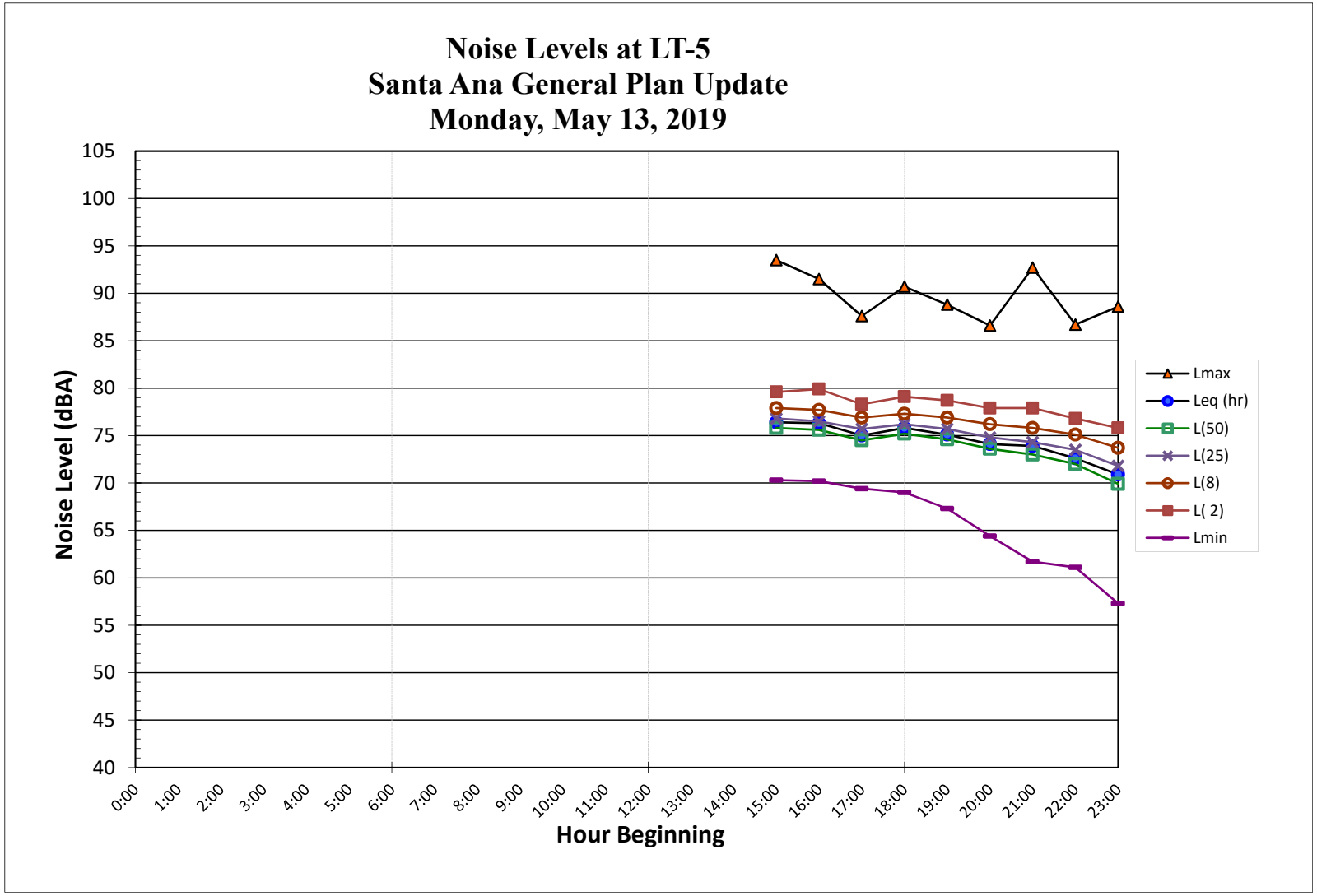
CNEL = 73 dBA


Noise Levels at LT-3
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
105
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Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

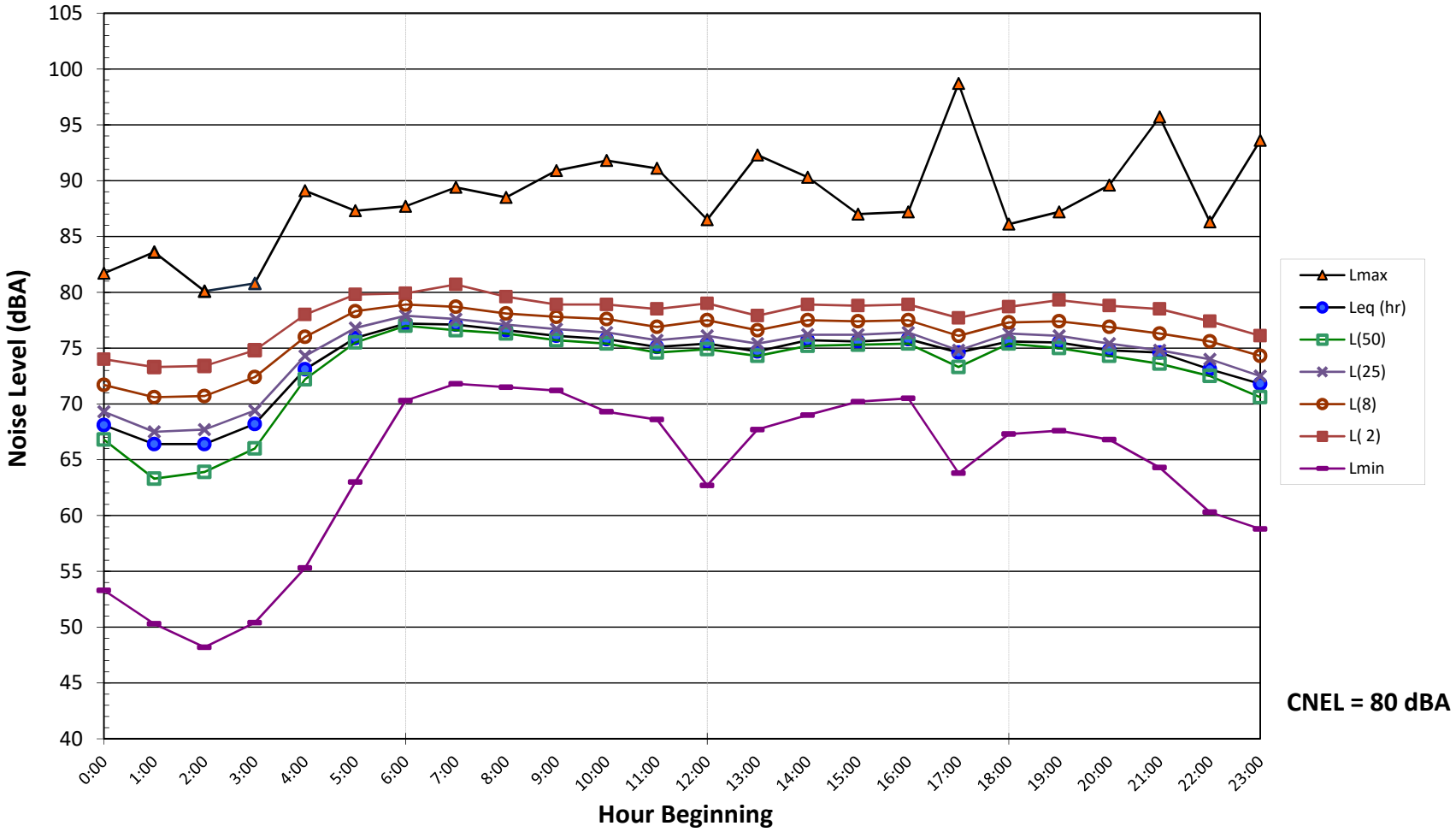

Noise Levels at LT-4
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
115
110
105
100
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Hour Beginning
Lmax
Leq (hr)
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L(25)
L(8)
L(2)
Lmin


Noise Levels at LT-4
Santa Ana General Plan Update
Tuesday, May 14, 2019
Noise Level (dBA)
115
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Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin
CNEL = 79 dBA

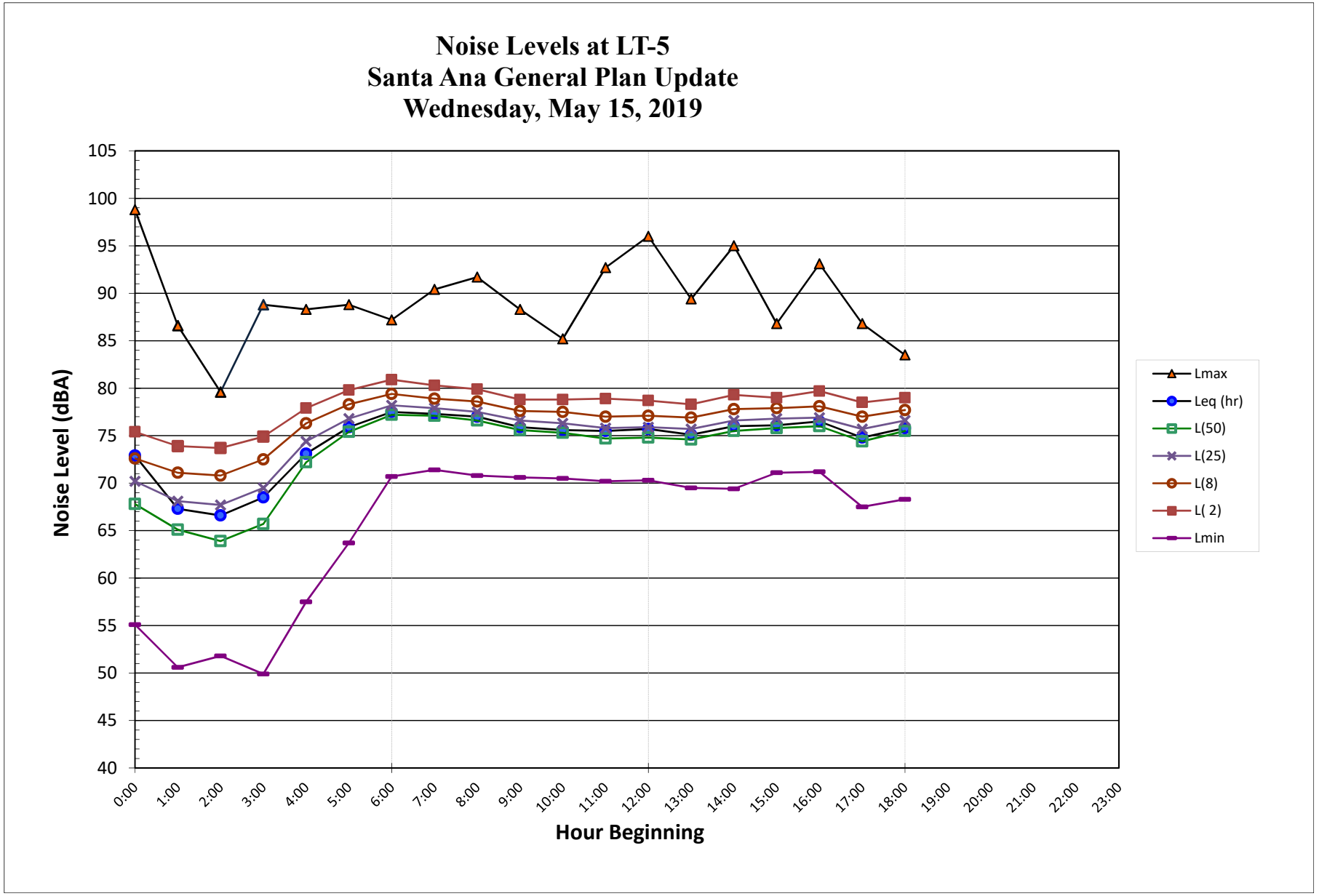

Noise Levels at LT-4
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
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Hour Beginning
Lmax
Leq (hr)
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L(25)
L(8)
L(2)
Lmin


Noise Levels at LT-5
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
105
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85
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23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

Noise Levels at LT-5
Santa Ana General Plan Update
Tuesday, May 14, 2019



CNEL = 80 dBA


Noise Levels at LT-5
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
105
100
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22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

TRAFFIC NOISE INCREASE CALCULATIONS

Traffic Noise Calculator: FHWA 77-108 **Project Title: SNA-20**

	Output						Inputs														Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																		
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	69.3	72.1	72.6	75	162	348	1st Street	treet to Newhop	28219	40	0	94.9%	2.9%	2.2%	79%	11%	10%	6	Soft	50	0.5	68
2	71.0	74.5	75.0	107	231	497	Euclid Street	eet to McFadden	40832	40	0	94.9%	2.9%	2.2%	74%	12%	14%	6	Soft	50	0.5	68
3	70.9	73.6	74.2	95	205	442	Westminster Avenue	oulevard to Fairvi	30994	45	0	94.9%	2.9%	2.2%	78%	12%	10%	6	Soft	50	0.5	68
4	72.0	76.1	76.6	137	294	634	Harbor Boulevard	nue/17th Street t	51467	40	0	94.9%	2.9%	2.2%	70%	12%	18%	6	Soft	50	0.5	68
5	69.8	73.2	73.7	89	191	412	Edinger Avenue	oulevard to Fairvi	24396	45	0	94.9%	2.9%	2.2%	73%	14%	13%	6	Soft	50	0.5	68
6	71.0	74.4	74.8	104	224	483	Warner Avenue	oulevard to Fairvi	32360	45	0	94.9%	2.9%	2.2%	78%	9%	13%	6	Soft	50	0.5	68
7	72.5	76.2	76.6	138	297	641	Harbor Boulevard	venue to MacArt	45135	45	0	94.9%	2.9%	2.2%	74%	11%	15%	6	Soft	50	0.5	68
8	72.3	76.2	76.6	138	296	639	Fairview Street	Street to Willits St	43090	45	0	94.9%	2.9%	2.2%	72%	12%	16%	6	Soft	50	0.5	68
9	70.4	73.8	74.2	96	206	443	1st Street	an Street to Raitt	35964	40	0	94.9%	2.9%	2.2%	76%	11%	13%	6	Soft	50	0.5	68
10	72.4	76.2	76.7	140	302	651	Bristol Street	eet to Santa Clara	46452	45	0	94.9%	2.9%	2.2%	71%	13%	16%	4	Soft	50	0.5	44
11	70.6	73.4	74.0	93	199	430	17th Street	Avenue to Bristo	37885	40	0	94.9%	2.9%	2.2%	77%	13%	10%	6	Soft	50	0.5	68
12	71.1	75.2	75.7	119	257	554	Bristol Street	eet to Washingtor	44010	40	0	94.9%	2.9%	2.2%	69%	14%	17%	5	Soft	50	0.5	56
13	72.0	76.0	76.5	136	292	630	Fairview Street	Avenue to 17th S	42808	45	0	94.9%	2.9%	2.2%	70%	13%	17%	4	Soft	50	0.5	44
14	70.8	74.7	75.2	111	239	515	Bristol Street	Street to Bishop St	39847	40	0	94.9%	2.9%	2.2%	71%	13%	16%	6	Soft	50	0.5	68
15	65.6	68.6	69.1	43	93	201	Civic Center Drive	l Street to Flower	16615	35	0	94.9%	2.9%	2.2%	79%	10%	11%	4	Soft	50	0.5	44
16	65.6	68.4	68.9	42	91	195	Flower Street	Street to Bishop St	17101	35	0	94.9%	2.9%	2.2%	80%	10%	10%	2	Soft	50	0.5	20
17	68.5	72.2	72.6	75	162	348	Main Street	n Street to 20th St	32053	35	0	94.9%	2.9%	2.2%	73%	12%	15%	4	Soft	50	0.5	44
18	67.2	70.9	71.4	62	133	286	Main Street	n Street to Civic C	31850	30	0	94.9%	2.9%	2.2%	72%	13%	15%	4	Soft	50	0.5	44
19	62.8	65.6	66.0	27	59	127	Civic Center Drive	er Street to Broad	16285	25	0	94.9%	2.9%	2.2%	81%	9%	10%	4	Soft	50	0.5	44
20	63.9	66.9	67.3	33	71	153	Santa Ana Boulevard	er Street to Broad	14191	30	0	94.9%	2.9%	2.2%	80%	9%	11%	6	Soft	50	0.5	68
21	71.1	74.8	75.2	111	240	517	1st Street	treet to Standard	41765	40	0	94.9%	2.9%	2.2%	73%	12%	15%	6	Soft	50	0.5	68
22	67.7	71.7	72.2	70	150	323	Main Street	Street to Bishop St	26772	35	0	94.9%	2.9%	2.2%	71%	12%	17%	4	Soft	50	0.5	44
23	68.8	71.7	72.2	70	151	325	Grand Avenue	ara Avenue to 17	25988	40	0	94.9%	2.9%	2.2%	79%	10%	11%	4	Soft	50	0.5	44
24	70.2	73.9	74.3	97	209	451	Grand Avenue	na Boulevard to 4	36526	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
25	69.7	72.3	72.9	78	168	362	17th Street	ark Drive to Tusti	32600	40	0	94.9%	2.9%	2.2%	79%	12%	9%	4	Soft	50	0.5	44
26	67.4	70.1	70.7	55	119	257	Tustin Avenue	it Street to 4th St	17862	40	0	94.9%	2.9%	2.2%	79%	11%	10%	6	Soft	50	0.5	68
27	68.1	70.8	71.3	61	132	284	1st Street	ark Drive to Tusti	20946	40	0	94.9%	2.9%	2.2%	80%	10%	10%	6	Soft	50	0.5	68
28	72.2	76.2	76.6	138	297	640	Fairview Street	Avenue to Harvar	42145	45	0	94.9%	2.9%	2.2%	72%	11%	17%	6	Soft	50	0.5	68
29	71.8	75.5	76.0	125	269	579	Fairview Street	venue to Segerstro	38754	45	0	94.9%	2.9%	2.2%	74%	11%	15%	6	Soft	50	0.5	68
30	68.1	71.6	72.2	70	151	325	Edinger Avenue	Street to Greenv	29375	35	0	94.9%	2.9%	2.2%	72%	14%	14%	4	Soft	50	0.5	44
31	66.6	70.3	70.9	57	123	265	McFadden Avenue	ew Street to Raitt	20921	35	0	94.9%	2.9%	2.2%	71%	14%	15%	4	Soft	50	0.5	44
32	69.3	71.9	72.3	72	154	333	MacArthur Boulevard	ew Street to Raitt	27767	40	0	94.9%	2.9%	2.2%	81%	10%	9%	6	Soft	50	0.5	68
33	67.4	70.4	71.4	62	133	286	Segerstrom Avenue	ew Street to Raitt	19018	40	0	94.9%	2.9%	2.2%	66%	23%	11%	4	Soft	50	0.5	44
34	70.5	74.0	74.5	100	215	464	Bristol Street	Avenue to Warne	38527	40	0	94.9%	2.9%	2.2%	73%	13%	14%	4	Soft	50	0.5	44
35	70.5	73.8	74.4	98	211	455	Bristol Street	venue to Segerstro	36397	40	0	94.9%	2.9%	2.2%	73%	14%	13%	6	Soft	50	0.5	68
36	71.1	74.7	75.1	109	235	505	Warner Avenue	Street to Bristol S	34084	45	0	94.9%	2.9%	2.2%	76%	10%	14%	5	Soft	50	0.5	56
37	70.8	74.2	74.7	103	223	480	Bristol Street	oulevard to Sunfl	39737	40	0	94.9%	2.9%	2.2%	74%	13%	13%	6	Soft	50	0.5	68
38	66.5	69.5	70.0	50	107	231	Flower Street	venue to Segerstro	15420	40	0	94.9%	2.9%	2.2%	78%	11%	11%	4	Soft	50	0.5	44
39	69.2	73.1	73.5	86	184	397	Edinger Avenue	er Street to Main S	28733	40	0	94.9%	2.9%	2.2%	72%	12%	16%	4	Soft	50	0.5	44
40	67.8	71.4	71.9	67	143	309	Main Street	n Avenue to Eding	27724	35	0	94.9%	2.9%	2.2%	74%	12%	14%	4	Soft	50	0.5	44
41	69.4	73.5	73.8	89	193	415	Main Street	venue to Segerstro	29713	40	0	94.9%	2.9%	2.2%	74%	9%	17%	5	Soft	50	0.5	56
42	70.7	74.4	74.8	104	225	484	Dyer Road	Street to Halladay	29938	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
43	70.5	73.6	74.1	93	201	434	MacArthur Boulevard	er Street to Main S	36466	40	0	94.9%	2.9%	2.2%	78%	10%	12%	6	Soft	50	0.5	68
44	69.5	72.5	72.9	78	168	362	Main Street	oulevard to Sunfl	22916	45	0	94.9%	2.9%	2.2%	81%	8%	11%	6	Soft	50	0.5	68
45	70.4	73.8	74.2	95	205	442	Grand Avenue	enue to Saint And	27838	45	0	94.9%	2.9%	2.2%	76%	11%	13%	6	Soft	50	0.5	68
46	71.8	75.7	76.0	126	271	585	Edinger Avenue	treet to Newport	38974	45	0	94.9%	2.9%	2.2%	76%	8%	16%	6	Soft	50	0.5	68
47	69.3	72.7	73.0	79	169	365	Warner Avenue	venue to Red Hill	21848	45	0	94.9%	2.9%	2.2%	81%	6%	13%	6	Soft	50	0.5	68
48	68.9	72.6	73.0	79	170	366	Warner Avenue	treet to Standard	26712	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
49	66.8	70.5	71.0	58	125	269	McFadden Avenue	l Avenue to Grand	21737	35	0	94.9%	2.9%	2.2%	73%	12%	15%	4	Soft	50	0.5	44
50	71.1	74.6	75.0	108	233	502	1st Street	l Street to Flower	41798	40	0	94.9%	2.9%	2.2%	75%	11%	14%	6	Soft	50	0.5	68
51	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!															0	#N/A
52	83.4	86.7	87.2	700	1508	3249	I-5	nan Ave. to Katell	240900	60	0	90.4%	6.0%	3.6%	76%	11%	13%	6	Soft	50	0.5	68
53	84.8	88.1	88.6	868	1869	4028	I-5	SR-22 to Main St.	366000	60	0	93.7%	3.1%	3.2%	76%	11%	13%	6	Soft	50	0.5	68
54	84.7	88.1	88.5	857	1847	3979	I-5	/Penn Way to Gra	359400	60	0	93.7%	3.1%	3.2%	76%	11%	13%	6	Soft	50	0.5	68
55	84.2	87.6	88.0	796	1714	3693	I-5	1st St. to SR-55	329500	60	0	94.5%	2.4%	3.1%	76%	11%	13%	6	Soft	50	0.5	68
56	84.1	87.5	88.0	787	1696	3654	I-5	ort Ave. to Red Hi	324300	60	0	94.5%	2.4%	3.1%	76%	11%	13%	6	Soft	50	0.5	68
57	83.2	86.5	87.0	678	1461	3148	I-405	hurst Ave. to Euc	291300	60	0	96.5%	1.7%	1.8%	76%	11%	13%	6	Soft	50	0.5	68
58	83.5	86.8	87.3	711	1531	3298	I-405	lid St. to Harbor B	312400	60	0	96.5%	1.7%	1.8%	76%	11%	13%	6	Soft	50	0.5	68
59	83.2	86.6	87.0	680	1465	3156	I-405	arbor Blvd. to SR-	292400	60	0	96.5%	1.7%	1.8%	76%	11%	13%	6	Soft	50	0.5	68
60	82.5	85.8	86.3	608	1310	2821	I-405	Bristol St. to SR-55	239200	60	0	95.7%	2.3%	2.0%	76%	11%	13%	6	Soft	50	0.5	68
61	83.1	86.5	86.9	674	1452	3128	I-405	55 to MacArthur B	279200	60	0	95.7%	2.3%	2.0%	76%	11%	13%	6	Soft	50	0.5	68
62	83.3	86.7	87.1	694	1495	3221	SR-55	th St to 17th Stre	259400	60	0	93.0%	4.0%	3.0%	76%	11%	13%	6	Soft	50	0.5	68
63	83.8	87.2	87.6	750	1615	3480	SR-55	iner Ave. to Dyer	288600	60	0	92.8%	4.1%	3.1%	76%	11%	13%	6	Soft	50	0.5	68

64	83.1	86.4	86.9	669	1442	3106	SR-55	Rd. to MacArthur	277250	60	0	95.3%	3.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
65	82.1	85.5	85.9	577	1244	2680	SR-55	cArthur Blvd. to I-	222150	60	0	95.3%	3.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
66	80.6	83.9	84.4	454	978	2108	SR-55	I-405 to SR-73	155000	60	0	95.3%	3.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
67	82.1	85.5	85.9	578	1245	2683	SR-22	lid St. to Harbor B	216500	60	0	94.3%	4.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
68	82.3	85.7	86.1	596	1284	2766	SR-22	City Dr. to Bristo	235500	60	0	95.5%	2.9%	1.6%	76%	11%	13%	6	Soft	50	0.5	68
69	80.3	83.6	84.1	435	937	2018	SR-22	I-5 to Main St.	146700	60	0	95.5%	2.9%	1.6%	76%	11%	13%	6	Soft	50	0.5	68
70	79.9	83.3	83.8	413	890	1918	SR-22	ssell St. to Tustin A	141800	60	0	96.6%	2.0%	1.4%	76%	11%	13%	6	Soft	50	0.5	68

RAILROAD NOISE MODELING

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	50
Future Train Speed (mph)	50
Number of Existing Trains in one Direction	39
Number of Future Trains in one Direction	39
Existing Number of Day Trains (7 am to 10 p.m.)	31.5
Future Number of Day Trains (7 am to 10 p.m.)	31.5
Existing Number of Night Trains (10 p.m. to 7 am)	7.5
Future Number of Night Trains (10 p.m. to 7 am)	7.5
Existing Average Number of Cars	10.5
Future Average Number of Cars	10.5
Existing Average Number of Locomotives	1.5
Future Average Number of Locomotives	1.5

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

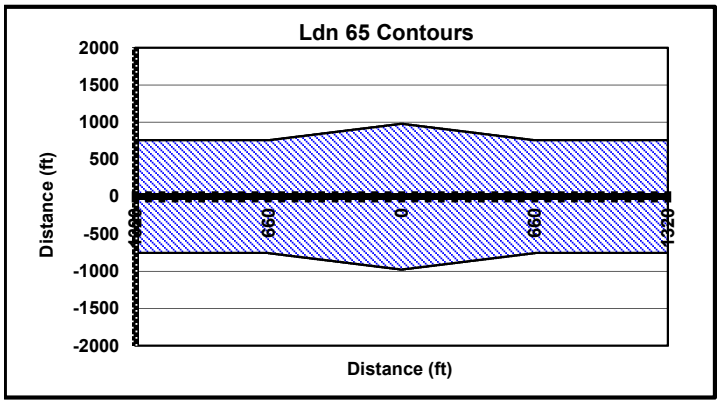
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

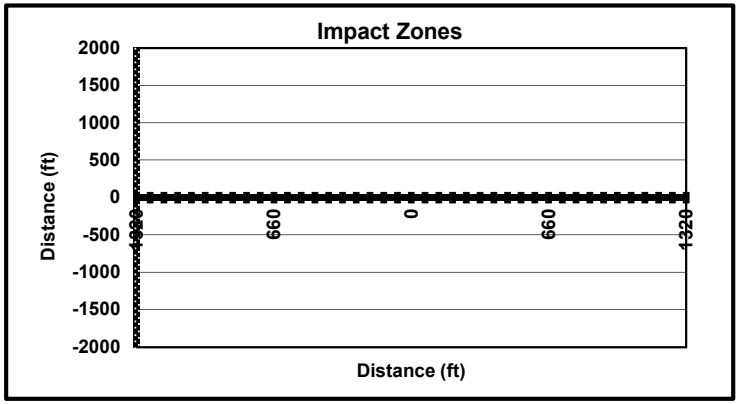
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	978
Future 65 Ldn Contour at X-ing	978
Existing 65 Ldn Contour at 1/2 zone length	756
Future 65 Ldn Contour at 1/2 zone length	756
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: SCRRA Orange Subdivision

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	58	59
Source 1	62	54	56
Source 2	59	51	53
Source 3	54	51	46
Source 4	51	49	44
Source 5	51	48	44
Source 6	49	46	41
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS												
Parameter	**Source 1**		**Source 2**		**Source 3**		**Source 4**		**Source 5**		**Source 6**	
Source Num.	Freight Locomotive	9	Freight Cars	10	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Commuter Diesel Locomotive	2	Commuter Rail Cars	3
Distance (source to receiver)	distance (ft)	210	distance (ft)	210	distance (ft)	210	distance (ft)	210	distance (ft)	210	distance (ft)	210
Daytime Hours	speed (mph)	40	speed (mph)	40	speed (mph)	50	speed (mph)	50	speed (mph)	50	speed (mph)	50
(7 AM - 10 PM)	trains/hour	0.267	trains/hour	0.267	trains/hour	2.6	trains/hour	2.6	trains/hour	1.333	trains/hour	1.333
	locos/train	6	length of cars (ft) / train	3000	locos/train	1	cars/train	6	locos/train	1	cars/train	6
Nighttime Hours	speed (mph)	40	speed (mph)	40	speed (mph)	50	speed (mph)	50	speed (mph)	50	speed (mph)	50
(10 PM - 7 AM)	trains/hour	0.444	trains/hour	0.444	trains/hour	0.778	trains/hour	0.778	trains/hour	0.444	trains/hour	0.444
	locos/train	6	length of cars (ft) / train	3000	locos/train	1	cars/train	6	locos/train	1	cars/train	6
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Embedded Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Aerial Structure?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Barrier Present?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Intervening Rows of of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0	number of rows	0	number of rows	0

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	10
Future Train Speed (mph)	10
Number of Existing Trains in one Direction	2
Number of Future Trains in one Direction	2
Existing Number of Day Trains (7 am to 10 p.m.)	1.25
Future Number of Day Trains (7 am to 10 p.m.)	1.25
Existing Number of Night Trains (10 p.m. to 7 am)	0.75
Future Number of Night Trains (10 p.m. to 7 am)	0.75
Existing Average Number of Cars	15
Future Average Number of Cars	15
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

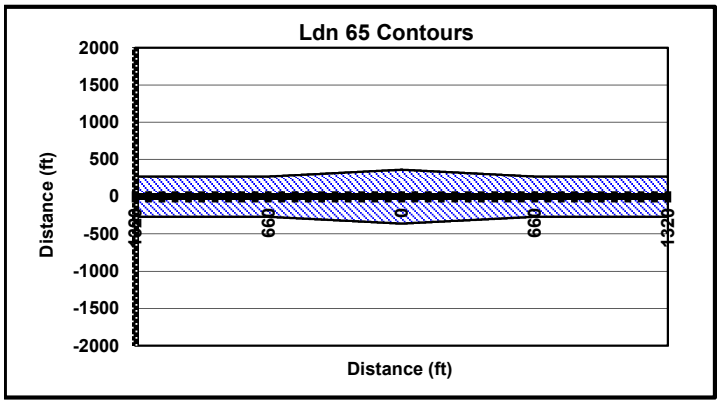
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

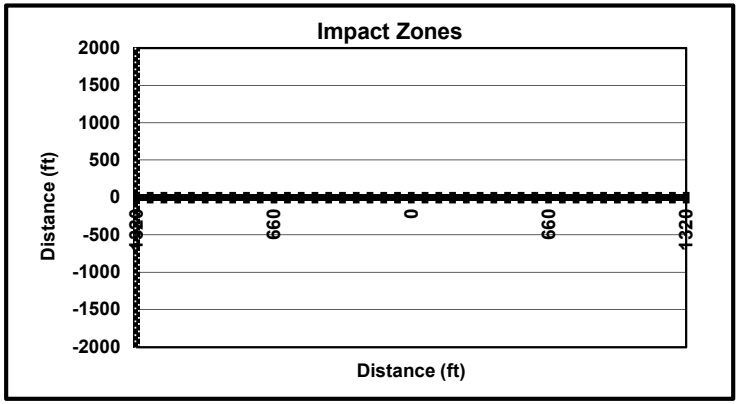
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	361
Future 65 Ldn Contour at X-ing	361
Existing 65 Ldn Contour at 1/2 zone length	269
Future 65 Ldn Contour at 1/2 zone length	269
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessmen
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: UP Santa Ana Industrial Lead

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	57	59
Source 1	64	56	58
Source 2	58	49	52
Source 3	0	0	0
Source 4	0	0	0
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS						
Parameter	**Source 1**		**Source 2**		**Source 3**	
Source Num.	Freight Locomotive	9	Freight Cars	10		
Distance (source to receiver)	distance (ft)	30	distance (ft)	30		
Daytime Hours	speed (mph)	10	speed (mph)	10		
(7 AM - 10 PM)	trains/hour	0.133	trains/hour	0.133		
	locos/train	2	length of cars (ft) / train	900		
Nighttime Hours	speed (mph)	10	speed (mph)	10		
(10 PM - 7 AM)	trains/hour	0.222	trains/hour	0.222		
	locos/train	2	length of cars (ft) / train	900		
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		
Jointed Track?	Y/N	n	Y/N	n		
Embedded Track?	Y/N	n	Y/N	n		
Aerial Structure?	Y/N	n	Y/N	n		
Barrier Present?	Y/N	n	Y/N	n		
Intervening Rows of of Buildings	number of rows	0	number of rows	0		

Appendix I-b Noise Monitoring and Modeling Data

Appendices

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LOCAL NOISE STANDARDS

ARTICLE VI. - NOISE CONTROL

Sec. 18-308. - Declaration of policy.

In order to control unnecessary, excessive and annoying sounds emanating from areas of the city, it is hereby declared to be the policy of the city to prohibit such sounds generated from all sources as specified in this article.

It is determined that certain sound levels are detrimental to the public health, welfare and safety, and contrary to public interest.

(Ord. No. NS-1441, 1, 8-21-78)

Sec. 18-309. - Definitions.

The following words, phrases and terms as used in this article shall have the meaning as indicated below:

Ambient noise level shall mean the all-encompassing noise level associated with a given environment, being a composite of sounds from all sources, excluding the alleged offensive noise, at the location and approximate time at which a comparison with the alleged offensive noise is to be made.

Cumulative period shall mean an additive period of time composed of individual time segments which may be continuous or interrupted.

Decibel (dB) shall mean a unit which denotes the ratio between two (2) quantities which are proportional to power: The number of decibels corresponding to the ratio of two (2) amounts of power is ten (10) times the logarithm to the base ten (10) of this ratio.

Dwelling unit shall mean a single unit providing complete, independent living facilities for one or more persons including permanent provisions for living, sleeping, eating, cooking and sanitation.

Emergency machinery, vehicle or work shall mean any machinery, vehicle or work used, employed or performed in an effort to protect, provide or restore safe conditions in the community or for the citizenry, or work by private or public utilities when restoring utility service.

Fixed noise source shall mean a stationary device which creates sounds while fixed or motionless, including, but not limited to, industrial and commercial machinery and equipment, pumps, fans, compressors, generators, air conditioners and refrigeration equipment.

Grading shall mean any excavating or filling of earth material, or any combination thereof, conducted at a site to prepare said site for construction or other improvements thereon.

Impact noise shall mean the noise produced by the collision of one mass which may be either in motion or at rest.

Mobile noise source shall mean any noise source other than a fixed noise source.

Noise level shall mean the "A" weighted sound pressure level in decibels obtained by using a sound level meter at slow response with a reference pressure of twenty (20) micronewtons per square meter. The unit of measurement shall be designated as dB (A).

Person shall mean a person, firm, association, copartnership, joint venture, corporation or any entity, public or private in nature.

Residential property shall mean a parcel of real property which is developed and used either in part or in whole for residential purposes, other than transient uses such as hotels and motels.

Simple tone noise shall mean a noise characterized by a predominant frequency or frequencies so that other frequencies cannot be readily distinguished.

Sound level meter shall mean an instrument meeting American National Standard Institute's Standard S1.4-1971 for Type 1 or Type 2 sound level meters or an instrument and the associated recording and analyzing equipment which will provide equivalent data.

Sound pressure level of a sound, in decibels, shall mean twenty (20) times the logarithm to the base ten (10) of the ratio of the pressure of the sound to a reference pressure, which reference pressure shall be explicitly stated.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-310. - Noise level measurement criteria.

Any noise level measurements made pursuant to the provisions of this article shall be performed using a sound level meter as defined in section 18-309.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-311. - Designated noise zone.

The entire City of Santa Ana is hereby designated as "Noise Zone 1."

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-312. - Exterior noise standards.

(a) The following noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	50 dB(A)	10:00 p.m.— 7:00 a.m.

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).

(b) 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:

(1) The noise standard for a cumulative period of more than thirty (30) minutes in any hour; or

(2) The noise standard plus five (5) dB(A) for a cumulative period of more than fifteen (15) minutes in any hour; or

(3) The noise standard plus ten (10) dB(A) for a cumulative period of more than five (5) minutes in any hour; or

(4) The noise standard plus fifteen (15) dB(A) for a cumulative period of more than one minute in any hour; or

(5) The noise standard plus twenty (20) dB(A) for any period of time.

(c) 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.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-313. - Interior noise standards.

(a) The following interior noise standards, unless otherwise specifically indicated, shall apply to all residential property within a designated noise zone:

INTERIOR NOISE STANDARDS

Noise Zone	Noise Level	Time Period
1	55 dB(A)	7:00 a.m.—10:00 p.m.
	45 dB(A)	10:00 p.m.—7:00 a.m.

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).

(b) 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:

(1) The interior noise standard for a cumulative period of more than five (5) minutes in any hour; or

(2) The interior noise standard plus five (5) dB(A) for a cumulative period of more than one minute in any hour; or

(3) The interior noise standard plus ten (10) dB(A) for any period of time.

(c) 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.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-314. - Special provisions.

The following activities shall be exempted from the provisions of this article:

(a) Activities conducted on the grounds of any public or private nursery, elementary, intermediate or secondary school or college.

(b) Outdoor gatherings, public dances and shows, provided said events are conducted pursuant to a license issued by the City of Santa Ana.

(c) Activities conducted on any park or playground, provided such park or playground is owned and operated by a public entity.

(d) Any mechanical device, apparatus or equipment used, related to or connected with emergency machinery, vehicle or work.

(e) 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.

(f) 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 conditions.

(g) 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.

(h) 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.

(i) 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.

(j) Any activity to the extent regulation thereof has been preempted by state or federal law.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-315. - Schools, hospitals and churches; special provisions.

It shall be unlawful for any person to create any noise which causes the noise level at any school, hospital or church while the same is in use to exceed the noise limits as specified in section 18-312 prescribed for the assigned noise zone in which the school, hospital or church is located, or which noise level unreasonably interferes with the use of such institutions or which unreasonably disturbs or annoys patients in the hospital, provided conspicuous signs are displayed in three (3) separate locations within one-tenth (1/10) of a mile of the institution indicating the presence of a school, church or hospital.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-316. - Air conditioning and refrigeration; special provisions.

During the five-year period following the effective date of this article, the noise standards enumerated in sections 18-312 and 18-313 shall be increased eight (8) dB(A) where the alleged offensive noise source is an air conditioning or refrigeration system or associated equipment which was installed prior to the effective date of this article.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-317. - Noise level measurement.

The location selected for measuring exterior noise levels shall be at any point on the affected property. 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.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-318. - Manner of enforcement.

The chief of police, the Orange County health officer and their duly authorized representatives are directed to enforce the provisions of this article. The chief of police, the Orange County health officer and their duly authorized representatives are authorized, pursuant to Penal Code Section 836.5, to arrest any person without a warrant when they have reasonable cause to believe that such person has committed a misdemeanor in their presence.

No person shall interfere with, oppose or resist any authorized person charged with the enforcement of this article while such person is engaged in the performance of his duty.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-319. - Variance procedure.

The owner or operator of a noise source which violates any of the provisions of this article may file an application with the Orange County health officer for a variance from the provisions thereof wherein said owner or operator shall set forth all actions taken to comply with said provisions, the reasons why immediate compliance cannot be achieved, a proposed method of achieving compliance, and a proposed time schedule for its accomplishment. Said application shall be accompanied by a fee as established by resolution of the city council. A separate application shall be filed for each noise source; provided however, that several mobile sources under common ownership, or several fixed sources on a single property may be combined into one application. Upon receipt of said application and fee, the health officer shall refer it with his recommendation thereon within thirty (30) days to the Orange County Noise Variance Board for action thereon in accordance with the provisions of applicable law.

An applicant for a variance shall remain subject to prosecution under the terms of this article until a variance is granted.

(Ord. No. NS-1441, § 1, 8-21-78)

Sec. 18-320. - Appeals.

Within fifteen (15) days following the decision of the Orange County Variance Board on an application, the applicant, the health officer, or any member of the city council, may appeal the decision to the city council by filing a notice of appeal with the secretary of the Orange County Variance Board. In the case of an appeal by the applicant for a variance, the notice of

appeal shall be accompanied by a fee to be computed by the secretary of the Orange County Variance Board on the basis of the estimated cost of preparing the materials required to be forwarded to the city council as discussed hereafter. If the actual cost of such preparation differs from the estimated cost appropriate payments shall be made either to or by the secretary of the Orange County Variance Board.

Within fifteen (15) days following receipt of a notice of appeal and the appeal fee, the secretary of the Variance Board shall forward to the city council copies of the application for variance; the recommendation of the health officer; the notice of appeal; all evidence concerning said application received by the variance board and its decision thereon. In addition, any person may file with the clerk of the city council written arguments supporting or attacking said decision and the city council may in its discretion hear oral arguments thereon. The clerk of the city council shall mail to the applicant a notice of the date set for hearing of the appeal. The notice shall be mailed at least ten (10) days prior to the hearing date.

Within sixty (60) days following its receipt of the notice of appeal, the city council shall either affirm, modify or reverse the decision, of the variance board. Such decision shall be based upon the city council's evaluation of the matters submitted to the city council in light of the powers conferred on the variance board and the factors to be considered, both as enumerated in section 18-319 and Orange County Ordinance section 4-6-13.

As part of its decision, the city council may direct the variance board to conduct further proceedings on said application. Failure of the city council to affirm, modify or reverse the decision of the variance board within said sixty-day period shall constitute an affirmance of the decision.

(Ord. No. NS-1441, § 1, 8-21-78)

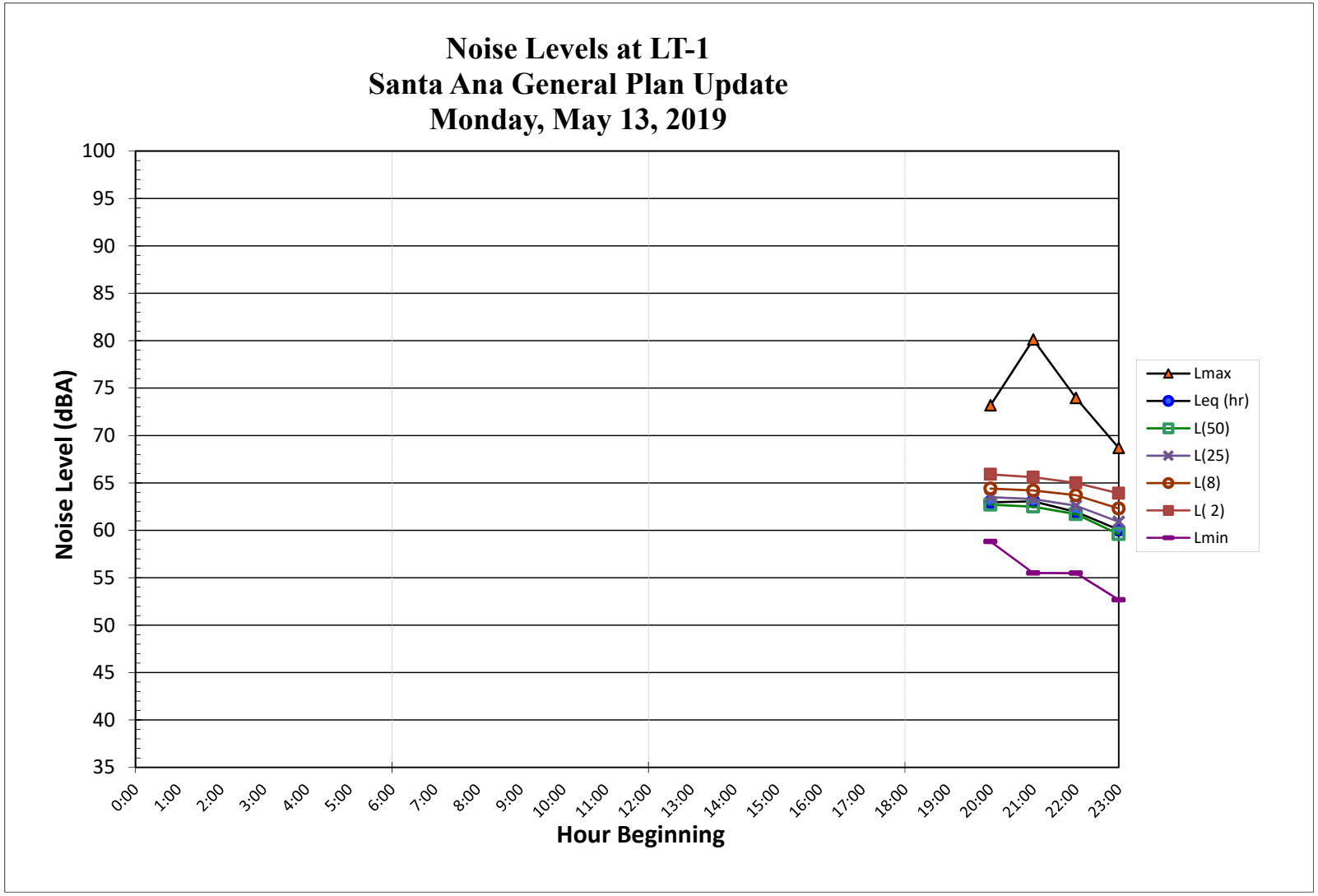
Sec. 18-321. - Violations; misdemeanors.

Any person violating any or the provisions of this article shall be deemed guilty of a misdemeanor. Each day such violation is committed or permitted to continue shall constitute a separate offense and shall be punishable as such. The provisions of this article shall not be construed as permitting conduct not prescribed herein and shall not affect the enforceability of any other applicable provisions of law.

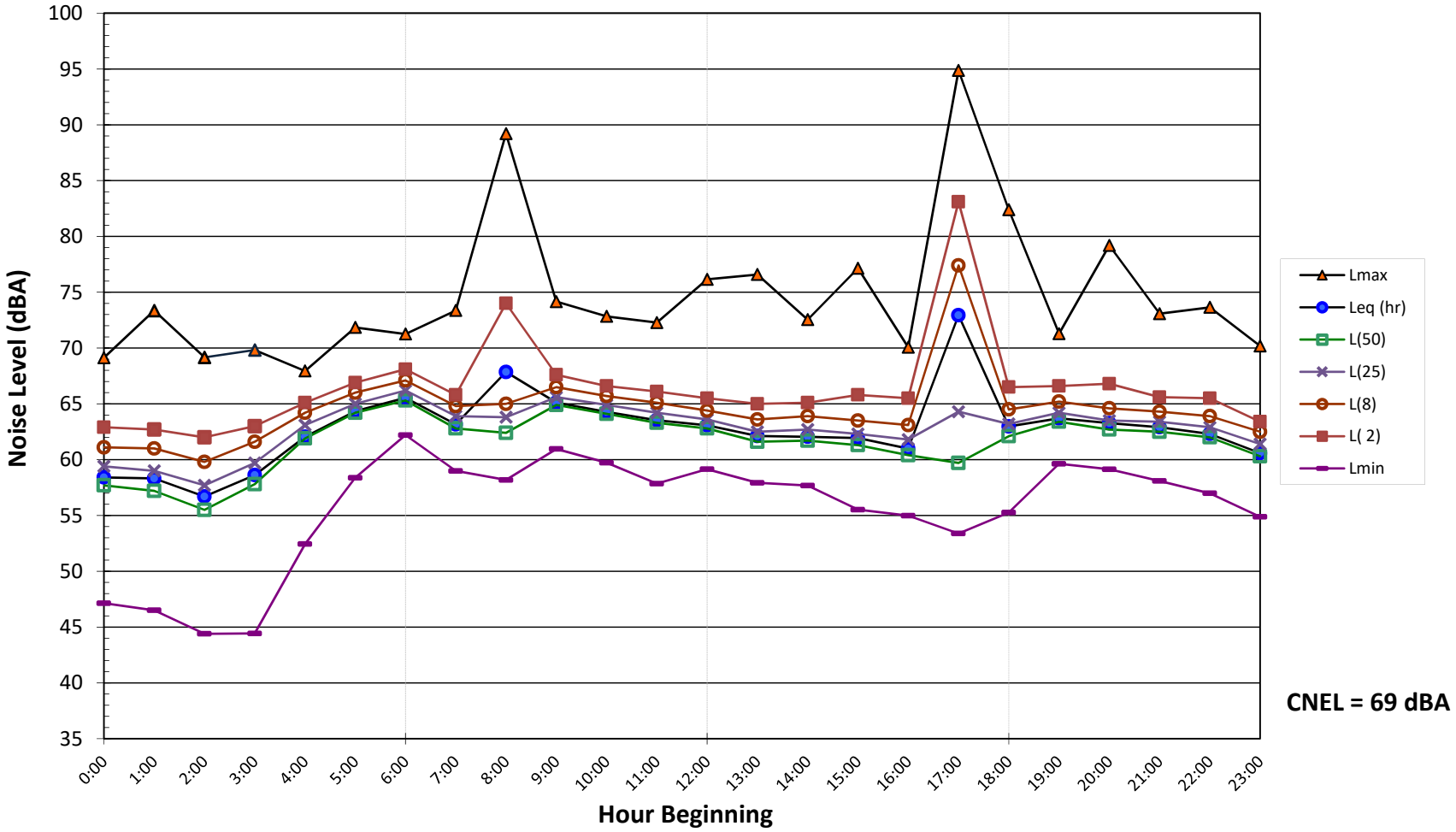
(Ord. No. NS-1441, § 1, 8-21-78)

Secs. 18-322—18-350. - Reserved.

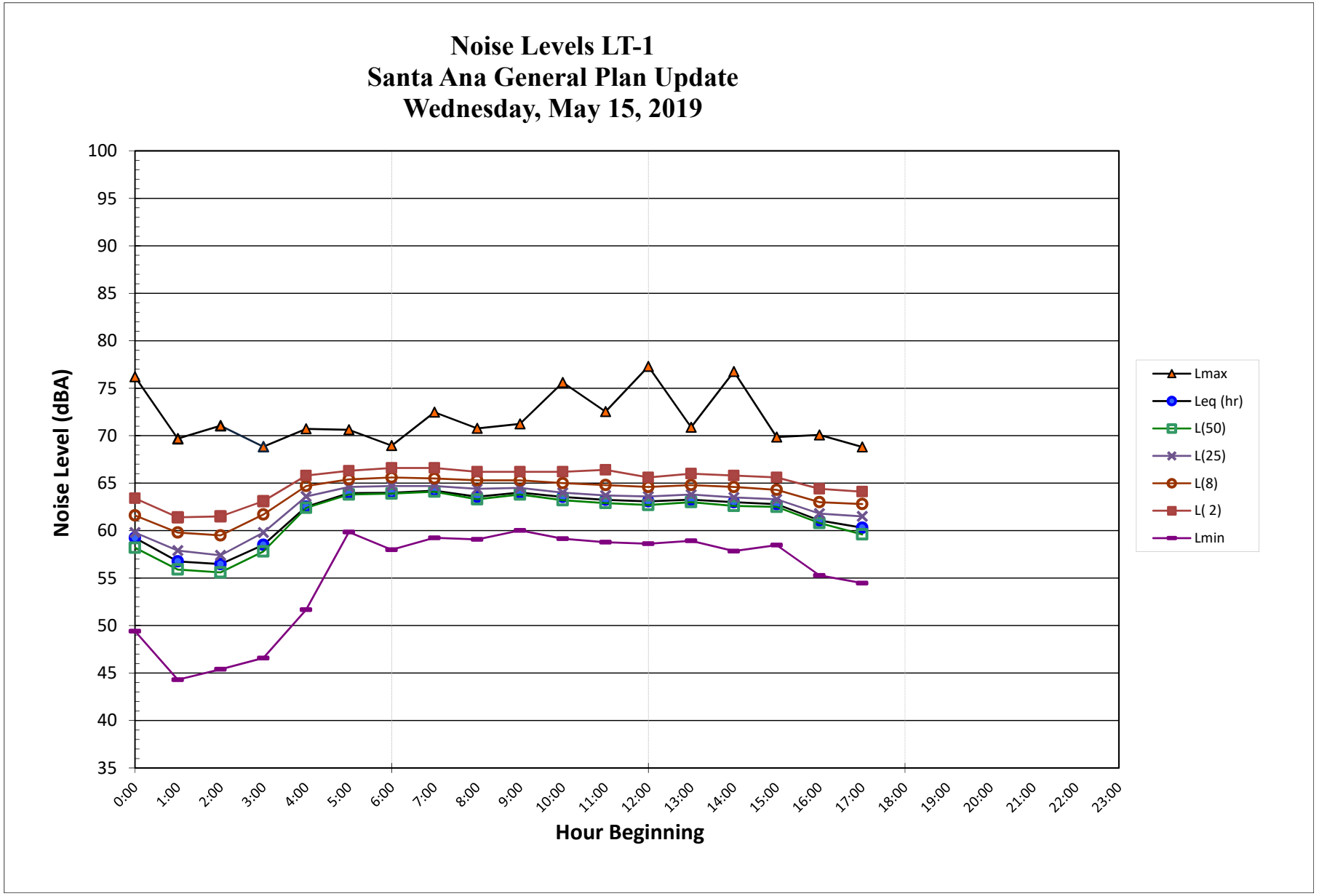
AMBIENT NOISE MONITORING RESULTS

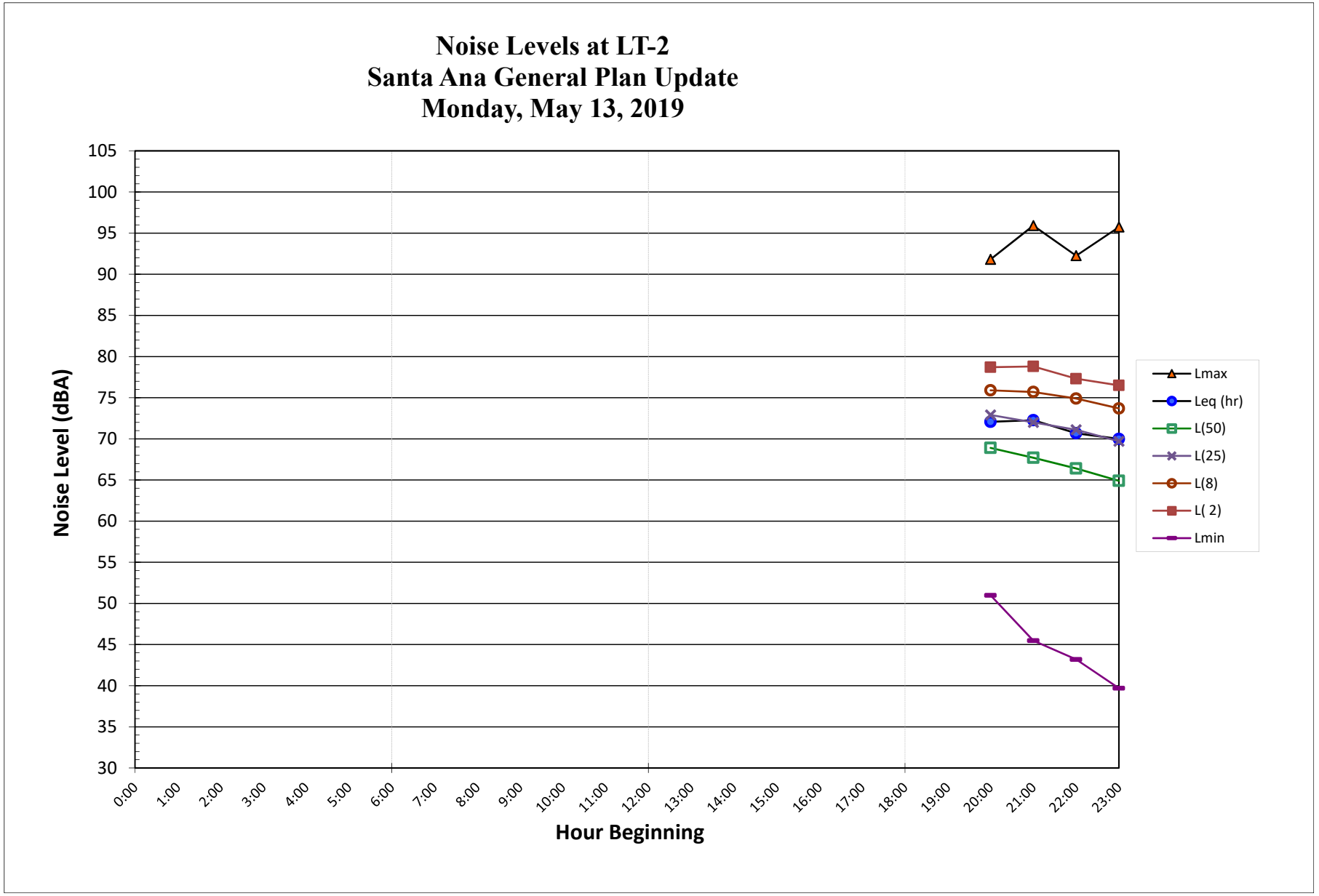

Noise Levels at LT-1
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
35
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
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16:00
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18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

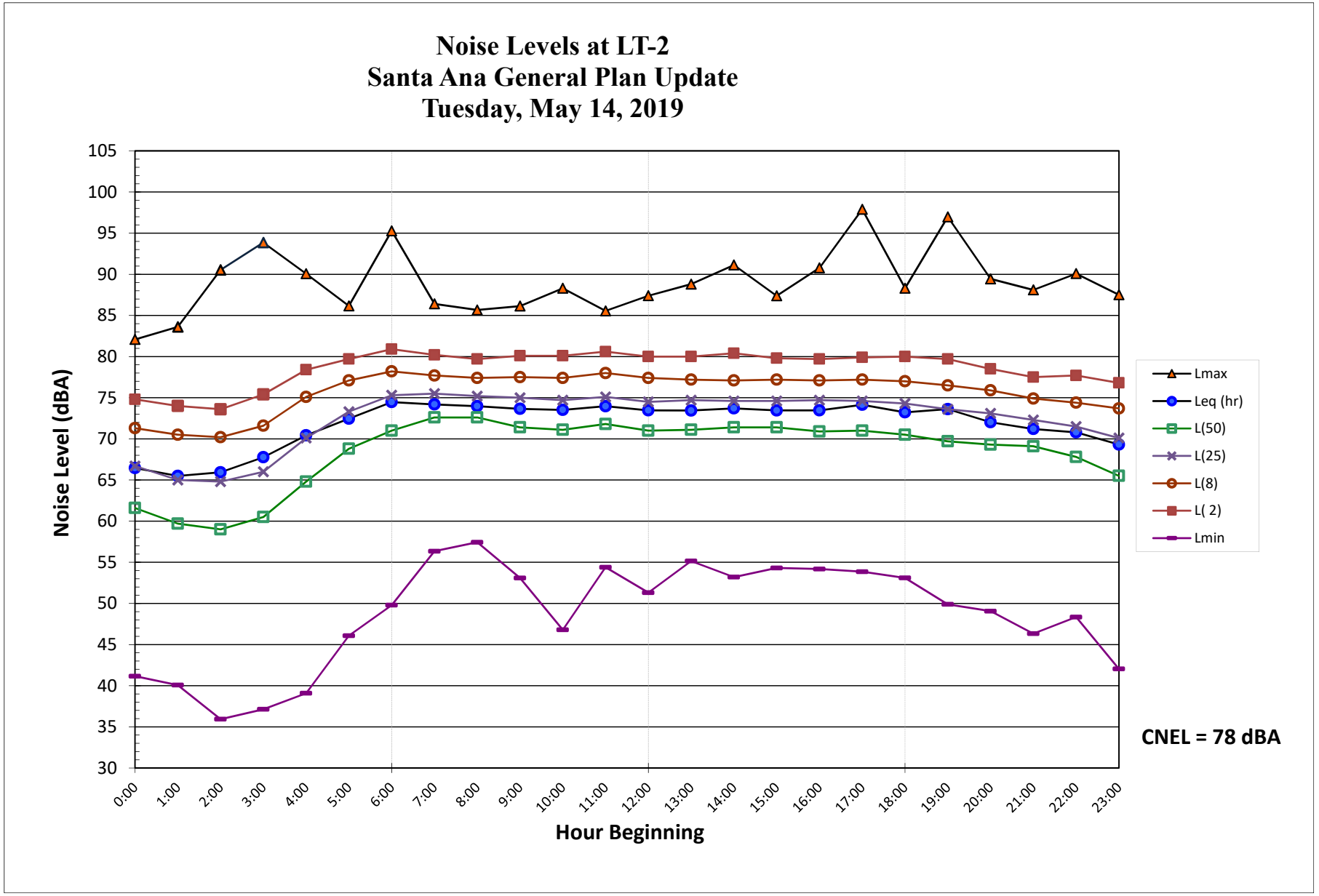
Noise Levels LT-1
Santa Ana General Plan Update
Tuesday, May 14, 2019

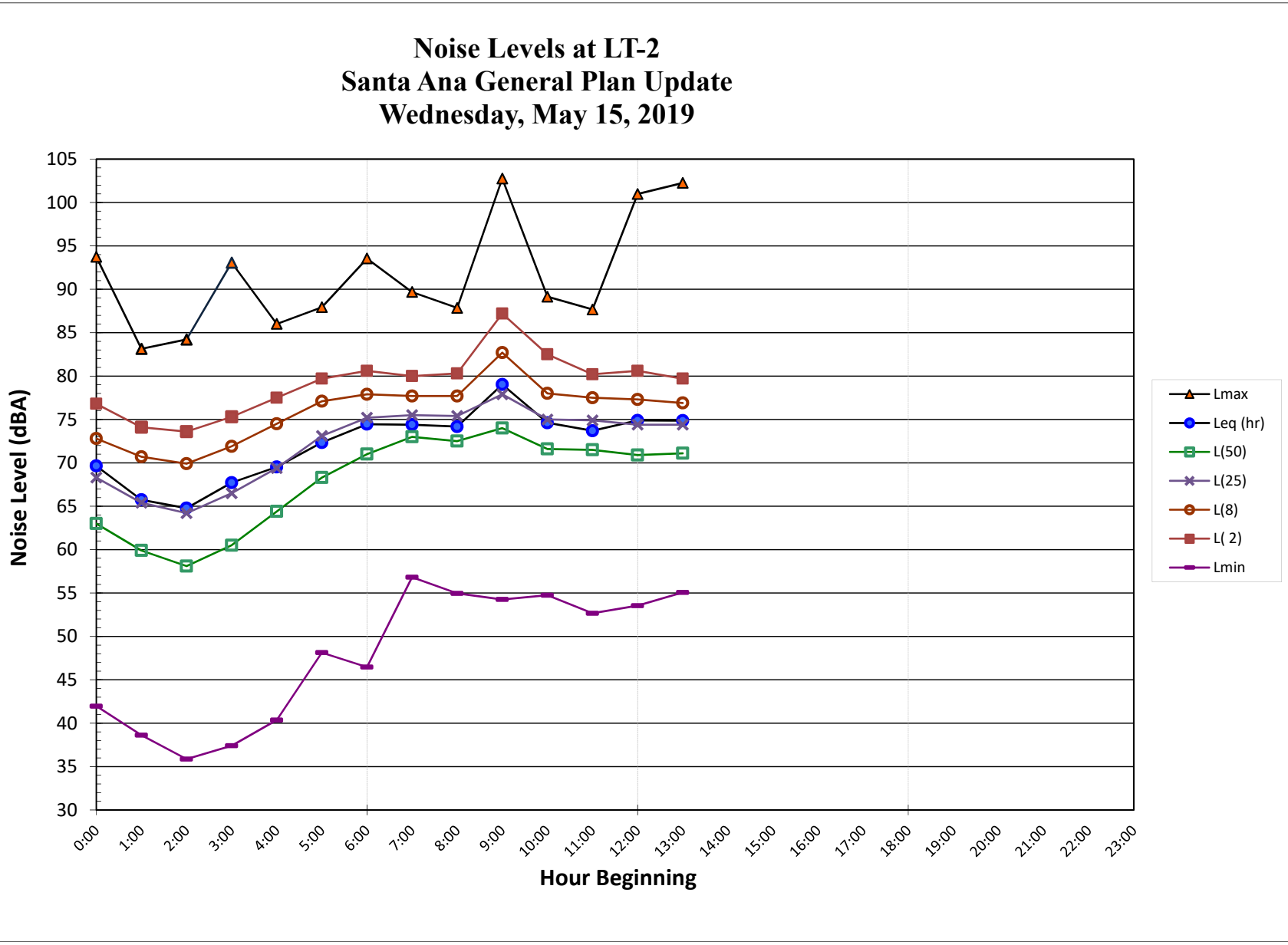


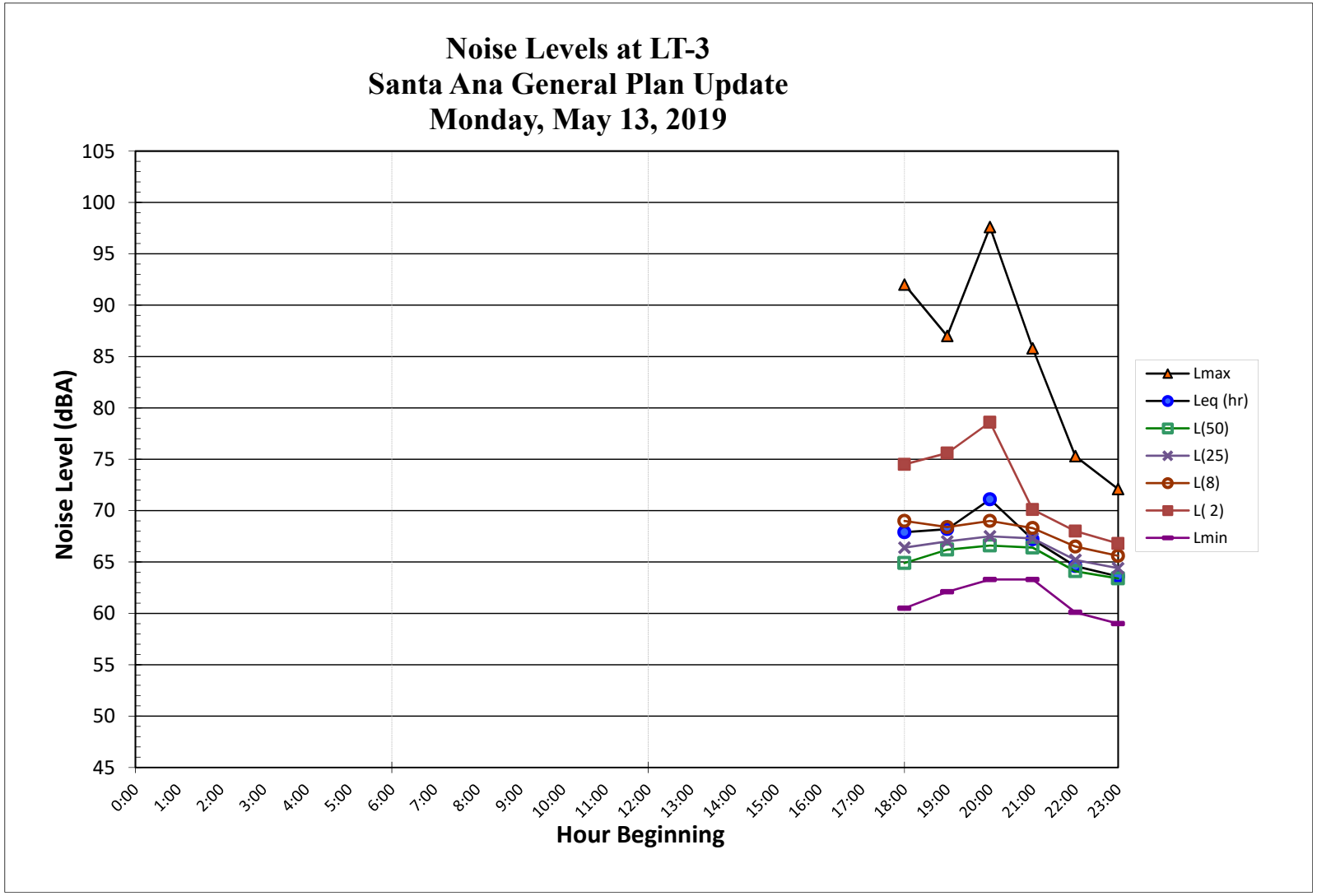
CNEL = 69 dBA


Noise Levels LT-1
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
100
95
90
85
80
75
70
65
60
55
50
45
40
35
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
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15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

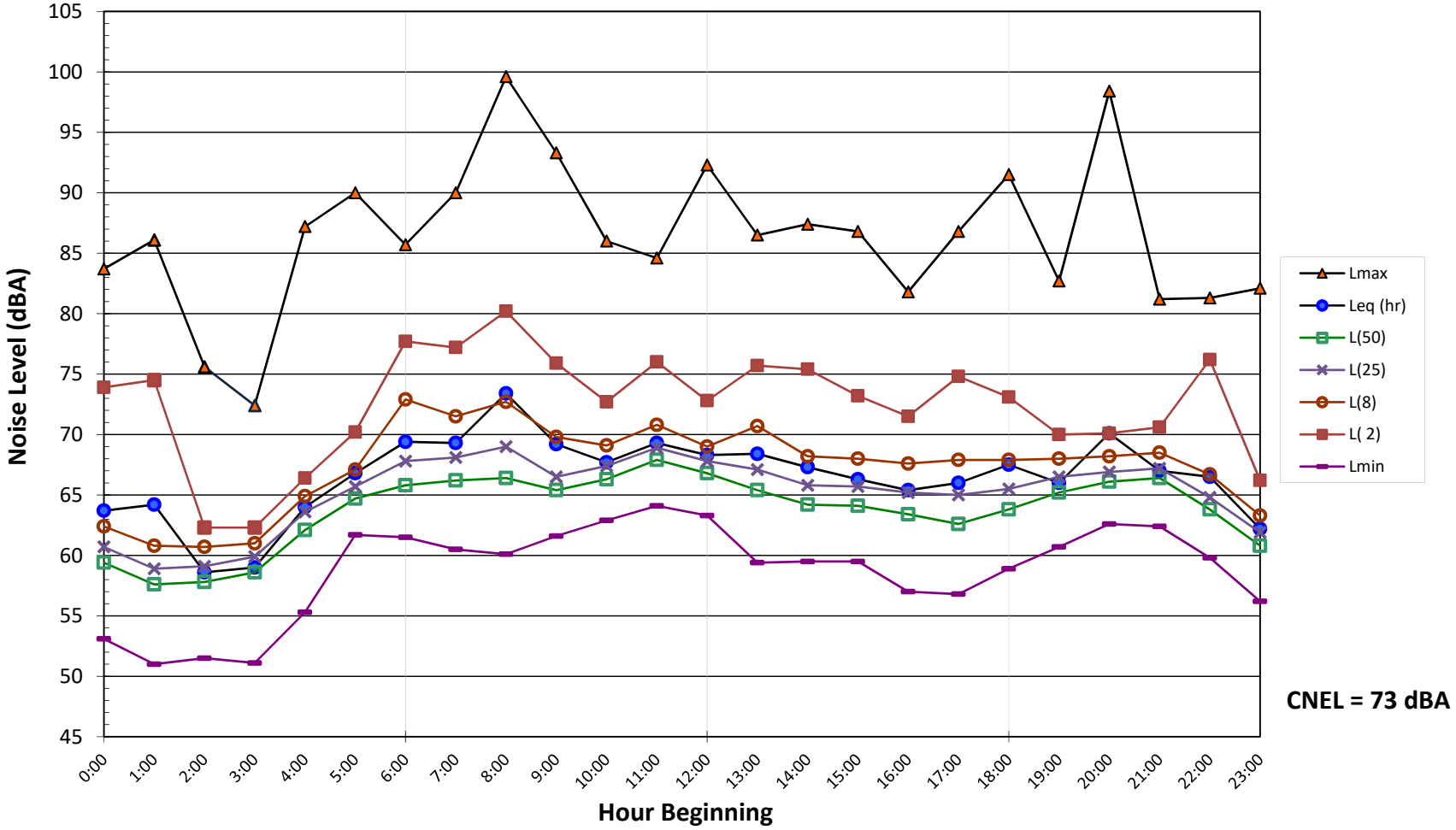

Noise Levels at LT-2
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
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10:00
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12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin


Noise Levels at LT-2
Santa Ana General Plan Update
Tuesday, May 14, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin
CNEL = 78 dBA


Noise Levels at LT-2
Santa Ana General Plan Update
Wednesday, May 15, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

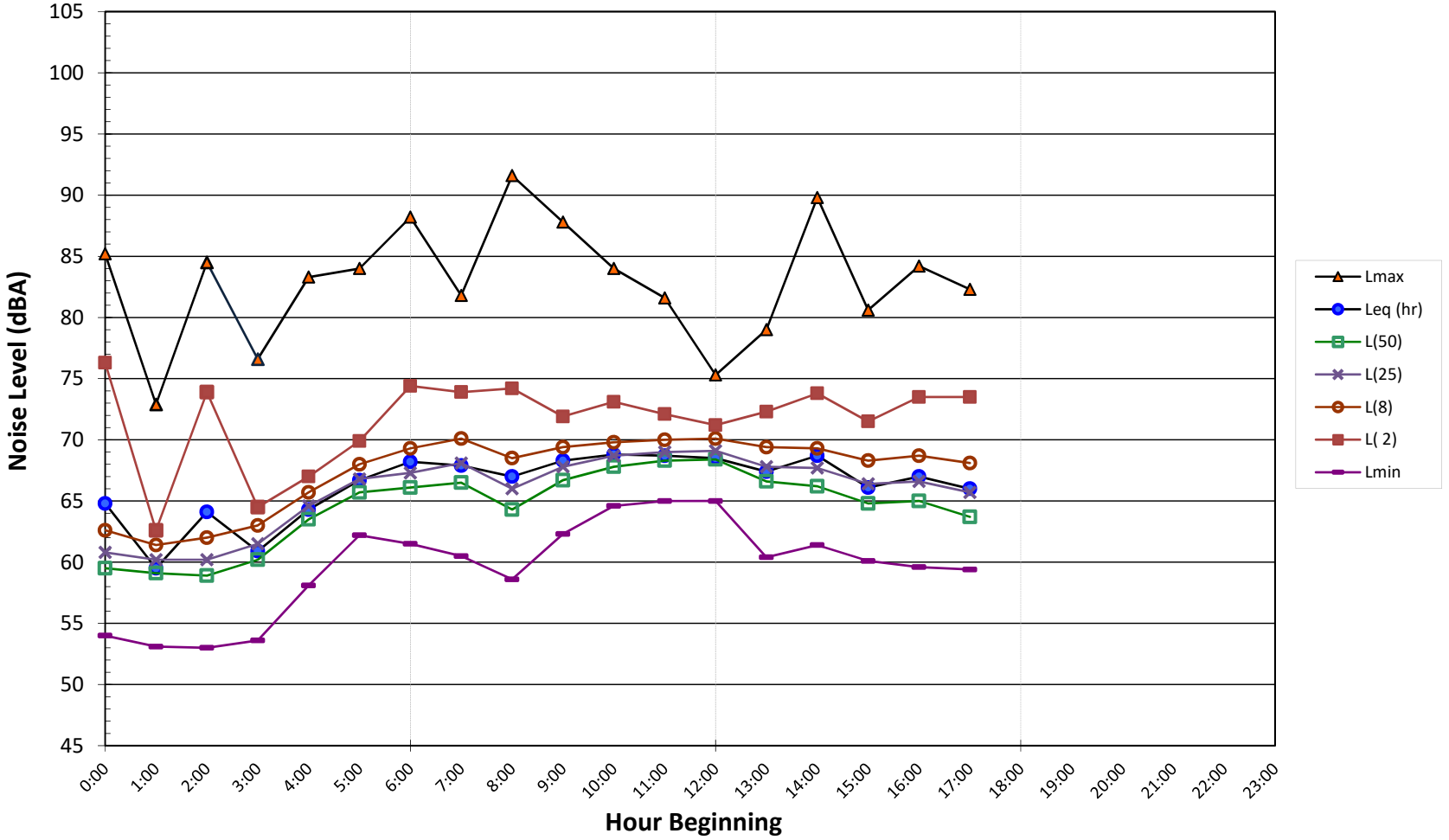

Noise Levels at LT-3
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
70
65
60
55
50
45
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
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19:00
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23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

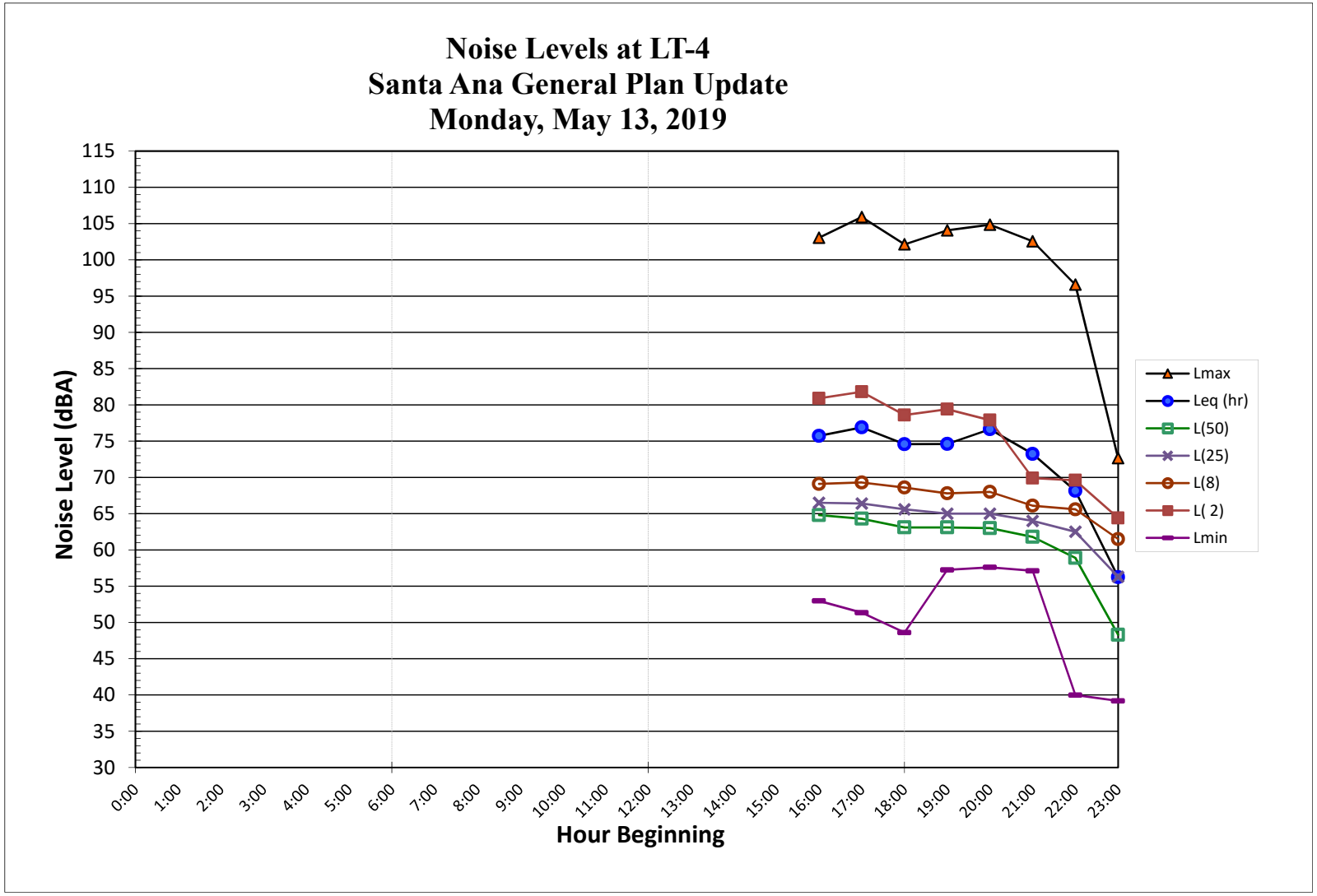
Noise Levels at LT-3
Santa Ana General Plan Update
Tuesday, May 14, 2019



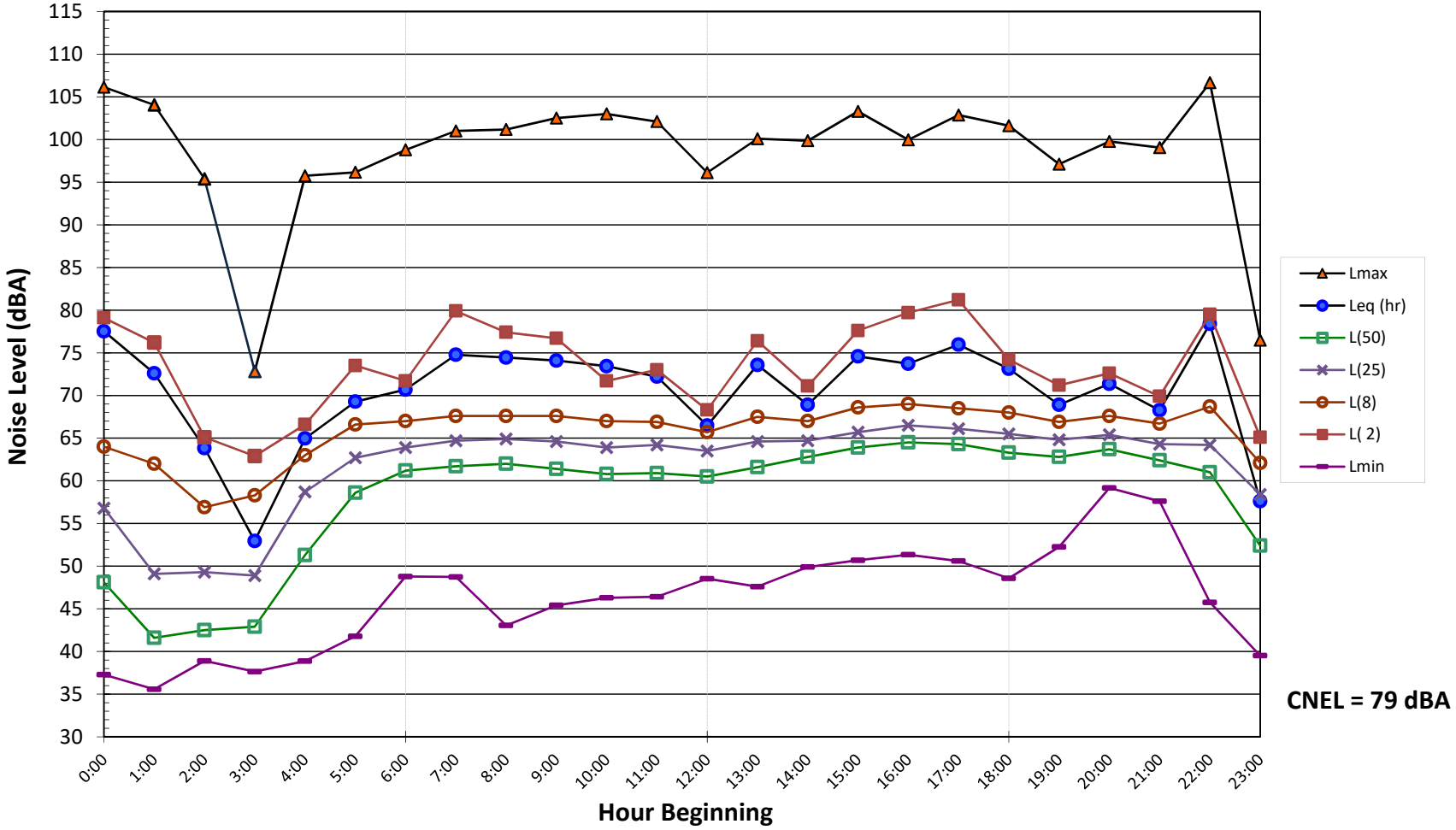
CNEL = 73 dBA

Noise Levels at LT-3
Santa Ana General Plan Update
Wednesday, May 15, 2019



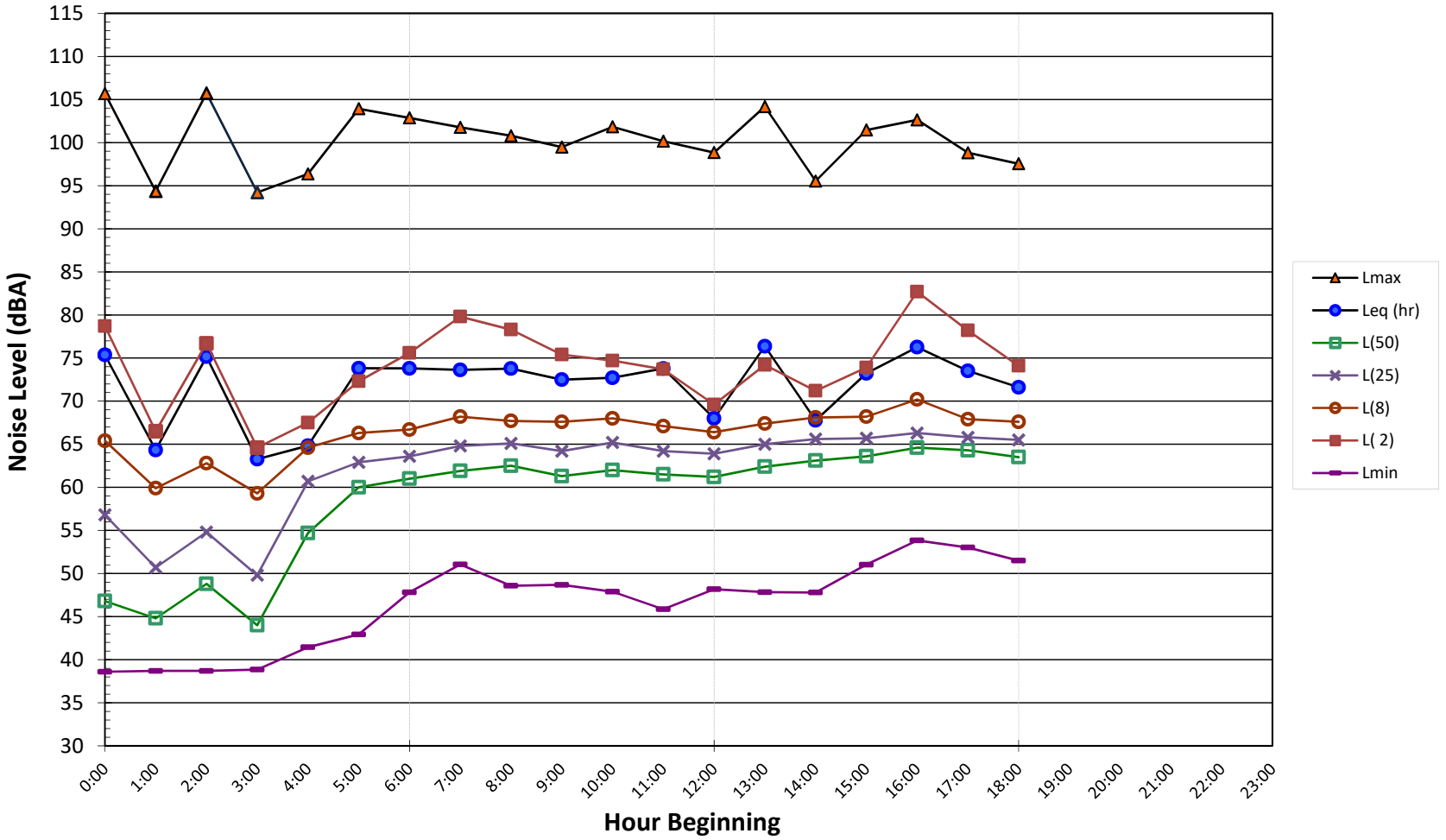

Noise Levels at LT-4
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
115
110
105
100
95
90
85
80
75
70
65
60
55
50
45
40
35
30
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

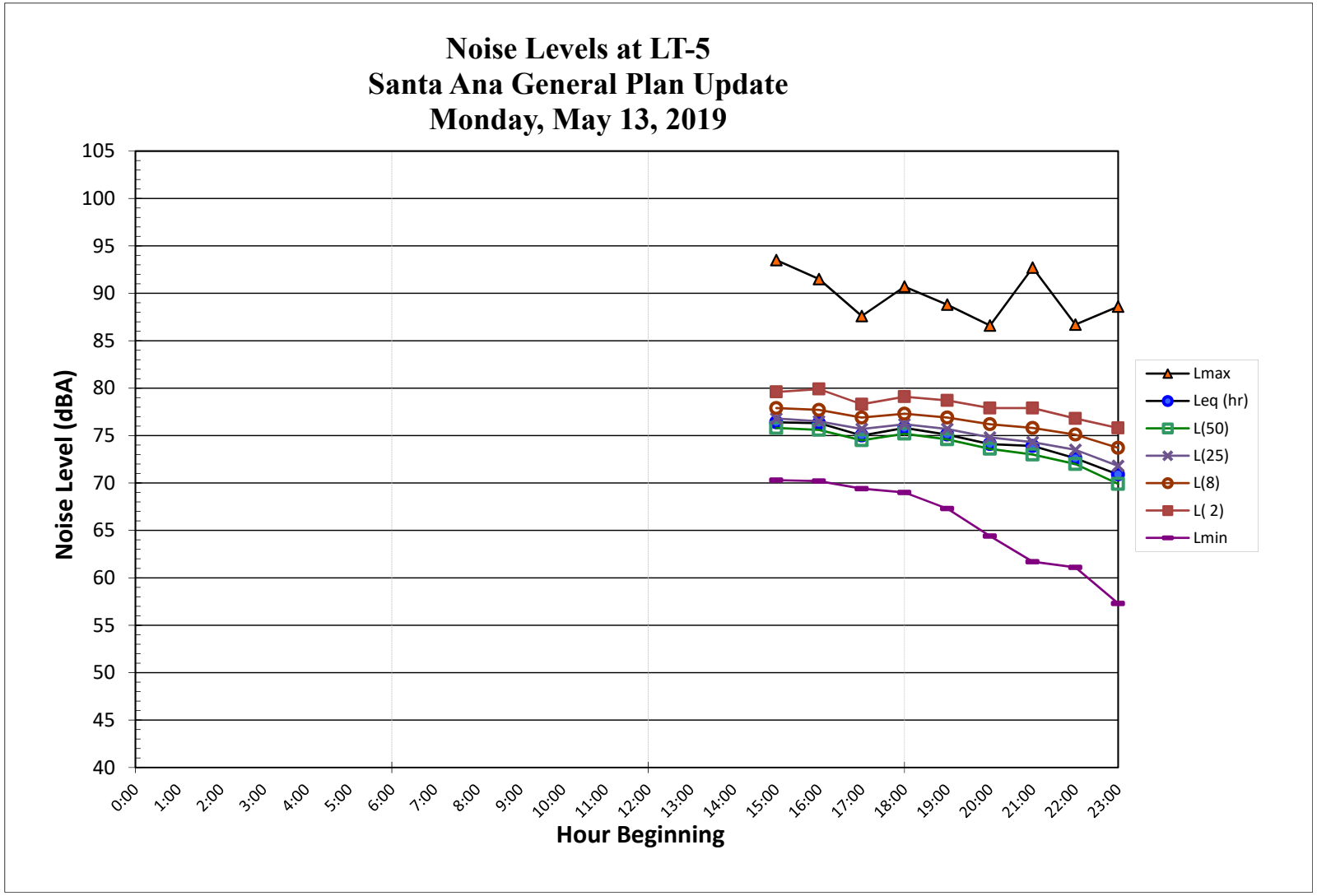
Noise Levels at LT-4
Santa Ana General Plan Update
Tuesday, May 14, 2019



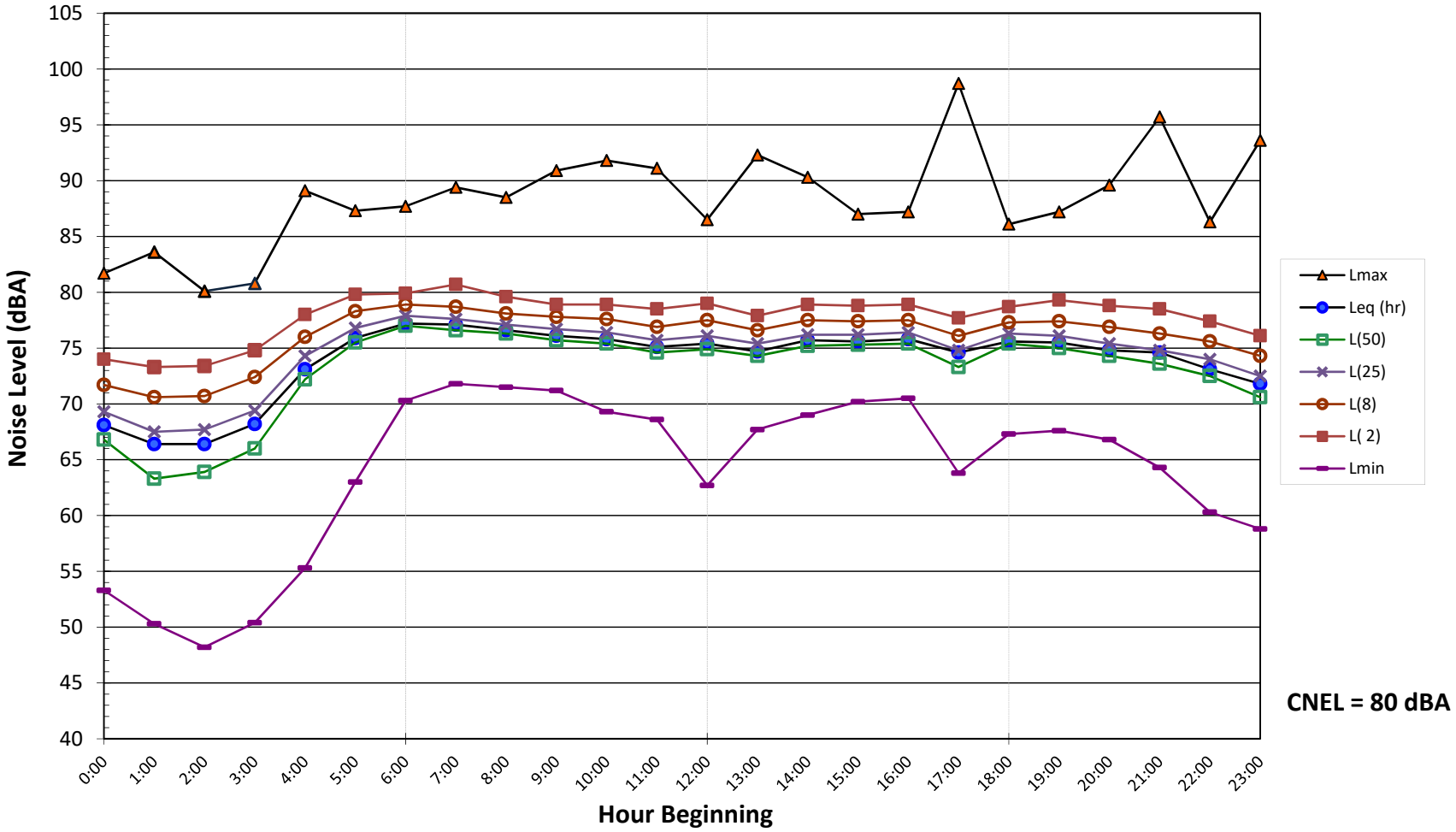
CNEL = 79 dBA

Noise Levels at LT-4
Santa Ana General Plan Update
Wednesday, May 15, 2019



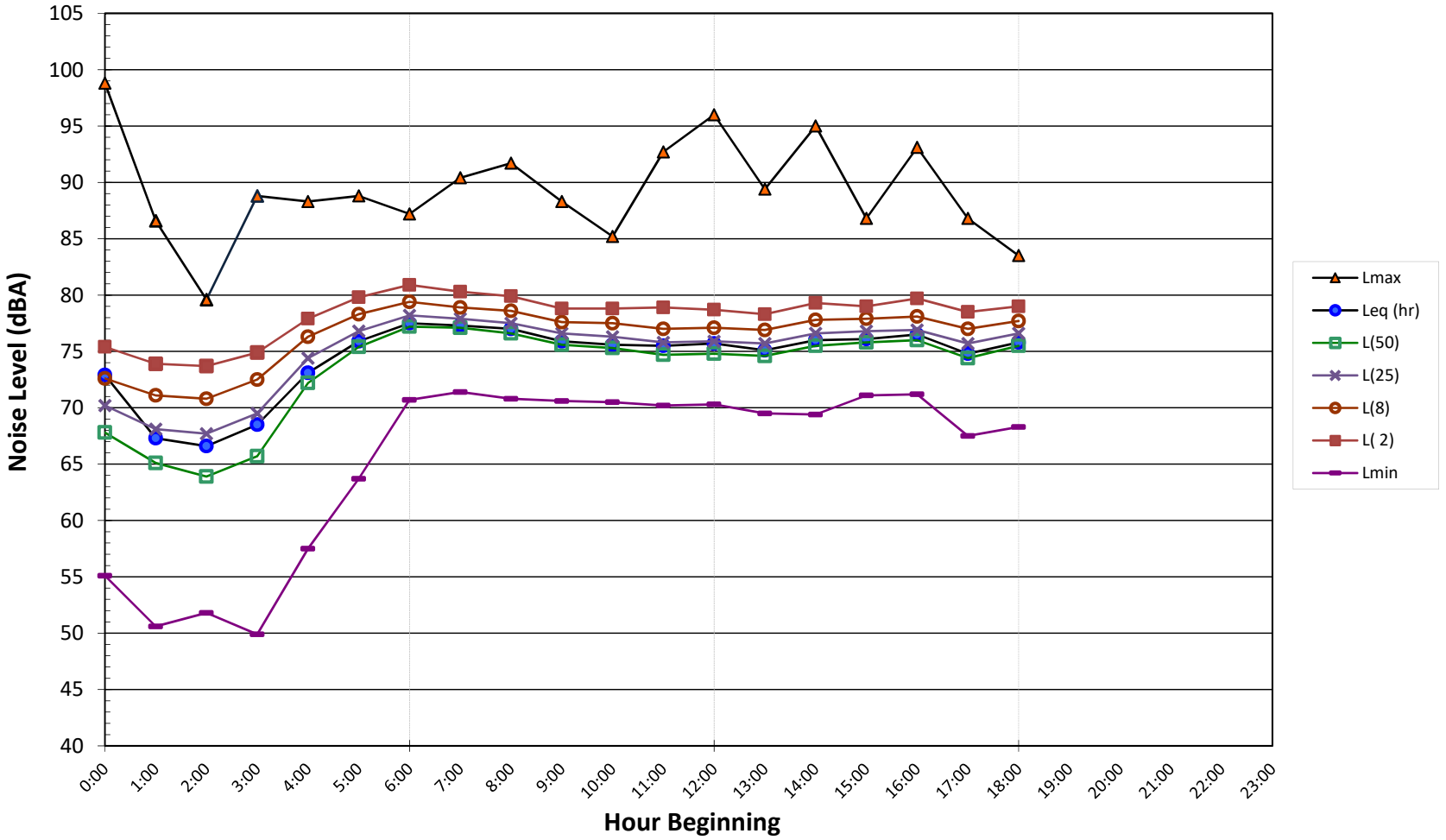

Noise Levels at LT-5
Santa Ana General Plan Update
Monday, May 13, 2019
Noise Level (dBA)
105
100
95
90
85
80
75
70
65
60
55
50
45
40
0:00
1:00
2:00
3:00
4:00
5:00
6:00
7:00
8:00
9:00
10:00
11:00
12:00
13:00
14:00
15:00
16:00
17:00
18:00
19:00
20:00
21:00
22:00
23:00
Hour Beginning
Lmax
Leq (hr)
L(50)
L(25)
L(8)
L(2)
Lmin

Noise Levels at LT-5
Santa Ana General Plan Update
Tuesday, May 14, 2019



CNEL = 80 dBA

Noise Levels at LT-5
Santa Ana General Plan Update
Wednesday, May 15, 2019



TRAFFIC NOISE INCREASE CALCULATIONS

Traffic Noise Calculator: FHWA 77-108 **Project Title: SNT-20 - Existing**

	Output						Inputs													Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																	
ID	$L_{eq-24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	68.9	71.9	72.4	72	155	335	1st Street	Euclid Street to Ward Street	25233	40	0	94.9%	2.9%	2.2%	77%	12%	11%	6	Soft	50	0.5	68
2	70.9	74.5	75.0	107	230	497	Euclid Street	1st Street to McFadden Avenue	40731	40	0	94.9%	2.9%	2.2%	74%	12%	14%	6	Soft	50	0.5	68
3	70.8	73.6	74.1	94	203	437	Westminster Avenue	Harbor Boulevard to Fairview Street	30459	45	0	94.9%	2.9%	2.2%	78%	12%	10%	6	Soft	50	0.5	68
4	72.2	76.2	76.6	138	298	642	Harbor Boulevard	Westminster Avenue/17th Street to Hazard Avenue	54137	40	0	94.9%	2.9%	2.2%	71%	12%	17%	6	Soft	50	0.5	68
5	70.0	73.4	73.8	90	194	419	1st Street	Harbor Boulevard to Jackson	32736	40	0	94.9%	2.9%	2.2%	75%	12%	13%	6	Soft	50	0.5	68
6	70.4	73.4	73.9	92	197	425	Edinger Avenue	Harbor Boulevard to Fairview Street	27838	45	0	94.9%	2.9%	2.2%	76%	13%	11%	6	Soft	50	0.5	68
7	71.0	74.2	74.6	101	218	470	Warner Avenue	Harbor Boulevard to Fairview Street	31945	45	0	94.9%	2.9%	2.2%	78%	10%	12%	6	Soft	50	0.5	68
8	67.9	71.4	71.9	67	144	310	Harbor Boulevard	Segerstrom Avenue to MacArthur Boulevard	15622	45	0	94.9%	2.9%	2.2%	74%	12%	14%	6	Soft	50	0.5	68
9	72.2	74.8	75.5	116	250	538	Fairview Street	1st Street to Willits Street	42605	45	0	94.9%	2.9%	2.2%	77%	14%	9%	6	Soft	50	0.5	68
10	70.5	73.6	74.1	94	203	438	1st Street	Sullivan Street to Raitt Street	36377	40	0	94.9%	2.9%	2.2%	76%	12%	12%	6	Soft	50	0.5	68
11	72.3	76.3	76.8	142	305	658	Bristol Street	17th Street to Santa Clara Avenue	45676	45	0	94.9%	2.9%	2.2%	70%	13%	17%	4	Soft	50	0.5	44
12	70.6	73.1	73.8	89	192	414	17th Street	College Avenue to Bristol Street	37345	40	0	94.9%	2.9%	2.2%	78%	13%	9%	6	Soft	50	0.5	68
13	70.9	74.8	75.3	113	244	525	Bristol Street	17th Street to Washington Avenue	42005	40	0	94.9%	2.9%	2.2%	70%	14%	16%	5	Soft	50	0.5	56
14	71.8	75.8	76.2	130	280	603	Fairview Street	Trask Avenue to 17th Street	40432	45	0	94.9%	2.9%	2.2%	71%	12%	17%	4	Soft	50	0.5	44
15	71.1	74.7	75.2	111	239	515	Bristol Street	1st Street to Bishop Street	42663	40	0	94.9%	2.9%	2.2%	73%	13%	14%	6	Soft	50	0.5	68
16	65.9	68.7	69.1	43	94	202	Civic Center Drive	Bristol Street to Flower Street	17589	35	0	94.9%	2.9%	2.2%	81%	9%	10%	4	Soft	50	0.5	44
17	65.2	68.8	69.2	45	96	207	Flower Street	1st Street to Bishop Street	15622	35	0	94.9%	2.9%	2.2%	74%	12%	14%	2	Soft	50	0.5	20
18	68.5	72.0	72.5	73	158	340	Main Street	17th Street to 20th Street	32044	35	0	94.9%	2.9%	2.2%	74%	12%	14%	4	Soft	50	0.5	44
19	67.4	71.1	71.6	64	137	296	Main Street	Washington Street to Civic Center Drive	33489	30	0	94.9%	2.9%	2.2%	72%	13%	15%	4	Soft	50	0.5	44
20	63.1	65.7	66.1	28	59	128	Civic Center Drive	Flower Street to Ross Street	17427	25	0	94.9%	2.9%	2.2%	83%	8%	9%	4	Soft	50	0.5	44
21	64.0	66.8	67.3	33	71	153	Santa Ana Boulevard	Flower Street to Ross Street	14689	30	0	94.9%	2.9%	2.2%	80%	10%	10%	6	Soft	50	0.5	68
22	71.1	74.9	75.3	113	243	525	1st Street	Main Street to Standard Avenue	42699	40	0	94.9%	2.9%	2.2%	73%	12%	15%	6	Soft	50	0.5	68
23	68.2	71.8	72.2	70	152	326	Main Street	1st Street to Bishop Street	30125	35	0	94.9%	2.9%	2.2%	74%	12%	14%	4	Soft	50	0.5	44
24	69.4	72.8	73.3	82	178	383	Grand Avenue	Santa Clara Avenue to Fairhaven Street	30206	40	0	94.9%	2.9%	2.2%	75%	12%	13%	4	Soft	50	0.5	44
25	70.2	73.8	74.3	97	208	449	Grand Avenue	Santa Ana Boulevard to 4th Street	36678	40	0	94.9%	2.9%	2.2%	73%	13%	14%	4	Soft	50	0.5	44
26	64.7	67.3	67.8	36	77	166	Santa Clara Avenue	Grand Avenue to Tustin Avenue	10585	40	0	94.9%	2.9%	2.2%	80%	11%	9%	2	Soft	50	0.5	20
27	70.3	73.1	73.6	87	187	403	Tustin Avenue	Santa Clara Avenue to Fairhaven Street	35410	40	0	94.9%	2.9%	2.2%	80%	10%	10%	6	Soft	50	0.5	68
28	69.7	72.2	72.8	77	166	358	17th Street	Cabrillo Park Drive to Tustin Avenue	32080	40	0	94.9%	2.9%	2.2%	79%	12%	9%	4	Soft	50	0.5	44
29	68.9	71.4	71.9	67	144	309	Tustin Avenue	Fruit Street to 4th Street	25174	40	0	94.9%	2.9%	2.2%	82%	9%	9%	6	Soft	50	0.5	68
30	69.4	73.1	73.5	86	186	400	1st Street	Grand Avenue to Elk Lane	28638	40	0	94.9%	2.9%	2.2%	74%	11%	15%	6	Soft	50	0.5	68
31	68.3	71.5	71.9	67	145	312	1st Street	Cabrillo Park Drive to Tustin Avenue	22083	40	0	94.9%	2.9%	2.2%	77%	11%	12%	6	Soft	50	0.5	68
32	71.7	75.4	75.8	122	263	566	Fairview Street	Edinger Avenue to Harvard Street	37524	45	0	94.9%	2.9%	2.2%	74%	11%	15%	6	Soft	50	0.5	68
33	71.9	75.7	76.0	126	272	586	Fairview Street	Warner Avenue to Segerstrom Avenue	39878	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
34	69.0	71.6	72.1	69	149	320	MacArthur Boulevard	Harbor Boulevard to Fairview Street	26235	40	0	94.9%	2.9%	2.2%	81%	10%	9%	6	Soft	50	0.5	68
35	68.1	71.4	72.0	68	147	317	Edinger Avenue	Fairview Street to Greenvile Street	29115	35	0	94.9%	2.9%	2.2%	72%	15%	13%	4	Soft	50	0.5	44
36	66.6	70.0	70.6	55	118	255	McFadden Avenue	Fairview Street to Raitt Street	20997	35	0	94.9%	2.9%	2.2%	72%	15%	13%	4	Soft	50	0.5	44
37	69.4	71.8	72.3	71	154	331	MacArthur Boulevard	Fairview Street to Raitt Street	28809	40	0	94.9%	2.9%	2.2%	82%	10%	8%	6	Soft	50	0.5	68
38	67.5	70.3	71.2	60	130	280	Segerstrom Avenue	Fairview Street to Raitt Street	19326	40	0	94.9%	2.9%	2.2%	68%	22%	10%	4	Soft	50	0.5	44
39	70.3	73.9	74.4	98	210	453	Bristol Street	Edinger Avenue to Warner Avenue	37238	40	0	94.9%	2.9%	2.2%	73%	13%	14%	4	Soft	50	0.5	44
40	70.6	74.0	74.5	100	216	466	Bristol Street	Warner Avenue to Segerstrom Avenue	38007	40	0	94.9%	2.9%	2.2%	74%	13%	13%	6	Soft	50	0.5	68
41	71.2	74.7	75.1	110	237	510	Warner Avenue	Raitt Street to Bristol Street	34555	45	0	94.9%	2.9%	2.2%	76%	10%	14%	5	Soft	50	0.5	56
42	70.2	73.8	74.3	97	208	449	Bristol Street	MacArthur Boulevard to Sunflower Avenue	34731	40	0	94.9%	2.9%	2.2%	73%	13%	14%	6	Soft	50	0.5	68
43	66.5	69.7	70.1	51	110	237	Flower Street	Warner Avenue to Segerstrom Avenue	15378	40	0	94.9%	2.9%	2.2%	77%	11%	12%	4	Soft	50	0.5	44
44	70.2	73.6	74.2	95	204	440	Edinger Avenue	Flower Street to Main Street	36534	40	0	94.9%	2.9%	2.2%	73%	14%	13%	4	Soft	50	0.5	44
45	68.0	71.5	72.0	68	146	314	Main Street	McFadden Avenue to Edinger Avenue	28622	35	0	94.9%	2.9%	2.2%	75%	11%	14%	4	Soft	50	0.5	44
46	67.9	71.8	72.2	70	151	325	Main Street	Edinger Avenue to Warner Avenue	27972	35	0	94.9%	2.9%	2.2%	72%	12%	16%	4	Soft	50	0.5	44
47	69.5	73.3	73.6	87	188	406	Main Street	Warner Avenue to Dyer Road	30484	40	0	94.9%	2.9%	2.2%	75%	10%	15%	5	Soft	50	0.5	56
48	68.2	71.6	72.0	68	146	315	Segerstrom Avenue	Bristol Street to Flower Street	22959	40	0	94.9%	2.9%	2.2%	77%	10%	13%	4	Soft	50	0.5	44
49	70.6	73.8	74.3	97	208	448	MacArthur Boulevard	Flower Street to Main Street	37946	40	0	94.9%	2.9%	2.2%	77%	11%	12%	6	Soft	50	0.5	68
50	69.7	72.7	73.1	80	173	372	Main Street	MacArthur Boulevard to Sunflower Avenue	23692	45	0	94.9%	2.9%	2.2%	80%	9%	11%	6	Soft	50	0.5	68
51	68.4	71.0	71.1	59	127	273	Grand Avenue	Edinger Avenue to Warner Avenue	17735	45	0	94.9%	2.9%	2.2%	90%	1%	9%	6	Soft	50	0.5	68
52	72.0	75.7	76.1	127	273	589	Edinger Avenue	Richie Street to Newport Avenue	40435	45	0	94.9%	2.9%	2.2%	76%	9%	15%	6	Soft	50	0.5	68
53	69.4	72.8	73.1	80	172	372	Warner Avenue	Grand Avenue to Red Hill Avenue	22435	45	0	94.9%	2.9%	2.2%	81%	6%	13%	6	Soft	50	0.5	68
54	69.0	72.5	72.9	78	169	363	Warner Avenue	Main Street to Standard Avenue	27391	40	0	94.9%	2.9%	2.2%	76%	10%	14%	4	Soft	50	0.5	44
55	67.3	70.1	70.7	56	120	259	McFadden Avenue	Newhope Street to Harbor Boulevard	18495	40	0	94.9%	2.9%	2.2%	76%	14%	10%	4	Soft	50	0.5	44
56	66.5	70.2	70.6	55	118	254	McFadden Avenue	Standard Avenue to Grand Avenue	20188	35	0	94.9%	2.9%	2.2%	74%	11%	15%	4	Soft	50	0.5	44
57	69.8	73.7	74.1	93	201	433	Dyer Road	Red Hill Avenue to Pullman Street	31248	40	0	94.9%	2.9%	2.2%	73%	11%	16%	6	Soft	50	0.5	68
58	63.8	67.5	68.0	37	79	170	McFadden Avenue	Bristol Street to Flower Street	14951	30	0	94.9%	2.9%	2.2%	71%	14%	15%	2	Soft	50	0.5	20
59	69.8	73.5	73.8	90	195	419	Main Street	La Veta Avenue to Memory Lane	31004	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
60	70.8	74.3	74.8	104	224	482	1st Street	Bristol Street to Flower Street	39006	40	0	94.9%	2.9%	2.2%	74%	12%	14%	6	Soft	50	0.5	68
61	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!															0	#N/A
62	83.5	86.9	87.3	714	1538	3314	I-5	Chapman Ave. to Katella Ave.	248200	60	0	90.4%	6.0%	3.6%	76%	11%	13%	6	Soft	50	0.5	68
63	84.9	88.3	88.7	885	1907	4109	I-5	SR-22 to Main St.	377100	60	0	93.7%	3.1%	3.2%	76%	11%	13%	6	Soft	50	0.5	68
64	84.8	88.2	88.6	875	1884	4059	I-5	17th St./Penn Way to Grand Ave.	370300	60	0	93.7%	3.1%	3.2%	76%	11%	13%	6	Soft	50	0.5	68
65	84.3	87.7	88.2	812	1749	3768	I-5	1st St. to SR-55	339500	60	0	94.5%	2.4%	3.1%	76%	11%	13%	6	Soft	50	0.5	68

66	84.3	87.6	88.1	803	1730	3728	I-5	Newport Ave. to Red Hill Ave.	334100	60	0	94.5%	2.4%	3.1%	76%	11%	13%	6	Soft	50	0.5	68
67	83.3	86.7	87.1	692	1490	3211	I-405	Brookhurst Ave. to Euclid St.	300100	60	0	96.5%	1.7%	1.8%	76%	11%	13%	6	Soft	50	0.5	68
68	83.6	87.0	87.4	725	1562	3365	I-405	Euclid St. to Harbor Blvd.	321900	60	0	96.5%	1.7%	1.8%	76%	11%	13%	6	Soft	50	0.5	68
69	83.3	86.7	87.1	694	1494	3219	I-405	Harbor Blvd. to SR-73	301300	60	0	96.5%	1.7%	1.8%	76%	11%	13%	6	Soft	50	0.5	68
70	82.6	85.9	86.4	620	1336	2878	I-405	Bristol St. to SR-55	246400	60	0	95.7%	2.3%	2.0%	76%	11%	13%	6	Soft	50	0.5	68
71	83.3	86.6	87.1	687	1481	3191	I-405	SR-55 to MacArthur Blvd.	287700	60	0	95.7%	2.3%	2.0%	76%	11%	13%	6	Soft	50	0.5	68
72	83.4	86.8	87.3	708	1525	3286	SR-55	4th St to 17th Street	267300	60	0	93.0%	4.0%	3.0%	76%	11%	13%	6	Soft	50	0.5	68
73	84.0	87.3	87.8	765	1647	3549	SR-55	Edginer Ave. to Dyer Rd.	297300	60	0	92.8%	4.1%	3.1%	76%	11%	13%	6	Soft	50	0.5	68
74	83.2	86.6	87.0	683	1471	3169	SR-55	Dyer Rd. to MacArthur Blvd.	285700	60	0	95.3%	3.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
75	82.3	85.6	86.1	589	1269	2734	SR-55	MacArthur Blvd. to I-405	228900	60	0	95.3%	3.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
76	80.7	84.1	84.5	463	998	2150	SR-55	I-405 to SR-73	159700	60	0	95.3%	3.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
77	82.3	85.6	86.1	590	1271	2738	SR-22	Euclid St. to Harbor Blvd.	223100	60	0	94.3%	4.0%	1.7%	76%	11%	13%	6	Soft	50	0.5	68
78	82.5	85.8	86.3	608	1310	2822	SR-22	The City Dr. to Bristol St.	242600	60	0	95.5%	2.9%	1.6%	76%	11%	13%	6	Soft	50	0.5	68
79	80.4	83.8	84.2	443	955	2058	SR-22	I-5 to Main St.	151100	60	0	95.5%	2.9%	1.6%	76%	11%	13%	6	Soft	50	0.5	68
80	80.1	83.4	83.9	422	908	1956	SR-22	Glassell St. to Tustin Ave.	146100	60	0	96.6%	2.0%	1.4%	76%	11%	13%	6	Soft	50	0.5	68

Traffic Noise Calculator: FHWA 77-108 **Project Title: SNT-20 - 2045 GP Buildout 80%**

	Output						Inputs													Auto Inputs	
	dBA at 50 feet			Distance to CNEL Contour																	
ID	$L_{eq\text{-}24hr}$	L_{dn}	CNEL	70 dBA	65 dBA	60 dBA	Roadway	Segment	ADT	Posted Speed Limit	Grade	% Autos	% Med Trucks	% Heavy Trucks	% Daytime	% Evening	% Night	Number of Lanes	Site Condition	Distance to Reciever	Ground Absorption	Lane Distance
1	67.6	71.3	71.7	64	139	299	1st Street	Euclid Street to Ward Street	18700	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
2	70.2	73.9	74.3	96	207	446	Euclid Street	1st Street to McFadden Avenue	34000	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
3	68.3	72.1	72.4	73	157	337	Westminster Avenue	Harbor Boulevard to Fairview Street	17400	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
4	70.4	74.1	74.5	100	216	465	Harbor Boulevard	Westminster Avenue/17th Street to Hazard Avenue	36200	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
5	68.5	72.2	72.6	74	160	344	1st Street	Harbor Boulevard to Jackson	23100	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
6	69.6	73.3	73.7	88	190	410	Edinger Avenue	Harbor Boulevard to Fairview Street	23300	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
7	70.1	73.8	74.2	96	206	444	Warner Avenue	Harbor Boulevard to Fairview Street	26300	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
8	73.5	77.2	77.6	160	345	743	Harbor Boulevard	Segerstrom Avenue to MacArthur Boulevard	56900	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
9	71.8	75.5	75.9	124	266	574	Fairview Street	1st Street to Willits Street	38600	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
10	69.1	72.8	73.2	82	176	378	1st Street	Sullivan Street to Raitt Street	26600	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
11	72.1	75.8	76.2	130	280	602	Bristol Street	17th Street to Santa Clara Avenue	41500	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
12	69.5	73.3	73.6	87	188	405	17th Street	College Avenue to Bristol Street	29500	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
13	71.4	75.1	75.5	116	250	538	Bristol Street	17th Street to Washington Avenue	45100	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
14	72.8	76.5	76.9	143	308	665	Fairview Street	Trask Avenue to 17th Street	48100	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
15	71.7	75.5	75.8	122	264	569	Bristol Street	1st Street to Bishop Street	49000	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
16	66.1	69.8	70.2	52	111	240	Civic Center Drive	Bristol Street to Flower Street	18600	35	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
17	61.7	65.4	65.8	26	56	121	Flower Street	1st Street to Bishop Street	6900	35	0	94.9%	2.9%	2.2%	75%	10%	15%	2	Soft	50	0.5	20
18	70.0	73.7	74.1	94	202	435	Main Street	17th Street to 20th Street	43000	35	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
19	64.9	68.6	69.0	43	93	199	Main Street	Washington Street to Civic Center Drive	19000	30	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
20	60.8	64.5	64.9	23	49	106	Civic Center Drive	Flower Street to Ross Street	10200	25	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
21	64.1	67.8	68.2	38	82	176	Santa Ana Boulevard	Flower Street to Ross Street	15800	30	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
22	69.8	73.5	73.9	91	195	420	1st Street	Main Street to Standard Avenue	32900	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
23	68.3	72.0	72.4	72	155	333	Main Street	1st Street to Bishop Street	30500	35	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
24	69.8	73.5	73.9	90	195	420	Grand Avenue	Santa Clara Avenue to Fairhaven Street	31100	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
25	70.3	74.0	74.4	98	211	454	Grand Avenue	Santa Ana Boulevard to 4th Street	35000	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
26	63.9	67.6	68.0	37	79	170	Santa Clara Avenue	Grand Avenue to Tustin Avenue	8700	40	0	94.9%	2.9%	2.2%	75%	10%	15%	2	Soft	50	0.5	20
27	67.9	71.6	72.0	68	147	317	Tustin Avenue	Santa Clara Avenue to Fairhaven Street	20400	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
28	70.2	73.9	74.3	97	209	451	17th Street	Cabrillo Park Drive to Tustin Avenue	34600	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
29	69.3	73.0	73.4	85	182	392	Tustin Avenue	Fruit Street to 4th Street	28100	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
30	69.5	73.2	73.6	87	187	402	1st Street	Grand Avenue to Elk Lane	30800	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
31	66.2	70.0	70.3	53	114	245	1st Street	Cabrillo Park Drive to Tustin Avenue	14600	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
32	72.5	76.2	76.6	137	296	637	Fairview Street	Edinger Avenue to Harvard Street	45100	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
33	72.2	75.9	76.2	130	281	605	Fairview Street	Warner Avenue to Segerstrom Avenue	41800	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
34	70.0	73.7	74.1	93	201	433	MacArthur Boulevard	Harbor Boulevard to Fairview Street	32600	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
35	67.1	70.8	71.2	60	130	280	Edinger Avenue	Fairview Street to Greenvile Street	22200	35	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
36	62.4	66.1	66.5	29	63	136	McFadden Avenue	Fairview Street to Raitt Street	8200	35	0	94.9%	2.9%	2.2%	75%	10%	15%	2	Soft	50	0.5	20
37	69.5	73.2	73.5	86	186	400	MacArthur Boulevard	Fairview Street to Raitt Street	28900	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
38	69.6	73.3	73.6	88	189	406	Segerstrom Avenue	Fairview Street to Raitt Street	29600	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
39	72.2	75.9	76.3	132	283	610	Bristol Street	Edinger Avenue to Warner Avenue	54500	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
40	71.4	75.1	75.4	115	249	536	Bristol Street	Warner Avenue to Segerstrom Avenue	44800	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
41	69.4	73.1	73.5	86	185	398	Warner Avenue	Raitt Street to Bristol Street	22300	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
42	71.9	75.6	76.0	125	270	582	Bristol Street	MacArthur Boulevard to Sunflower Avenue	50800	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
43	69.8	73.5	73.9	91	197	424	Flower Street	Warner Avenue to Segerstrom Avenue	33300	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
44	68.9	72.6	72.9	79	169	365	Edinger Avenue	Flower Street to Main Street	25200	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
45	67.8	71.5	71.9	67	144	311	Main Street	McFadden Avenue to Edinger Avenue	27500	35	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
46	69.3	73.1	73.4	85	183	393	Main Street	Edinger Avenue to Warner Avenue	38200	35	0	94.9%	2.9%	2.2%	75%	10%	15%	5	Soft	50	0.5	56
47	70.7	74.4	74.8	104	225	485	Main Street	Warner Avenue to Dyer Rd	38600	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
48	69.0	72.7	73.1	80	173	372	Segerstrom Avenue	Bristol Street to Flower Street	25900	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
49	70.8	74.6	74.9	107	230	495	MacArthur Boulevard	Flower Street to Main Street	39800	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
50	70.6	74.3	74.7	102	220	474	Main Street	MacArthur Boulevard to Sunflower Avenue	29000	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
51	71.7	75.4	75.7	121	260	561	Grand Avenue	Edinger Avenue to Warner Avenue	37300	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
52	72.9	76.6	77.0	146	315	679	Edinger Avenue	Richie Street to Newport Avenue	49700	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
53	71.3	75.0	75.4	115	248	534	Warner Avenue	Grand Avenue to Red Hill Avenue	34600	45	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
54	68.6	72.3	72.7	76	164	352	Warner Avenue	Main Street to Standard Avenue	23900	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
55	64.0	67.7	68.1	37	80	173	McFadden Avenue	Newhope Street to Harbor Boulevard	8700	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
56	62.6	66.3	66.7	30	65	140	McFadden Avenue	Standard Avenue to Grand Avenue	8600	35	0	94.9%	2.9%	2.2%	75%	10%	15%	2	Soft	50	0.5	20
57	73.9	77.6	78.0	171	368	793	Dyer Road	Red Hill Avenue to Pullman Street	80700	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
58	62.7	66.4	66.8	31	66	142	McFadden Avenue	Bristol Street to Flower Street	11800	30	0	94.9%	2.9%	2.2%	75%	10%	15%	2	Soft	50	0.5	20
59	71.8	75.6	75.9	124	268	578	Main Street	La Veta Avenue to Memory Lane	50200	40	0	94.9%	2.9%	2.2%	75%	10%	15%	6	Soft	50	0.5	68
60	68.7	72.4	72.8	77	165	356	1st Street	Bristol Street to Flower Street	25700	40	0	94.9%	2.9%	2.2%	75%	10%	15%	4	Soft	50	0.5	44
61	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!	#NUM!															0	#N/A
62	84.3	88.0	88.4	838	1804	3888	I-5	Chapman Ave. to Katella Ave.	295846	60	0	90.4%	6.0%	3.6%	75%	10%	15%	6	Soft	50	0.5	68
63	84.4	88.2	88.5	860	1853	3992	I-5	SR-22 to Main St.	338810	60	0	93.7%	3.1%	3.2%	75%	10%	15%	6	Soft	50	0.5	68
64	85.3	89.0	89.4	975	2101	4526	I-5	17th St./Penn Way to Grand Ave.	409068	60	0	93.7%	3.1%	3.2%	75%	10%	15%	6	Soft	50	0.5	68
65	84.9	88.6	89.0	928	1999	4307	I-5	1st St. to SR-55	389327	60	0	94.5%	2.4%	3.1%	75%	10%	15%	6	Soft	50	0.5	68

66	84.8	88.5	88.9	907	1953	4208	I-5	Newport Ave. to Red Hill Ave.	375987	60	0	94.5%	2.4%	3.1%	75%	10%	15%	6	Soft	50	0.5	68
67	84.0	87.7	88.1	803	1729	3726	I-405	Brookhurst Ave. to Euclid St.	351979	60	0	96.5%	1.7%	1.8%	75%	10%	15%	6	Soft	50	0.5	68
68	84.5	88.2	88.6	862	1858	4003	I-405	Euclid St. to Harbor Blvd.	391915	60	0	96.5%	1.7%	1.8%	75%	10%	15%	6	Soft	50	0.5	68
69	84.2	87.9	88.3	831	1791	3859	I-405	Harbor Blvd. to SR-73	370931	60	0	96.5%	1.7%	1.8%	75%	10%	15%	6	Soft	50	0.5	68
70	82.5	86.2	86.6	640	1378	2968	I-405	Bristol St. to SR-55	242220	60	0	95.7%	2.3%	2.0%	75%	10%	15%	6	Soft	50	0.5	68
71	84.1	87.8	88.2	819	1766	3804	I-405	SR-55 to MacArthur Blvd.	351350	60	0	95.7%	2.3%	2.0%	75%	10%	15%	6	Soft	50	0.5	68
72	83.7	87.4	87.8	766	1650	3555	SR-55	4th St to 17th Street	282301	60	0	93.0%	4.0%	3.0%	75%	10%	15%	6	Soft	50	0.5	68
73	84.3	88.1	88.4	847	1825	3932	SR-55	Edginer Ave. to Dyer Rd.	325314	60	0	92.8%	4.1%	3.1%	75%	10%	15%	6	Soft	50	0.5	68
74	83.3	87.0	87.4	718	1547	3334	SR-55	Dyer Rd. to MacArthur Blvd.	289242	60	0	95.3%	3.0%	1.7%	75%	10%	15%	6	Soft	50	0.5	68
75	83.2	86.9	87.3	709	1527	3289	SR-55	MacArthur Blvd. to I-405	283503	60	0	95.3%	3.0%	1.7%	75%	10%	15%	6	Soft	50	0.5	68
76	80.8	84.5	84.9	489	1054	2271	SR-55	I-405 to SR-73	162679	60	0	95.3%	3.0%	1.7%	75%	10%	15%	6	Soft	50	0.5	68
77	82.3	86.0	86.4	617	1330	2866	SR-22	Euclid St. to Harbor Blvd.	224252	60	0	94.3%	4.0%	1.7%	75%	10%	15%	6	Soft	50	0.5	68
78	80.1	83.8	84.2	441	949	2045	SR-22	The City Dr. to Bristol St.	140466	60	0	95.5%	2.9%	1.6%	75%	10%	15%	6	Soft	50	0.5	68
79	81.1	84.8	85.2	515	1110	2391	SR-22	I-5 to Main St.	177513	60	0	95.5%	2.9%	1.6%	75%	10%	15%	6	Soft	50	0.5	68
80	80.2	83.9	84.3	446	961	2070	SR-22	Glassell St. to Tustin Ave.	149143	60	0	96.6%	2.0%	1.4%	75%	10%	15%	6	Soft	50	0.5	68

Roadway	Segment	Existing ADT	Future ADT	Existing Traffic Noise	Future Traffic Noise	Increase
1st Street	Euclid Street to Ward Street	25,233	18,700	72.4	71.7	-0.7
Euclid Street	1st Street to McFadden Avenue	40,731	34,000	75.0	74.3	-0.7
Westminster Avenue	Harbor Boulevard to Fairview Street	30,459	17,400	74.1	72.4	-1.7
Harbor Boulevard	Westminster Avenue/17th Street to Hazard Avenue	54,137	36,200	76.6	74.5	-2.1
1st Street	Harbor Boulevard to Jackson	32,736	23,100	73.8	72.6	-1.3
Edinger Avenue	Harbor Boulevard to Fairview Street	27,838	23,300	73.9	73.7	-0.2
Warner Avenue	Harbor Boulevard to Fairview Street	31,945	26,300	74.6	74.2	-0.4
Harbor Boulevard	Segerstrom Avenue to MacArthur Boulevard	15,622	56,900	71.9	77.6	5.7
Fairview Street	1st Street to Willits Street	42,605	38,600	75.5	75.9	0.4
1st Street	Sullivan Street to Raitt Street	36,377	26,600	74.1	73.2	-1.0
Bristol Street	17th Street to Santa Clara Avenue	45,676	41,500	76.8	76.2	-0.6
17th Street	College Avenue to Bristol Street	37,345	29,500	73.8	73.6	-0.1
Bristol Street	17th Street to Washington Avenue	42,005	45,100	75.3	75.5	0.2
Fairview Street	Trask Avenue to 17th Street	40,432	48,100	76.2	76.9	0.6
Bristol Street	1st Street to Bishop Street	42,663	49,000	75.2	75.8	0.6
Civic Center Drive	Bristol Street to Flower Street	17,589	18,600	69.1	70.2	1.1
Flower Street	1st Street to Bishop Street	15,622	6,900	69.2	65.8	-3.5
Main Street	17th Street to 20th Street	32,044	43,000	72.5	74.1	1.6
Main Street	Washington Street to Civic Center Drive	33,489	19,000	71.6	69.0	-2.6
Civic Center Drive	Flower Street to Ross Street	17,427	10,200	66.1	64.9	-1.2
Santa Ana Boulevard	Flower Street to Ross Street	14,689	15,800	67.3	68.2	0.9
1st Street	Main Street to Standard Avenue	42,699	32,900	75.3	73.9	-1.4
Main Street	1st Street to Bishop Street	30,125	30,500	72.2	72.4	0.1
Grand Avenue	Santa Clara Avenue to Fairhaven Street	30,206	31,100	73.3	73.9	0.6
Grand Avenue	Santa Ana Boulevard to 4th Street	36,678	35,000	74.3	74.4	0.1
Santa Clara Avenue	Grand Avenue to Tustin Avenue	10,585	8,700	67.8	68.0	0.1
Tustin Avenue	Santa Clara Avenue to Fairhaven Street	35,410	20,400	73.6	72.0	-1.6
17th Street	Cabrillo Park Drive to Tustin Avenue	32,080	34,600	72.8	74.3	1.5
Tustin Avenue	Fruit Street to 4th Street	25,174	28,100	71.9	73.4	1.6
1st Street	Grand Avenue to Elk Lane	28,638	30,800	73.5	73.6	0.0
1st Street	Cabrillo Park Drive to Tustin Avenue	22,083	14,600	71.9	70.3	-1.6
Fairview Street	Edinger Avenue to Harvard Street	37,524	45,100	75.8	76.6	0.8
Fairview Street	Warner Avenue to Segerstrom Avenue	39,878	41,800	76.0	76.2	0.2
MacArthur Boulevard	Harbor Boulevard to Fairview Street	26,235	32,600	72.1	74.1	2.0
Edinger Avenue	Fairview Street to Greenvile Street	29,115	22,200	72.0	71.2	-0.8
McFadden Avenue	Fairview Street to Raitt Street	20,997	8,200	70.6	66.5	-4.1
MacArthur Boulevard	Fairview Street to Raitt Street	28,809	28,900	72.3	73.5	1.2
Segerstrom Avenue	Fairview Street to Raitt Street	19,326	29,600	71.2	73.6	2.4
Bristol Street	Edinger Avenue to Warner Avenue	37,238	54,500	74.4	76.3	1.9
Bristol Street	Warner Avenue to Segerstrom Avenue	38,007	44,800	74.5	75.4	0.9
Warner Avenue	Raitt Street to Bristol Street	34,555	22,300	75.1	73.5	-1.6
Bristol Street	MacArthur Boulevard to Sunflower Avenue	34,731	50,800	74.3	76.0	1.7
Flower Street	Warner Avenue to Segerstrom Avenue	15,378	33,300	70.1	73.9	3.8
Edinger Avenue	Flower Street to Main Street	36,534	25,200	74.2	72.9	-1.2
Main Street	McFadden Avenue to Edinger Avenue	28,622	27,500	72.0	71.9	-0.1
Main Street	Edinger Avenue to Warner Avenue	27,972	38,200	72.2	73.4	1.2

Main Street	Warner Avenue to Dyer Rd	30,484	38,600	73.6	74.8	1.2
Segerstrom Avenue	Bristol Street to Flower Street	22,959	25,900	72.0	73.1	1.1
MacArthur Boulevard	Flower Street to Main Street	37,946	39,800	74.3	74.9	0.6
Main Street	MacArthur Boulevard to Sunflower Avenue	23,692	29,000	73.1	74.7	1.6
Grand Avenue	Edinger Avenue to Warner Avenue	17,735	37,300	71.1	75.7	4.7
Edinger Avenue	Richie Street to Newport Avenue	40,435	49,700	76.1	77.0	0.9
Warner Avenue	Grand Avenue to Red Hill Avenue	22,435	34,600	73.1	75.4	2.4
Warner Avenue	Main Street to Standard Avenue	27,391	23,900	72.9	72.7	-0.2
McFadden Avenue	Newhope Street to Harbor Boulevard	18,495	8,700	70.7	68.1	-2.6
McFadden Avenue	Standard Avenue to Grand Avenue	20,188	8,600	70.6	66.7	-3.9
Dyer Road	Red Hill Avenue to Pullman Street	31,248	80,700	74.1	78.0	3.9
McFadden Avenue	Bristol Street to Flower Street	14,951	11,800	68.0	66.8	-1.2
Main Street	La Veta Avenue to Memory Lane	31,004	50,200	73.8	75.9	2.1
1st Street	Bristol Street to Flower Street	39,006	25,700	74.8	72.8	-2.0

RAILROAD NOISE MODELING

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	50
Future Train Speed (mph)	50
Number of Existing Trains in one Direction	39
Number of Future Trains in one Direction	39
Existing Number of Day Trains (7 am to 10 p.m.)	31.5
Future Number of Day Trains (7 am to 10 p.m.)	31.5
Existing Number of Night Trains (10 p.m. to 7 am)	7.5
Future Number of Night Trains (10 p.m. to 7 am)	7.5
Existing Average Number of Cars	10.5
Future Average Number of Cars	10.5
Existing Average Number of Locomotives	1.5
Future Average Number of Locomotives	1.5

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

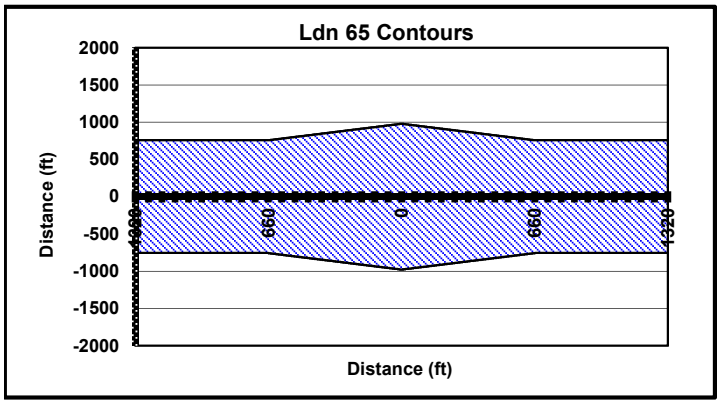
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

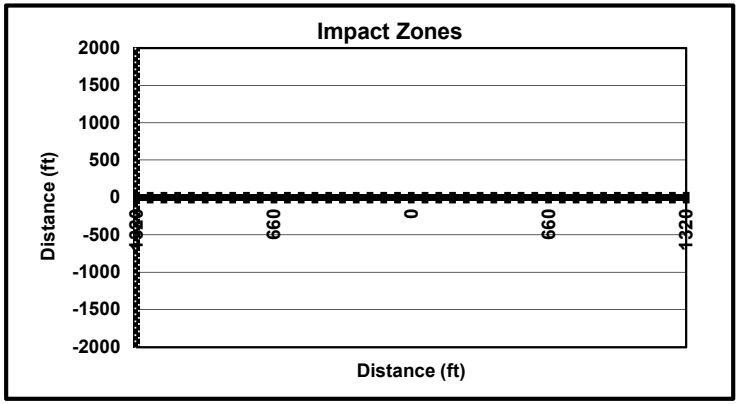
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	978
Future 65 Ldn Contour at X-ing	978
Existing 65 Ldn Contour at 1/2 zone length	756
Future 65 Ldn Contour at 1/2 zone length	756
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: SCRRA Orange Subdivision

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	58	59
Source 1	62	54	56
Source 2	59	51	53
Source 3	54	51	46
Source 4	51	49	44
Source 5	51	48	44
Source 6	49	46	41
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS												
Parameter	**Source 1**		**Source 2**		**Source 3**		**Source 4**		**Source 5**		**Source 6**	
Source Num.	Freight Locomotive	9	Freight Cars	10	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Commuter Diesel Locomotive	2	Commuter Rail Cars	3
Distance (source to receiver)	distance (ft)	210	distance (ft)	210	distance (ft)	210	distance (ft)	210	distance (ft)	210	distance (ft)	210
Daytime Hours	speed (mph)	40	speed (mph)	40	speed (mph)	50	speed (mph)	50	speed (mph)	50	speed (mph)	50
(7 AM - 10 PM)	trains/hour	0.267	trains/hour	0.267	trains/hour	2.6	trains/hour	2.6	trains/hour	1.333	trains/hour	1.333
	locos/train	6	length of cars (ft) / train	3000	locos/train	1	cars/train	6	locos/train	1	cars/train	6
Nighttime Hours	speed (mph)	40	speed (mph)	40	speed (mph)	50	speed (mph)	50	speed (mph)	50	speed (mph)	50
(10 PM - 7 AM)	trains/hour	0.444	trains/hour	0.444	trains/hour	0.778	trains/hour	0.778	trains/hour	0.444	trains/hour	0.444
	locos/train	6	length of cars (ft) / train	3000	locos/train	1	cars/train	6	locos/train	1	cars/train	6
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Embedded Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Aerial Structure?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Barrier Present?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Intervening Rows of of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0	number of rows	0	number of rows	0

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	10
Future Train Speed (mph)	10
Number of Existing Trains in one Direction	2
Number of Future Trains in one Direction	2
Existing Number of Day Trains (7 am to 10 p.m.)	1.25
Future Number of Day Trains (7 am to 10 p.m.)	1.25
Existing Number of Night Trains (10 p.m. to 7 am)	0.75
Future Number of Night Trains (10 p.m. to 7 am)	0.75
Existing Average Number of Cars	15
Future Average Number of Cars	15
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

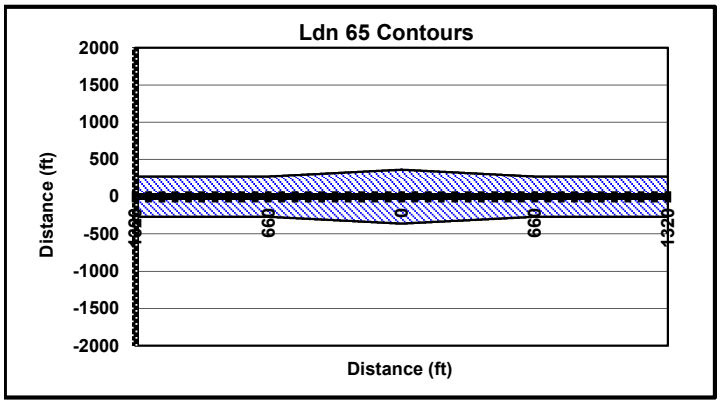
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

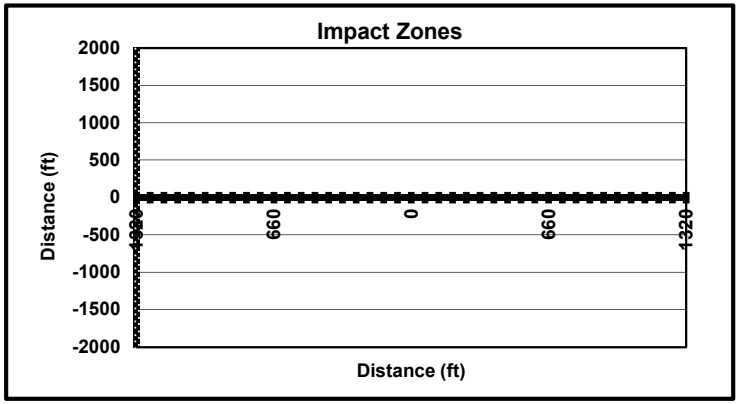
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	361
Future 65 Ldn Contour at X-ing	361
Existing 65 Ldn Contour at 1/2 zone length	269
Future 65 Ldn Contour at 1/2 zone length	269
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessmen
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: UP Santa Ana Industrial Lead

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	57	59
Source 1	64	56	58
Source 2	58	49	52
Source 3	0	0	0
Source 4	0	0	0
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below.

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers.

NOISE SOURCE PARAMETERS						
Parameter	**Source 1**		**Source 2**		**Source 3**	
Source Num.	Freight Locomotive	9	Freight Cars	10		
Distance (source to receiver)	distance (ft)	30	distance (ft)	30		
Daytime Hours	speed (mph)	10	speed (mph)	10		
(7 AM - 10 PM)	trains/hour	0.133	trains/hour	0.133		
	locos/train	2	length of cars (ft) / train	900		
Nighttime Hours	speed (mph)	10	speed (mph)	10		
(10 PM - 7 AM)	trains/hour	0.222	trains/hour	0.222		
	locos/train	2	length of cars (ft) / train	900		
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		
Jointed Track?	Y/N	n	Y/N	n		
Embedded Track?	Y/N	n	Y/N	n		
Aerial Structure?	Y/N	n	Y/N	n		
Barrier Present?	Y/N	n	Y/N	n		
Intervening Rows of of Buildings	number of rows	0	number of rows	0		

Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: 2045 BNSF Irvine Industrial Lead

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	57	59
Source 1	64	56	58
Source 2	57	49	51
Source 3	0	0	0
Source 4	0	0	0
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers

NOISE SOURCE PARAMETERS						
Parameter	**Source 1**		**Source 2**		**Source 3**	
Source Num.	Freight Locomotive	9	Freight Cars	10		
Distance (source to receiver)	distance (ft)	20	distance (ft)	20		
Daytime Hours	speed (mph)	10	speed (mph)	10		
(7 AM - 10 PM)	trains/hour	0.067	trains/hour	0.067		
	locos/train	2	length of cars (ft) / train	900		
Nighttime Hours	speed (mph)	10	speed (mph)	10		
(10 PM - 7 AM)	trains/hour	0.111	trains/hour	0.111		
	locos/train	2	length of cars (ft) / train	900		
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		
Jointed Track?	Y/N	n	Y/N	n		
Embedded Track?	Y/N	n	Y/N	n		
Aerial Structure?	Y/N	n	Y/N	n		
Barrier Present?	Y/N	n	Y/N	n		
Intervening Rows of of Buildings	number of rows	0	number of rows	0		

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	10
Future Train Speed (mph)	10
Number of Existing Trains in one Direction	1
Number of Future Trains in one Direction	1
Existing Number of Day Trains (7 am to 10 p.m.)	0.625
Future Number of Day Trains (7 am to 10 p.m.)	0.625
Existing Number of Night Trains (10 p.m. to 7 am)	0.375
Future Number of Night Trains (10 p.m. to 7 am)	0.375
Existing Average Number of Cars	15
Future Average Number of Cars	15
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

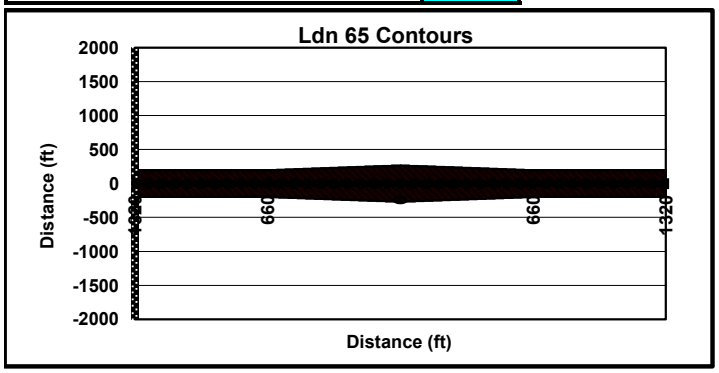
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

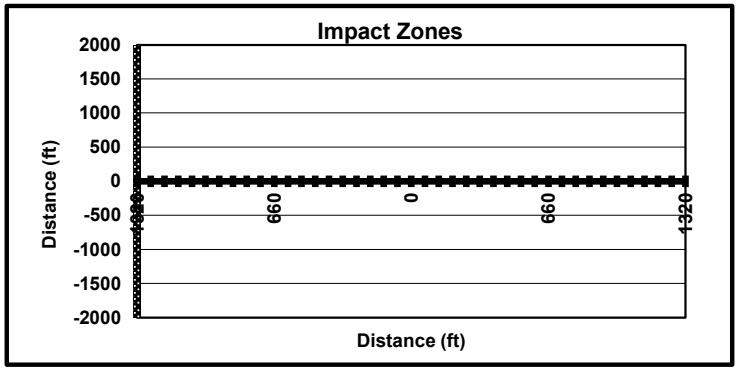
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	266
Future 65 Ldn Contour at X-ing	266
Existing 65 Ldn Contour at 1/2 zone length	195
Future 65 Ldn Contour at 1/2 zone length	195
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	50
Future Train Speed (mph)	50
Number of Existing Trains in one Direction	39
Number of Future Trains in one Direction	52.5
Existing Number of Day Trains (7 am to 10 p.m.)	31.5
Future Number of Day Trains (7 am to 10 p.m.)	40
Existing Number of Night Trains (10 p.m. to 7 am)	7.5
Future Number of Night Trains (10 p.m. to 7 am)	12
Existing Average Number of Cars	10.5
Future Average Number of Cars	8.5
Existing Average Number of Locomotives	1.5
Future Average Number of Locomotives	1.3

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

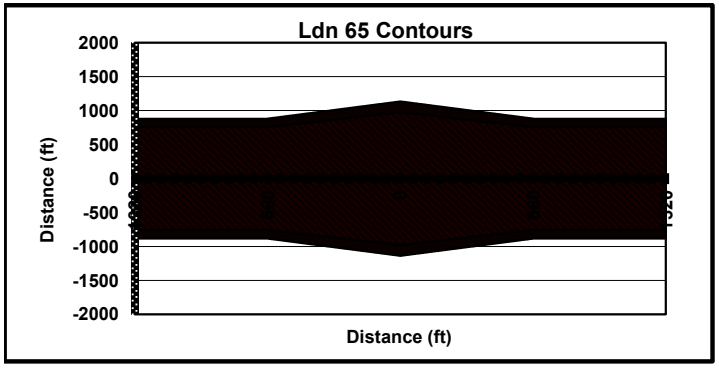
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

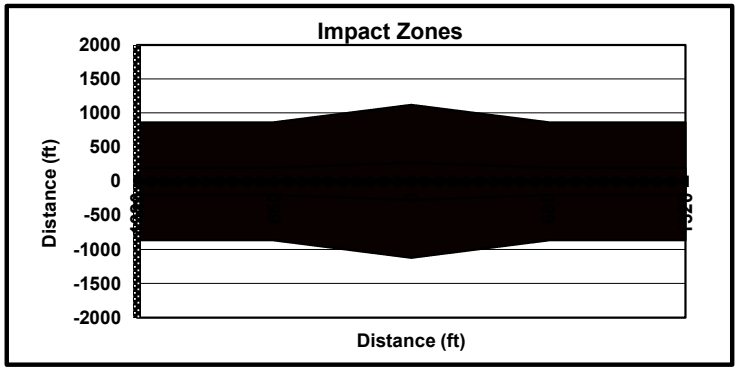
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	978
Future 65 Ldn Contour at X-ing	1136
Existing 65 Ldn Contour at 1/2 zone length	756
Future 65 Ldn Contour at 1/2 zone length	882
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	1120
Severe Impact Distance at X-ing	274
Impact Distance at 1/2 zone length	865
Severe Impact Distance at 1/2 zone length	199
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: 2045 SCRRA Orange Subdivision

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	59	59
Source 1	62	54	56
Source 2	59	51	53
Source 3	55	52	47
Source 4	53	50	45
Source 5	55	49	48
Source 6	52	47	46
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers

NOISE SOURCE PARAMETERS												
Parameter	**Source 1**		**Source 2**		**Source 3**		**Source 4**		**Source 5**		**Source 6**	
Source Num.	Freight Locomotive	9	Freight Cars	10	Commuter Diesel Locomotive	2	Commuter Rail Cars	3	Commuter Diesel Locomotive	2	Commuter Rail Cars	3
Distance (source to receiver)	distance (ft)	220	distance (ft)	220	distance (ft)	220	distance (ft)	220	distance (ft)	220	distance (ft)	220
Daytime Hours	speed (mph)	40	speed (mph)	40	speed (mph)	50	speed (mph)	50	speed (mph)	50	speed (mph)	50
(7 AM - 10 PM)	trains/hour	0.267	trains/hour	0.267	trains/hour	3.533	trains/hour	3.533	trains/hour	1.6	trains/hour	1.6
	locos/train	6	length of cars (ft) / train	3000	locos/train	1	cars/train	6	locos/train	1	cars/train	6
Nighttime Hours	speed (mph)	40	speed (mph)	40	speed (mph)	50	speed (mph)	50	speed (mph)	50	speed (mph)	50
(10 PM - 7 AM)	trains/hour	0.444	trains/hour	0.444	trains/hour	1.111	trains/hour	1.111	trains/hour	1.333	trains/hour	1.333
	locos/train	6	length of cars (ft) / train	3000	locos/train	1	cars/train	6	locos/train	1	cars/train	6
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%		0.00%	% of cars w/ wheel flats	0.00%
Jointed Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Embedded Track?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Aerial Structure?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Barrier Present?	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n	Y/N	n
Intervening Rows of of Buildings	number of rows	0	number of rows	0	number of rows	0	number of rows	0	number of rows	0	number of rows	0

FRA Grade Crossing Noise Model

User Input	
Noise Situation (Pick from List)	1
Horn Lmax (dBA) @ 100 feet	110
Horn Location on Locomotive(Pick from List)	1
Non Train Noise Environment (pick from list)	2
Shielding (Pick from List)	2
Length of Impact Area (pick from list)	1
Existing Train Speed (mph)	10
Future Train Speed (mph)	10
Number of Existing Trains in one Direction	2
Number of Future Trains in one Direction	2
Existing Number of Day Trains (7 am to 10 p.m.)	1.25
Future Number of Day Trains (7 am to 10 p.m.)	1.25
Existing Number of Night Trains (10 p.m. to 7 am)	0.75
Future Number of Night Trains (10 p.m. to 7 am)	0.75
Existing Average Number of Cars	15
Future Average Number of Cars	15
Existing Average Number of Locomotives	2
Future Average Number of Locomotives	2

Noise Situation	
Horns Existing and Future	1
Horns in Future Only	2
No Horns Existing and Future	3

Horn Location on Locomotive			
National Average (50% front, 50% middle)			1
All Front Mounted			2
All Middle Mounted			3
User Defined	80	% front mounted horns	4

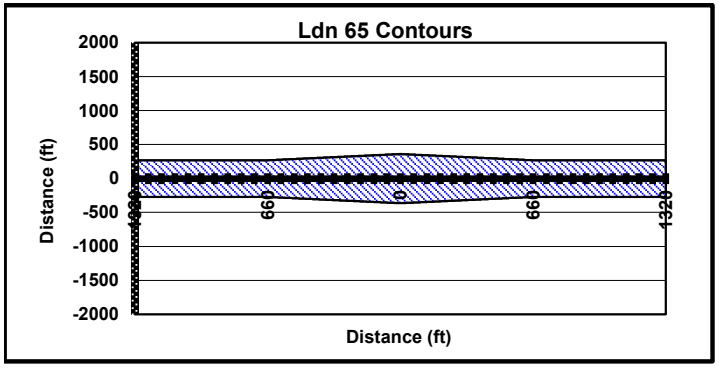
Non Train Noise Environment			
Urban			1
Suburban			2
Rural			3
User Defined Ldn =	50	dBA	4

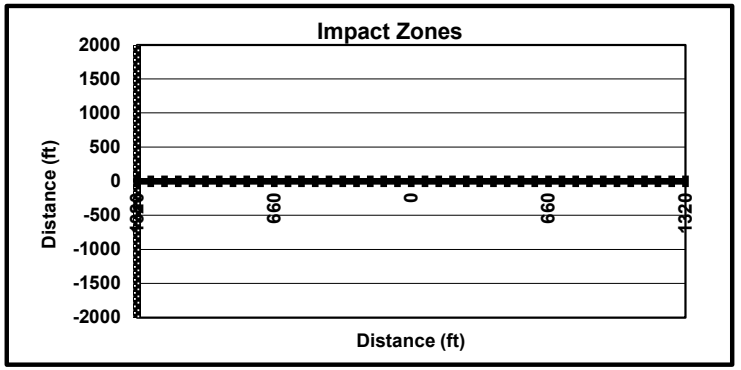
Shielding	
Dense Urban	1
Light Urban	2
Dense Suburban	3
Light Suburban	4
Rural	5
No Shielding	6

Length of Impact Area	
1/4 mile	1
20 seconds	2
15 seconds	3

Ldn 65 Contours Numeric Output (in feet)	
Existing 65 Ldn Contour at X-ing	361
Future 65 Ldn Contour at X-ing	361
Existing 65 Ldn Contour at 1/2 zone length	269
Future 65 Ldn Contour at 1/2 zone length	269
Zone Length	1320
1/2 Zone Length	660

Impact Zones Numeric Output (in feet)	
Impact Distance at X-ing	0
Severe Impact Distance at X-ing	0
Impact Distance at 1/2 zone length	0
Severe Impact Distance at 1/2 zone length	0
Zone Length	1320
1/2 Zone Length	660





Noise Model Based on Federal Transit Adminstration General Transit Noise Assessment
Developed for Chicago Create Project
Copyright 2006, HMMH Inc.
Case: 2045 UP Santa Ana Industrial Lead

RESULTS			
Noise Source	**Ldn (dB)**	**Leq - daytime (dB)**	**Leq - nighttime (dB)**
All Sources	65	57	59
Source 1	64	56	58
Source 2	58	49	52
Source 3	0	0	0
Source 4	0	0	0
Source 5	0	0	0
Source 6	0	0	0
Source 7	0	0	0
Source 8	0	0	0

Enter noise receiver land use category below

LAND USE CATEGORY	
Noise receiver land use category (1, 2 or 3)	2

Enter data for up to 8 noise sources below - see reference list for source numbers

NOISE SOURCE PARAMETERS						
Parameter	**Source 1**		**Source 2**		**Source 3**	
Source Num.	Freight Locomotive	9	Freight Cars	10		
Distance (source to receiver)	distance (ft)	30	distance (ft)	30		
Daytime Hours	speed (mph)	10	speed (mph)	10		
(7 AM - 10 PM)	trains/hour	0.133	trains/hour	0.133		
	locos/train	2	length of cars (ft) / train	900		
Nighttime Hours	speed (mph)	10	speed (mph)	10		
(10 PM - 7 AM)	trains/hour	0.222	trains/hour	0.222		
	locos/train	2	length of cars (ft) / train	900		
Wheel Flats?		0.00%	% of cars w/ wheel flats	0.00%		
Jointed Track?	Y/N	n	Y/N	n		
Embedded Track?	Y/N	n	Y/N	n		
Aerial Structure?	Y/N	n	Y/N	n		
Barrier Present?	Y/N	n	Y/N	n		
Intervening Rows of of Buildings	number of rows	0	number of rows	0		

Appendix J-a Existing Conditions Report for Fire and Police Services

Appendices

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September 2019

EXISTING CONDITIONS REPORT FOR FIRE AND POLICE SERVICES

GENERAL PLAN UPDATE

City of Santa Ana

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PLACEWORKS

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1. Introduction

1.1 INTRODUCTION

This report contains information on the City of Santa Ana's police and fire services that support the quality of life for residents, businesses, and visitors in the City. It addresses the regulatory framework and existing conditions that inform the General Plan and provide the setting for the Environmental Impact Report (EIR).

Police and fire services consist of programs that support the basic needs of citizens and create a viable, sustainable, and cohesive community. Police services are provided by the City of Santa Ana, while the City partners with the Orange County Fire Authority (OCFA) to provide fire services for the City. This report was prepared in consultation with the Santa Ana Police Department and the OCFA.

In cooperation with the City Manager, City Staff, and the community, the City of Santa Ana Mayor and City Council developed a five-year Strategic Plan, from fiscal year 2014–15 to fiscal year 2018–19. Community Safety is one of the seven goals of the Strategic Plan. The plan focuses on the following six objectives for Community Safety:

1. Modernize the community policing philosophy to improve customer service, crime prevention, and traffic/pedestrian/bicycle safety;
2. Broaden communications, information sharing, and community awareness of public safety activities;
3. Promote fiscal accountability to ensure financial responsibility at all levels of the organization;
4. Ensure a sound fiscal model for jail operation through coordinated efforts with personnel from the City Manager's Office, Police Department, City Attorney's Office, Finance, and Personnel;
5. Provide high quality Police and Fire/Emergency Medical Services response times within the City of Santa Ana; and
6. Enhance Public Safety integration, communications, and community outreach (Santa Ana 2014).

California law does not mandate the preparation of an element that specifically addresses police and fire services. Under Section 65303 of the Government Code, the General Plan may include any other elements or address any other subjects which, in the judgement of the legislative body, relate to the physical development of the city. Because safety is a key principal in the General Plan vision, Santa Ana's General Plan Update will contain a Public Services Element. The General Plan Update Policy Framework includes the following Public Services goal and policies:

1. Introduction

- **Goal 2**: Preserve a safe and secure environment for all people and property.
  - **Policy 2.1**: **Public Safety Agencies.** Collaborate with the Police Department and the Fire Authority to promote the implementation of crime prevention through environmental design principles for all development projects.
  - **Policy 2.2: Code Compliance.** Require all development to comply with the provisions of the most recently adopted fire and building codes and maintain an ongoing fire inspection program to reduce fire hazards.
  - **Policy 2.3: Crime Prevention.** Coordinate, partner, and build relationships with community members and stakeholders to develop and implement crime prevention strategies through restorative practices that focus on rehabilitation, community service, and public safety.
  - **Policy 2.4: Community Partnerships.** Provide alternative methods to improve police services that support community partnerships, build public trust, and proactively address public safety issues. | Ed, Eq
  - **Policy 2.5: Safety Programs.** Promote early childhood education and prevention programs that improve public safety and maintain ongoing community education opportunities
  - **Policy 2.6 School Safety.** Collaborate with local schools to establish and implement comprehensive and coordinated services that enhance the security and safety of students, educators, and administrators on and off campus.
  - **Policy 2.7: Staffing Levels.** Maintain staffing levels for sworn peace officers, fire fighters, emergency medical responders, and civilian support staff to provide quality services and maintain an optimal response time citywide.
  - **Policy 2.8: Efficiency Standards.** Ensure that equipment, facilities, technology, and training for emergency responders are updated and maintained to meet modern standards of safety, dependability, and efficiency.
  - **Policy 2.9: Quality Employees.** Enhance public safety efforts by actively seeking a diverse and talented pool of public safety candidates who possess the values and skills consistent with those of the community (Santa Ana 2018).

2. Police Services

The information in this section is based partly on a written service questionnaire response by Deputy Chief of Police Eric Paulson dated August 8, 2019.

2.1 PLANNING FRAMEWORK

The Santa Ana Police Department's 2019-2024 Strategic Plan is a statement of intent and purpose consistent with the mandates and directives of the City of Santa Ana 5-Year Strategic Plan. The purpose of the Police Department's Strategic Plan is to frame the goals, priorities, and objectives, as well as to identify the issues, outcomes, and efforts of the Santa Ana Police Department (Santa Ana 2019a).

2.2 DEPARTMENT ORGANIZATION

The Santa Ana Police Department is organized into four bureaus, three of which are overseen by deputy chiefs and one by a jail administrator:

- Field Operations Bureau
- Investigations Bureau
- Administrative Bureau
- Jail Bureau

2.2.1 Field Operations Bureau

The Field Operations Bureau is the largest and most viable component of the Santa Ana Police Department and consists of the Patrol Division and a number of specialized units who serve the community as first responders to incidents in the City (Santa Ana 2016).

2.2.1.1 PATROL DIVISION

The Patrol Division's primary job is the protection of life and property 24 hours per day, seven days per week; in 2016, officers responded to 105,595 calls for service. The Patrol Division is made up of several programs and units:

- **East Directed Patrol:** Directed Patrol employs community-oriented policing strategies to serve the residents of Santa Ana and combat crime and quality of life issues in the Northeast and Southeast Districts.

- **Civic Center Patrol:** Civic Center Patrol effectively provides police services in the Civic Center. To further provide resources to the homeless, the Civic Center Patrol collaborated with the Orange County Health Care Agency (OCHCA) to implement their Psychological Emergency Response Team (PERT) program.

2. Police Services

The Homeless Emergency Assessment Response Team (H.E.A.R.T.) consists of a group of officers who are trained to work with the City's homeless population, providing them with assistance and recommendations for service needed.

- **Downtown Business Liaison Unit:** The Downton Liaison Unit was established in January 2016 and consists of a corporal and three police officers. The unit's responsibilities include developing and strengthening community relations with downtown businesses, residents, and visitors while maintaining a high police presence. The hours of operations cover seven days a week, between 10 a.m. and 7:30 p.m.

- **Park Ranger Program:** The Park Ranger Program responds to calls for service in city parks, provides enforcement, and focuses on issues related to activities in parks and on bike trails.

- **Community Oriented Policing:** The Community Oriented Policing Unit consists of officers that attend various neighborhood association meetings; organize seven "Early Morning" park clean-ups, focusing on homeless paraphernalia and illegal campers in the parks and bike trails; provide education and training to AYSO soccer coaches about security issues with their leagues and park security; and provide "Active Shooter" training to 25 Parks and Recreation employees.

- **West Directed Enforcement:** The West Policing Division's Directed Enforcement Team addresses a wide range of law enforcement related concerns, utilizing public, private, and community resources for problem solving. In 2016, the Westend team successfully addressed over 175 community complaints dealing with a variety of issues such as gang and narcotic activity, municipal code violations, transients, parking issues, and human trafficking.

- **Post Release Community Supervision Unit:** The Santa Ana Police Department continues to partner with the Orange County Probation Department, imbedding probation officers with a Santa Ana police officer to create the Post Release Community Supervision (PRCS) Unit. This unit works collaboratively with county and state partners to ensure individuals released from custody are abiding by the terms and conditions of probation. In 2016, the team was involved in over 310 compliance checks; the PRCS Unit oversees over 500 probationers who reside in the City.

- **Special Units:** The Santa Ana's Mounted Enforcement Unit works in the Downtown area to provide a visible and more personable interaction with the community. The Special Weapons and Tactics (SWAT) Team is a group of highly trained police officers and dispatchers prepared to handle critical incidents. The Homeland Security Division works in partnership with the Anaheim Police Department to administer the UASI (Urban Area Security Initiative) grant program, which improves regional capacity to prevent, protect against, respond to, and recover from terrorist incidents and catastrophic events.

- **Traffic:** The Santa Ana Police Department's Traffic Division is tasked with ensuring the safety of residents and visitors that utilize the network of roadways, walkways, and bikeways within the City (Santa Ana 2016).

2.2.2 Investigation Bureau

The Investigation Bureau is responsible for the timely and thorough investigation of criminal activity throughout the City, and consists of the Crimes Against Persons Division, Criminal Investigations Division, Special Investigations Division, and the Orange County Regional Narcotics Program. These units conduct investigations on crimes ranging from property thefts to street gangs, cold cases, and missing persons.

- **Crime Against Persons (CAP) Division:** CAP incorporates the Homicide, Felony Assaults, Missing Persons Detail, and Gang Units.

- **Criminal Investigations Division (CID):** CID is responsible for investigating all property crime, robbery, domestic violence, child abuse, and sex-related offenses. The division also includes the Forensic Services Section, which processes all case evidence.

- **Regional Narcotics Suppression Program (RNSP):** RNSP is a countywide major narcotics investigations initiative, administered by the Orange County Sheriff's Department, to which the Santa Ana Police Department provides a variety of personnel, including a commander that serves as the program manager.

- **Special Investigations Division (SID):** The SID is composed of two multiagency tasks forces led by the Santa Ana Police Department. In addition to the Vice and Narcotics Unit, the Santa Ana Gang Task Force combats organized crime and criminal enterprises with a nexus to the roots of gang issues within the City (Santa Ana 2016).

2.2.3 Administrative Bureau

The Administrative Bureau oversees the Evidence Section, Information Systems Division, the Training Division, the Communications Division, and the Central Distribution Center (CDC).

- **Evidence:** The Evidence Section provides for the proper handling, storage, maintenance, and disposal of law enforcement–held property and evidence.

- **Information Systems:** The Information Systems Division supports the various computerized systems used throughout the Santa Ana Police Department; which range from the Computer Aided Dispatch, to Mobile Data Computers, to police department smartphones.

- **Training:** The Training Division provides high-quality professional training to personnel in an effort to save lives and prevent injury, improve the operational effectiveness of the department, and reduce liability. The Training Division oversees the Background Unit, the Video Production Unit, the Santa Ana Police Athletic and Activity League (SAPAAL), and the Academy Tactical Position.

- **Communications:** The Communications Division has two sections: Communications Section, which handles both emergency and nonemergency calls 24/7, and the Telephone Reporting Unit, which serves

as a key component for handling reports from victims reporting crimes over the phone and via the internet through E-Reporting. The Communications Section, as the first point of contact, answers approximately 34,680 emergency and nonemergency calls monthly (Santa Ana 2016)Central Distribution Center: The CDC coordinates and transports vehicles for repair and purchases and issues equipment, uniforms, and office items to employees.

2.2.4 Jail Bureau

The Jail Bureau has three divisions: Jail Administration and Support Services, Jail Operations, and Police Records. The Jail Operations Division is responsible for receiving those placed in Santa Ana Police custody who will eventually be released or booked at the county jail; the Records staff is also responsible for the processing and maintaining of all police and public records pertaining to public safety activities.

- **Jail Administration and Support Services Division:** This division includes a variety of inmate services required by local, state, and federal mandates. Jail records staff are responsible for booking all arrestees from local and contract agencies.

- **Jail Operations Division:** The Jail Operations Division is responsible for receiving those placed in Santa Ana Police custody; the correctional staff also supervises the contract agency inmate population housed within the 512-bed facility.

- **Police Records Division:** This division is responsible for the maintenance and storage of all police-related records; in 2016, over 34,400 reports were processed through the division (Santa Ana 2016).

2.3 FACILITIES AND STAFFING

2.3.1 Facilities

The Santa Ana Police Administrative Building and Jail Facility are conjoined by a large Community Room available for public meetings

The Police Headquarters is the Administrative Building, which is home to all four bureaus as well as Police Administration and all supporting units. The Administrative Building has a front counter where individuals can come in for police-related business regarding traffic issues and obtaining copies of police reports. Additionally, there are private interview rooms where the public can come in to file a police report. For optimal customer service and privacy, a reception area is open on the second floor for those who wish to meet with detectives regarding their cases. The front lobby is open Monday through Friday, between 7:20 a.m. to 5:30 p.m.

The Jail Facility's primary function is to house the inmate population; administrative personnel work in the facility to manage and oversee jail operations. The public lobby is open seven days a week from 7 a.m. to 9 p.m. (Santa Ana 2016).

As shown in Figure 1, *Santa Ana Police Department Police Facilities,* there are six police facilities in the City:

1. **Santa Ana Police Administrative Building and Jail Facility,** 60 Civic Center Plaza, Santa Ana, CA 92702
2. **Jose Vargas Community Affairs Office,** 20 Civic Center Plaza, Santa Ana, CA 92701
3. **Santa Ana Regional Transportation Public Safety Office,** 1000 E Santa Ana Boulevard #107, Santa Ana, CA 92701
4. **Westend Substation,** 3750 W McFadden Avenue #1, Santa Ana, CA 92704
5. **Santa Ana Law Enforcement and Fire Training Center,** 3000 W Edinger Avenue, Santa Ana, CA 92702
6. **Southeast Substation,** 1780 E McFadden Avenue #114B, Santa Ana, CA 92705 (Santa Ana 2016).

The police department is divided into two policing divisions, East and West, and these are further divided into four districts overseen by two district commanders. Figure 2, *Santa Ana Police Department Districts*, shows the locations of the districts.

- West Division:
  - Westend District, serving all areas north of First Street and west of Flower Street
  - Southcoast District, serving all areas south of First Street and west of Flower Street
- East Division:
  - Northeast District, serving all areas north of First Street and east pf Flower Street
  - Southeast District, serving all areas south of First Street and east of Flower Street (Santa Ana 2016)

The police department has received funding to implement a family justice center. The center will concentrate on family crime and will offer guidance and education in addition to a facility where family crime reports can be filed. The site for the facility has not yet been determined.

2.3.2 Staffing

As of August of 2019, 348 sworn positions and 250 professional staff positions serve the Santa Ana Police Department. The department does not apply a staffing ratio (e.g., officers/population), but instead evaluates performance and needs as summarized in Section 2.5, *Performance Standards and Measures.* Santa Ana, however, is relatively understaffed in comparison to several neighboring Orange County cities, with substations being more lightly staffed. The Westend Substation at 3750 West Mc Fadden Avenue, and the Santa Ana Regional Transportation Public Safety Office, at 1000 East Santa Ana Boulevard, both have planned programs to increase staffing. The police department also runs a recruitment retention plan in colleges to recruit new officers (Paulson 2019).

2.4 FUNDING

Funding for police facilities and staff comes from grants, special revenue funds, and the City's general fund. Furthermore, the City of Santa Ana and the City of Anaheim are assigned as the Urban Areas Security Initiative (UASI) Program's controlling agency for Orange County. UASI assists high-threat, high-density urban areas in efforts to build and sustain the capabilities necessary to prevent, protect against, mitigate, respond to, and recover from acts of terrorism. The UASI program is intended to provide financial assistance to address the unique multidisciplinary planning, organization, equipment, training, and exercise needs of high-threat, high-density urban areas (HSG 2019). Most of the police department facilities are close to 20 years old, and the need for capital improvement funding is rising.

2.5 PERFORMANCE STANDARDS AND MEASURES

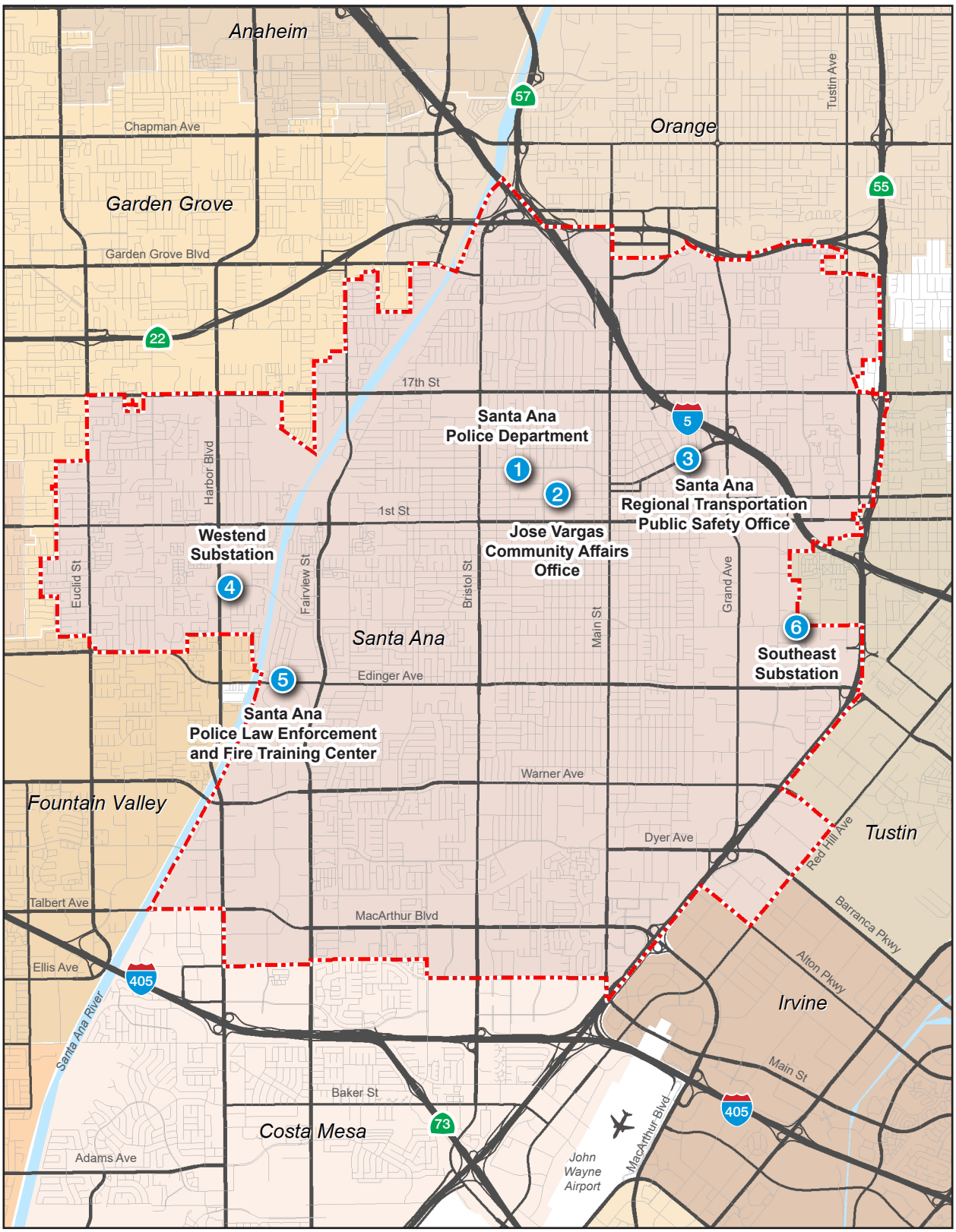
2.5.1 Performance Standards

The Santa Ana Police Department prioritizes calls as follows:

- **Priority 1:** Emergency calls for situations that are life threatening. Services shall be dispatched immediately.
- **Priority 2:** Calls for situations that threaten the safety of citizens and may or may not include threats to property. Calls of serious crimes that are in progress or have just occurred. Services shall be dispatched immediately.
- **Priority 3:** Calls for situations that are not life threatening and nonemergency that require a timely but not immediate response. Calls should be assigned to units from the district where the call occurs. Follow-up officers may be dispatched from any district.
- **Priority 4:** Routine incidents whose nature is not life threatening and not urgent that require a police response for appropriate documentation and/or action. Calls should be assigned to the officers from the same district as the call unless circumstances exist that would cause undue delay, i.e., Spanish-speaking call with no Spanish-speaking officers assigned to the district.
- **Priority 5:** Calls that are routine, nonurgent, or administrative in nature. Calls should be assigned to the officers from the same district as the call unless circumstances exist that would cause undue delay, i.e., Spanish-speaking call with no Spanish-speaking officers assigned to the district.

In addition to call priority, common circumstances that may require an immediate response include the need for preservation of evidence, likelihood of victim/witness interviews, and sensitivity of the situation. Examples of these types of situations include:

Figure 1 - Santa Ana Police Department Police Facilities



Note: Unincorporated county areas are shown in white.

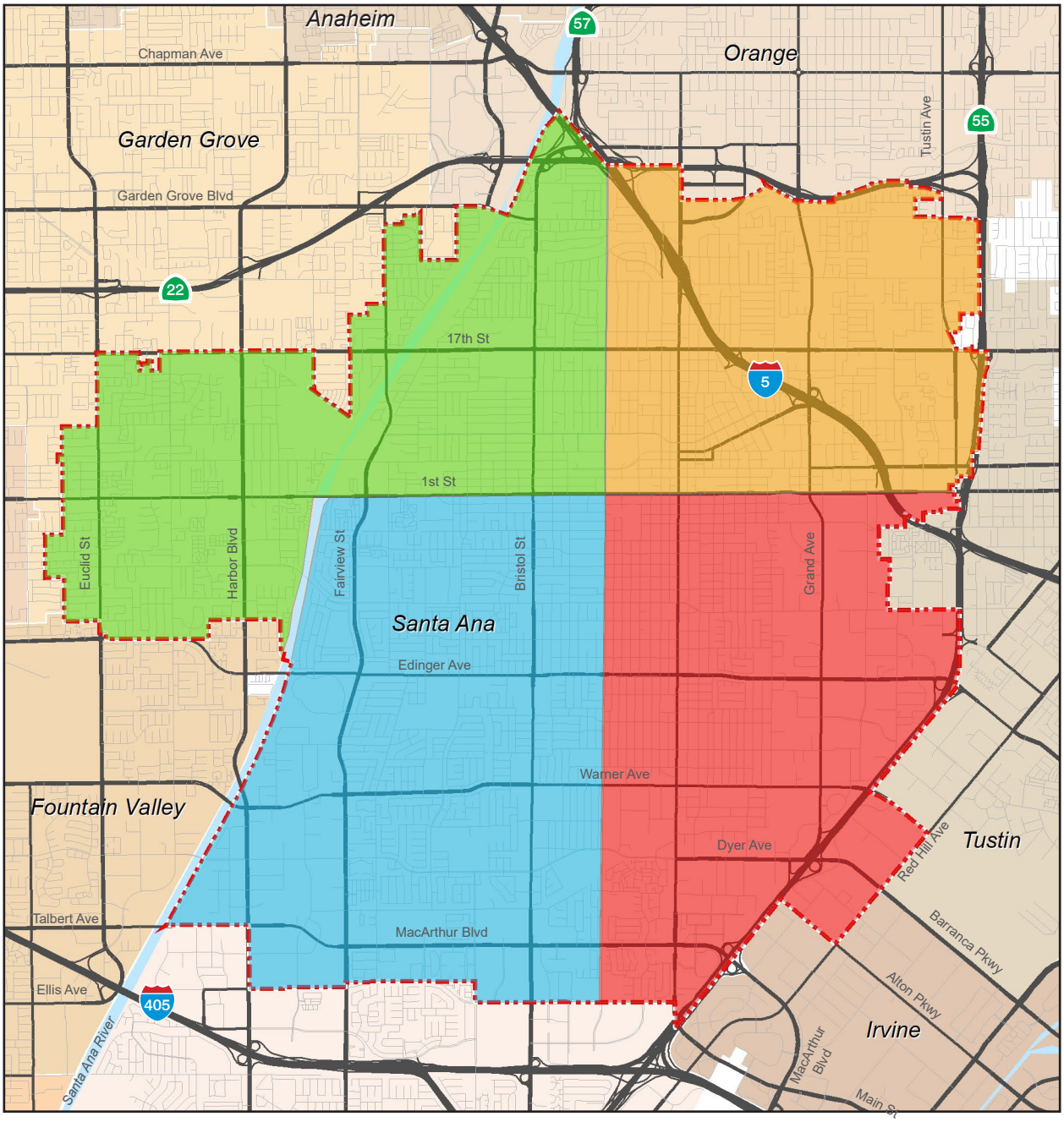
Source: ESRI, 2019

PlaceWorks

2. Police Services

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Figure 2 - Santa Ana Police Department Districts



City of Santa Ana

Southcoast & Westend Districts: Commander Ruben Ibarra

Northeast & Southeast Districts: Commander Ken Gominsky

Westend District
West Division (serving all areas north of First Street and west of Flower Street)

Northeast District
East Division (serving all areas north of First Street and east of Flower Street)

Southcoast District
West Division (serving all areas south of First Street and west of Flower Street)

Southeast District
East Division (serving all areas south of First Street and east of Flower Street)

Note: Unincorporated county areas are shown in white.

Source: ESRI, 2019

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Scale (Miles)

2. Police Services

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- Child molestation reports.
- Domestic violence.
- Alarm calls where it is likely the call is valid
- Suspects in custody of citizens, or citizens in custody of suspects.
- Robberies reported within a reasonable time of occurrence.
- Any other circumstances where an expedited response is appropriate.
- Accessible firearms and/or weapons in plain view on public property.

The Santa Ana Police Department has no set performance standards. However, the City's response time for priority calls is consistent with the western states' average response time of seven minutes

2.5.2 Performance Measures

The Santa Ana Police Department monitors the following performance measures to evaluate the effectiveness of the traffic, field operations, animal services, criminal investigations, crimes against persons, special investigations, and jail operations services provided to the community. Table 1, *Santa Ana Police Department Performance Measures,* shows the performance measures for each service from the 2015–16 fiscal year to 2018–19 fiscal year.

Table 1 Santa Ana Police Department Performance Measures

Service	Performance Measures	Actual FY 15–16	Actual FY 16–17	Estimated FY 17–18	Objective FY 18–19
Traffic	# of reported collisions	4,858	5,350	TBD	TBD
	# of reported hit & run collisions	1,654	699	TBD	TBD
	# of traffic violations	13,357	14,720	TBD	TBD
	# of DUI arrests	691	699	TBD	TBD
	# of parking violations issued	103,385	106,536	TBD	TBD
	% change in number of reported collisions[1]	8.87%	10.13%		
Field Operations	# of calls for service	105,195	119,440	TBD	TBD
	# of reported incidents	34,454	41,530	TBD	TBD
	# of Priority One calls responded to	3,520	3,762	TBD	TBD
	Average Priority Response Time	7.00 minutes	7.47 minutes	TBD	TBD
	% of Priority One calls responded to in under 7 minutes	50%	46%	TBD	TBD
	# of criminal cases filed	4,822	6,148	TBD	TBD
Animal Services	# of service calls handled	5,602	3,690	4,000	5,000
	# of enforcement actions taken	210	164	250	250
	# of animal impounds	2,839	1,852	2,000	2,000
	# of educational presentations given	1	1	2	3
	# of spay/neuter events held	0	0	0	0
	# of telephone calls handled	8,143	7,379	8,000	8,000

2. Police Services

Table 1 Santa Ana Police Department Performance Measures

Service	Performance Measures	Actual FY 15–16	Actual FY 16–17	Estimated FY 17–18	Objective FY 18–19
Criminal Investigations	# of cases presented to DA by Prosecution Unit	5,431	6,700	6,600	6,500
	# of business/community meetings	6	5	5	5
	# of community awareness presentations	16	12	12	12
	# of cases refused by the DA Office	715	850	750	750
	# of Special Enforcement operations	43	45	45	40
	Average monthly arrest by Detectives	21	20	20	20
	% rate of criminal charges	87%	85%	86%	85%
	# of arrests by Detectives during Special Enforcement Operations	49	20	40	30
Crimes Against Persons	Part I Crime Committed	10,204	10,516	1% reduction	1% reduction
	Part I Crime Cases Cleared	2,603	1,421	TBD	TBD
	Part I Crime Clearance Rate	25.50%	13%	TBD	TBD
	Total Arrests	814	1,382	TBD	TBD
	Probation Home Compliance Checks	330	534	180	180
	Firearms Seized	80	111	TBD	TBD
	Community Outreach Activities	80	111	48	48
Special Investigations	# of career criminal arrests	78	33	65	75
	# of weapons seized	11	15	15	25
	# of federal weapons violations cases reviewed	12	149	175	180
	# of surveillance operations	105	60	75	80
	# of search warrants issued	41	53	50	50
	# of confidential human sources cultivated	10	10	12	15
	# of federal weapons violations cases adopted	7	21	20	25
Jail Operations	# of inmates processed	8,224	8,227	7,611	7,611
	# of inmates fast-booked to OCJ	4,281	4,424	4,181	4,181
	# of visitors processed	19,464	15,378	14,370	14,370
	# of Pay-To-Stay Program Revenue	N/A	146,370	130,000	130,000
	% of compliance with regulatory agencies	100%	100%	100%	100%
	# of DNA collected or verified	1,454	3,035	3,116	3,116
	# of Registrants processed	1,700	5,422	6,194	6,194
	# of HiSet/GED graduates	N/A	11	60	60

Source: Santa Ana 2019b
[1] Percentages are approximate

Table 2 shows the current average response time for the different call priorities detailed under Section 2.5.1.

Table 2 Santa Ana Police Department Average Response Times

Priority	Time
Priority 1	7m 03s
Priority 2	10m 22s
Priority 3	30m 32s
Priority 4	35m 07s
Priority 5	52m 59s

Source: Paulson, 2019

Deputy Chief Paulson indicated that the current response time for Priority 1 meets the western states average as well as the Santa Ana community needs.

Homelessness-related calls increased by approximately 10,000 from 2017 to 2018, and this is a rising issue in Santa Ana. The police department has collaborated with public works and parks and recreational departments to create a quality-of-life program to address increased homelessness-related demands (Paulson 2019).

Additionally, the City currently partners with local nonprofits, neighboring cities, and the county to reduce and address homelessness. Since 1998 the County of Orange has coordinated a comprehensive regional Continuum of Care (CoC) strategy that includes the participation of all 34 cities in Orange County, county agencies, the county's homeless service providers, and other community groups (including nonprofits, local governmental agencies, faith-based organizations, the homeless and formerly homeless, interested business leaders, schools, and many other stakeholders) to identify the gaps and unmet needs of the county's homeless (Santa Ana 2019c).

2.6 SCHOOL DISTRICT POLICE SERVICES/CAMPUS SAFETY

School districts in Santa Ana have police services and school safety programs. For instance, the Santa Ana Unified School District has its own police department, whose mission is to provide for the safety and security of everyone who attends and works at school facilities throughout the district (SAUSD 2019). Furthermore, the Garden Grove Unified School District provides various student and campus safety resources, such as district and campus safety initiatives, partnerships with law enforcement (Garden Grove Police Department, Fountain Valley Police and Fire Departments, Orange County Fire Authority, Orange County Sherriff's Department, Santa Ana Police and Fire Departments, and Westminster Police Department), and mental health resources (GGUSD 2019). The Tustin Unified School District has security/campus safety officers who patrol the district and provide security for students, district property, and employees (TUSD 2019).

2. Police Services

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3. Fire Protection

The information in this section is based partly on information provided by Octavio Medina, Administrative Captain Division 6, at a meeting between OCFA, the City, and PlaceWorks on July 29, 2019.

3.1 PLANNING FRAMEWORK

OCFA's Fiscal Year 2018–19 Adopted Budget provides a list of goals and objectives for the budget cycle. The OCFA's Executive Management Team identified three primary goals for OCFA to continuously pursue:

- **Service Delivery.** The service delivery model is built on continuous improvement. All services are sustainable through a range of economic environments and focused on the OCFA mission.
- **People.** Promote a highly skilled, accountable, and resilient workforce that is united in the OCFA's common mission.
- **Technology.** Implement and utilize emerging technologies that support the needs of the organization by maximizing operational efficiency and improving quality of service.

In order to pursue progress for these three goals, priorities have been established for the fiscal year 2018–19 budget cycle. Some of these priorities include:

- **Organizational Structure.** Implementing organizational structure changes, as approved by the Board. The goal is to better align the work efforts with the OCFA mission and evolving emergency response parameters and priorities; an Emergency Medical Service department has been established to that end. The organization will be divided into two large bureaus headed by two deputy chief positions.
- **Initiate Projects to Enhance Technologies.** OCFA remains focused on cyber-security, safety to personnel and systems, and leveraging emerging technologies to enhance services. Technology projects during the fiscal year will have a heavy focus on security, as well as upgrades and replacements of existing technology systems.
- **Mission Driven Culture Training.** During the 2018–19 fiscal year, OCFA will be conducting workforce and leadership training designed for the fire service culture and environment unique to the field. Provided by the International Association of Fire Chiefs, the training program curriculum is designed to build adaptiveness, cohesiveness, and resiliency within fire service organizations. The program has been approved by the Department of Homeland Security and the Federal Emergency Management Agency, through the California Office of Emergency Services.

- **Transition to Lexipol Policy Management and Training System.** During the 2018–19 fiscal year, OCFA will move to a web-based delivery platform and mobile app to house the OCFA policy manual and updates. This change will also provide the opportunity to conduct daily training bulletins through 2-minute daily training exercises, designed to help personnel learn and apply agency policy content. Further, this system provides for continuous review of new laws, case law, and best practices in the field, resulting in policy guidance and updates specific to California law and regulations (OCFA 2018).

3.2 DEPARTMENT ORGANIZATION

The Orange County Fire Authority is a regional fire service agency that serves 23 cities in Orange County and all unincorporated areas. The OCFA protects over 1,680,000 residents. It is organized into seven departments, including the Community Risk Reduction Department and the Operations Department. The City of Santa Ana receives regional fire and emergency services from all OCFA stations and resources; however, 10 primary stations within the city's jurisdiction (listed in Table 3) routinely serve the City of Santa Ana.

3.2.1 Community Risk Reduction Department

The Community Risk Reduction (CRR) Department, formerly known as Fire Prevention, adopts and enforces codes and ordinances relative to fire and life safety issues, reviews plans and conducts inspections of construction projects, coordinates annual life safety inspections of all existing commercial buildings, provides long-range analysis of impacts on resources associated with future land use and development, and investigates all fires (OCFA 2019a).

CRR resources dedicated to Santa Ana include an assistant fire marshal, two senior fire prevention specialist, to fire prevention specialist, and an office assistant. One fire prevention analyst is assigned to the Building Department public counter each weekday afternoon. In addition to prevention service, OCFA provides a full-service Fire Investigations section, with five investigators and one police officer.

3.2.2 Operations Department

The Operations Department has seven divisions and nine battalions that include 71 fire stations. Operations provide regional emergency response to all fires, medical aids, rescues, hazardous materials incidents, wildland fire, aircraft fire and rescue services to John Wayne Airport, and other miscellaneous emergencies (OCFA 2019a).

Strategic Services Section The Strategic Services Section provides strategic and advanced planning functions for OCFA, which includes CEQA review, initiating Secured Fire Protection Agreements with developers for infill projects, deployment and resource modeling, analytics and statistical data review, new station placement and agreements, Strategic Plan, Standards of Cover, Accreditation, and ISO and LAFCO coordination. Monitoring land use annexations and associated new road development preplanning are also priorities of the section (OCFA 2019b).

The Secured Fire Protection Agreement is an agreement between the OCFA and a property developer addressing the provision of fire safety and emergency medical services for the benefit of future residents who will reside in the developed area (OCFA 2018).

3.2.3 Automatic/Mutual Aid

All fire departments in Orange County participate in an automatic aid agreement to ensure that the closest resources are dispatched to an emergency, regardless of jurisdictional boundaries (OCFA 2018). Automatic aid includes engines, trucks, paramedics, and battalion chiefs.

3.3 FACILITIES AND STAFFING

The OCFA Operations Division 6 serves the City of Santa Ana. Table 3, *OCFA Division 6 Fire Stations: Locations, Staffing, and Apparatus,* details the staffing and apparatus for each OCFA fire station in Santa Ana. Figure 3, *OCFA Division 6 Fire Station Locations,* illustrates the location of these stations within the City.

Table 3 OCFA Division 6 Fire Stations: Locations, Staffing, and Apparatus

Station	Location	Staffing (total of 3 shifts)	Apparatus
70	2301 Old Grande Street North	3 Fire Captains 3 Fire Apparatus Engineers/Paramedics 3 Firefighters/Paramedics 3 Firefighters	1 Paramedic Engine
71	1029 West 17th Street	6 Fire Captains/Paramedics 6 Fire Apparatus Engineers 6 Firefighters/Paramedics 6 Firefighters	1 Paramedic Engine 1 Paramedic truck
72	1668 East 4th Street	3 Fire Captains/Paramedics 3 Fire Apparatus Engineers 3 Firefighters/Paramedics 3 Firefighters	1 Paramedic Engine
73	419 South Franklin Street	3 Fire Captains/Paramedics 3 Fire Apparatus Engineers 3 Firefighters/Paramedics 3 Firefighters	1 Paramedic Engine
74	1427 South Broadway	3 Fire Captains/Paramedics 3 Fire Apparatus Engineers 3 Firefighters/Paramedics 3 Firefighters	1 Paramedic Engine
75	120 West walnut	6 Fire Captains/Paramedics 6 Fire Apparatus Engineers 6 Firefighters/Paramedics 6 Firefighters	1 Paramedic Engine 1 Paramedic Truck
76	950 West MacArthur	3 Fire Captains 3 Fire Apparatus Engineers 6 Firefighters/Paramedics	1 Paramedic truck
77	2317 South Greenville	3 Fire Captains	1 Paramedic Engine

3. Fire Protection

Table 3 OCFA Division 6 Fire Stations: Locations, Staffing, and Apparatus

Station	Location	Staffing (total of 3 shifts)	Apparatus
		3 Fire Apparatus Engineers 6 Firefighters/Paramedics	
78	501 North Newhope	3 Fire Captains 3 Fire Apparatus Engineers 6 Firefighters/Paramedics	1 Paramedic Engine
79	1320 East Warner	3 Fire Captains 3 Fire Apparatus Engineers 6 Firefighters/Paramedics	1 Paramedic Engine
Total		**144**	**14**

Source: Medina 2019

In addition to the staff in Table 3, a division chief is assigned exclusively to Santa Ana to serve as the City's local fire chief, and three battalion chiefs (one for each of the three 24-hour shift schedules) provide daily management of station personnel and activities. Furthermore, an administrative captain, administrative assistant, nurse educator, and a fire community relations and education specialist (bilingual) are assigned to serve the City of Santa Ana and the neighboring OCFA communities (Medina 2019).

3.4 FUNDING

The City of Santa Ana signed a 10-year cash contract with OCFA that is valid until 2030. The City has until 2028 to decide whether they want to extend the OCFA contract. Staff, equipment, and facilities are all under the same contract. If there is a major change to the service area within the City (i.e., an annexation), the contract can be amended. The OCFA contract is funded from the City's general fund.

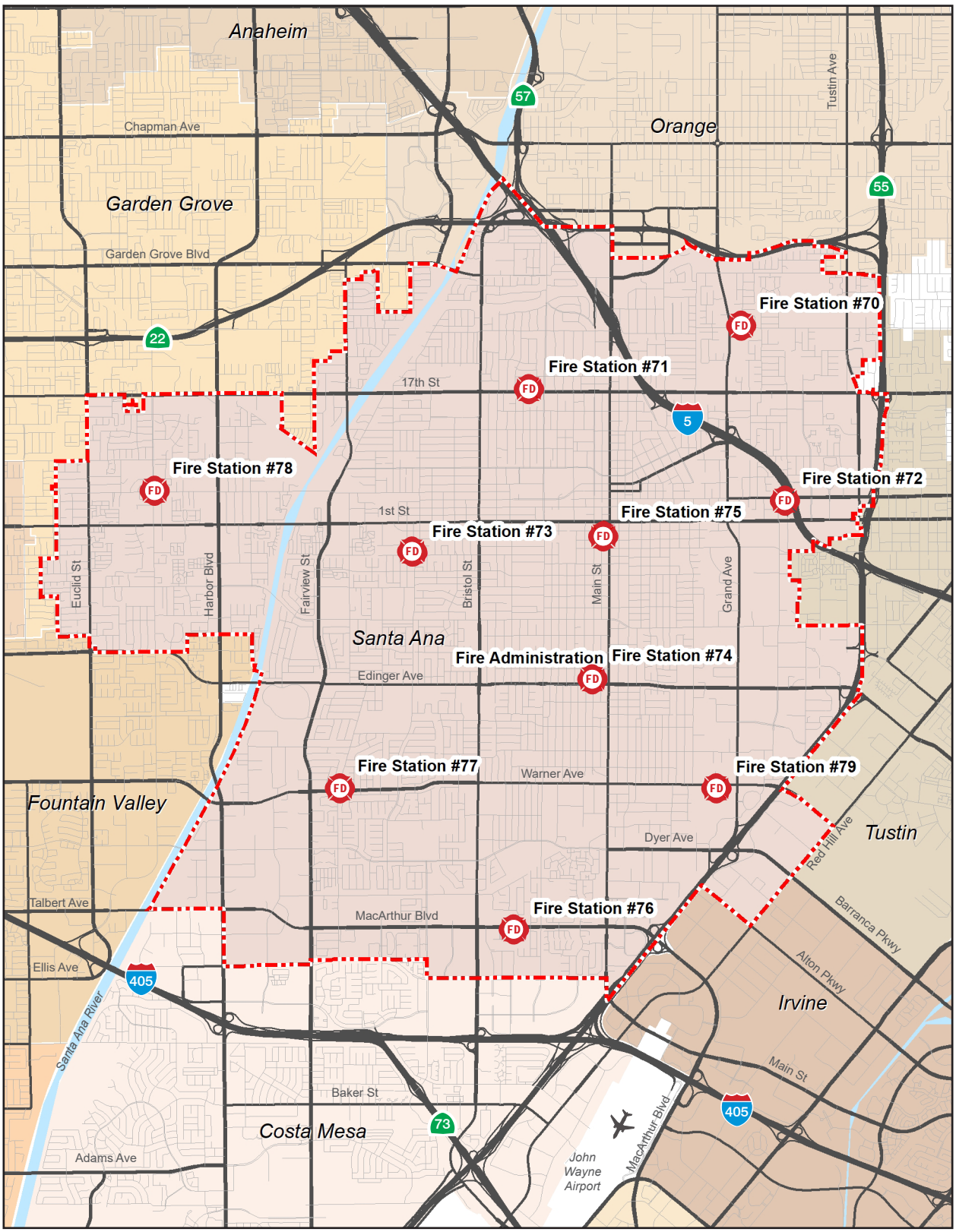
The majority of CRR services are funded through cost recovery fees. Since CRR services are primarily directed to businesses, developers, architects, and contractors, the fees are charged to the business community and not to individual homeowners and residents.

3.5 PERFORMANCE STANDARDS AND MEASURES

3.5.1 Performance Standards

The OCFA's response time goal to emergency calls in urban areas is that the first response unit shall arrive at a priority emergency within 7 minutes 20 seconds, 60 percent of the time. Further, OCFA provides standards of cover for its fire, EMS, and rescue sections for high, moderate, and low concentrations, which are as follows:

Figure 3 - OCFA Division 6 Fire Station Locations



City of Santa Ana Fire Stations (8)

Note: Unincorporated county areas are shown in white.

Source: ESRI, 2019

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Scale (Miles)

PlaceWorks

3. Fire Protection

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Fire

- **High concentration.** 6 engines, 2 trucks, 1 medic, 2 battalion chiefs (BC), 29 personnel should arrive within 15 minutes, 80 percent of the time.
- **Moderate concentration.** 3 engines, 1 truck, 1 BC, 1 medic, 15 personnel should arrive within 12 minutes, 80 percent of the time.
- **Low concentration.** 2 engines, 6 personnel should arrive within 10 minutes, 80 percent of the time.

EMS

- **High concentration.** 2 engines, 2 medic, 8 personnel (4 paramedics) should arrive within 12 minutes, 80 percent of the time.
- **Moderate concentration.** 1 medic engine/truck or medic car with 1 unit, 4 personnel (2 paramedic) should arrive within 10 minutes, 80 percent of the time.
- **Low concentration.** 1 unit, 2 personnel (2 EMT) should arrive within 7 minutes and 20 seconds, 80 percent of the time.

Rescue

- **High concentration.** 3 engines, 1 truck, 1 USAR truck, 1 medic, 15 personnel (3 USAR, 2 paramedic) should arrive within 20 minutes, 80 percent of the time.
- **Moderate concentration.** 1 engine, 1 truck, 1 medic, 8 personnel (2 paramedic) should arrive within 12 minutes, 80 percent of the time.
- **Low concentration.** 1 engine or truck, 3 personnel should arrive within 7 minutes and 20 seconds, 80 percent of the time (OCFA 2006).

3.5.2 Performance Measures

Table 4, *Fire Services for Santa Ana,* details fire incident statistics from 2014 through 2017.

Table 4 Fire Services for Santa Ana

Service Information	2013	2014	2015	2016	2017	2018	Change
Fire Incidents	350	362	391	393	517	566	62%
EMS Incidents	14,502	16,018	17,912	21,952	11,280	21,952	51%
Other Incidents[1]	4,299	3,885	4,028	4,702	2,086	4,702	9%
Total	**19,251**	**20,265**	**22,232**	**27,220**	**13,596**	**27,220**	**41%**

Source: Medina, 2019.
[1] Other includes cancelled, false alarms, miscellaneous, or service calls.

3. Fire Protection

As shown in Table 4, fire incidents in the City have increased by approximately 41 percent from 2013 to 2018. Calls related to the homeless population have been rising steadily. However, even with rising fire incidents, OCFA meets the performance standard for emergency calls in the City of Santa Ana (Medina 2019).

4. References

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4. References

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Tustin Unified School District (TUSD). 2019. Security/Campus Safety. https://www.tustin.k12.ca.us/departments/business-services/maintenance-operations-facilities/securitycampus-safety.

Appendix J-b Service Provider Questionnaire Responses

Appendices

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1. Please **confirm or update** the following information we obtained from the District's website:

   SAUSD schools serving the City of Santa Ana include:
   (Please enter enrollments and capacities in the table.)

SAUSD Schools Serving Residents from the City of Santa Ana				
School	***Grades***	***Location***	***Academic Year 2019-2020 Enrollment***	***Capacity***
John Adams Elementary School	K-5th	2130 South Raitt Street	411	650
Advanced Learning Academy (ALA)	3rd-6th	335 East Walnut Street	108	300
Advanced Learning Academy Early College	7th-8th	1325 E. Fourth Street	253	525
Gerald P. Carr Intermediate School	6th-8th	2120 West Edinger Avenue	1424	2135
George Washington Carver Elementary School	K-3rd	1401 West Santa Ana Boulevard	694	1475
Century High School	9th-12th	1401 South Grand Avenue	1565	3744
Cesar E. Chavez High School	9th-12th	2128 Cypress Avenue	85	576
Wallace R. Davis Elementary School	K-5th	1405 French Street	513	925
Diamond Elementary School	K-5th	1450 South Center Street	470	750
Thomas A. Edison Elementary School	K-5th	2063 Orange Avenue	463	1000
Manuel Esqueda Elementary School	K-5th	2240 South Main Street	1039	1200
Benjamin Franklin Elementary School	K-5th	210 West Cubbon Street	377	325
John C. Fremont Elementary School	K-5th	1930 West Tenth Street	480	775
James A. Garfield Elementary School	K-5th	850 Brown Street	664	875
Godinez Fundamental High School	9th-12th	3002 Centennial Road	2341	3744
Greenville Fundamental School	K-5th	3600 South Riatt Street	1002	1100
Lorin Griset Academy	9th-12th	1915 West McFadden Avenue	309	648
Carl Harvey Elementary School	K-5th	1635 South Center Street	399	650
Martin R. Heninger Elementary School	K-5th	417 West Walnut Street	1114	1275
Heroes Elementary School	K-5th	1111 West Civic Center Drive	526	725
Herbert Hoover Elementary School	K-5th	408 East Santa Clara Avenue	335	575
Andrew Jackson Elementary	K-5th	1143 South Nakoma Drive	672	1300
Thomas Jefferson Elementary School	K-5th	1522 West Adam Street	661	975
John F. Kennedy	K-5th	1300 East McFadden	581	925

Elementary School		Avenue		
Dr. Martin Luther King Jr. Elementary School	K-5th	1001 Graham Lane	609	925
Julia C. Lathrop Technology Magnet Intermediate School	6th-8th	1111 South Broadway	876	1820
Abraham Lincoln Elementary School	K-5th	425 South Sullivan Street	691	1400
James Russell Lowell Elementary School	K-5th	700 South Flower Street	630	1050
Douglas MacArthur Fundamental Intermediate School	6th-8th	600 West Alton Avenue	1190	1540
James Madison Elementary School	K-5th	1124 Hobart Street	990	1325
Glenn L. Martin Elementary School	K-5th	939 West Wilshire Avenue	620	1050
McFadden Intermediate School	6th-8th	2701 South Raitt Street	1141	2065
Gonzalo and Felicitas Mendez Fundamental Intermediate School	6th-8th	2000 North Bristol Street	1428	1890
Middle College High School	9th-12th	1530 West 17th Street	348	540
James Monroe Elementary School	K-5th	417 East Central Avenue	272	550
Monte Vista Elementary School	K-5th	2116 West Monte Vista Avenue	458	850
John Muir Fundamental Elementary School	K-5th	1951 Mabury Street	787	1175
Pio Pico Elementary School	K-5th	931 West Highland Street	513	800
REACH Academy	-	804 North Fairview Road	41	540
Romero-Cruz Academy	K-8th	2701 West Fifth Street	1009	1525
Roosevelt Elementary School	K-5th	501 Halladay Street	558	1150
Saddleback High School	9th-12th	2802 South Flower Street	1491	3204
Santa Ana High School	9th-12th	520 West Walnut Street	3237	4212
Santiago Elementary School	K-5th	2212 North Baker Street	1103	1250
Segerstrom High School	9th-12th	2301 West High School	2472	3024
Jose A. Sepulveda Elementary School	K-5th	1801 South Poplar Street	342	625
Sierra Preparatory Academy	6th-8th	2021 North Grand Avenue	673	1680
Taft Elementary School	K-5th	500 Keller Avenue	560	1325
Jim Thorpe Fundamental Elementary School	K-5th	2450 West Alton Avenue	886	1050
Valley High School	9th-12th	1801 South Greenville Street	2222	4032
Raymond A. Villa Fundamental Intermediate School	6th-8th	1441 East Chestnut Avenue	1375	1575
Adeline C. Walker Elementary School	K-5th	811 East Bishop Street	399	575

2. Does the District plan to build any new schools that would potentially serve the project area? If so, please provide grade levels, location, and capacity for each planned school.

Grades	***Location/Address***	***Capacity***	***Anticipated Opening Year***

3. Are there any existing shortages in the amount of classroom, athletic, recreational or other facilities available to serve the current number of students? If shortages exist, what is the basis for determining those shortages?

None at this time.

4. Please **confirm or update** the following developer impact fees for residential and commercial development (obtained from the SAUSD Facilities Master Plan 2020).

   a. The school impact fees are Level 1 fees.

   b. Residential development fees are $4.08 per square foot.

   c. Commercial development fees are $0.66 per square foot.

5. Please **confirm or update** the following student generation rates for elementary, intermediate, and high schools obtained from the District's 2020 Residential Development School Fee Justification Study.

    a. Elementary school (Grades K-5): 0.4028 per single-family housing unit/0.1937 per multi-family housing unit

    b. Intermediate school (Grades 6-8): 0.2203 per single-family housing unit/ 0.1111 per multi-family housing unit

    c. High school (Grades 9-12): 0.2868 per single-family housing unit/0.1427 per multi-family housing unit

6. How would the proposed project, which includes land use designation changes that would accommodate a buildout of 6,819,422 additional nonresidential square feet, 36,167 additional dwelling units, and 14,362 jobs affect the existing SAUSD school services and facilities?

Traffic and safety concerns for students that are in areas or close proximity to the school

7. Please provide any additional comments you may have regarding the proposed project.

n/a

Response Prepared By:

Name	**Title**
Agency	**Date**

PLACEWORKS

RECEIVED
MAR 05 2020
FACILITIES

G.G.U.S.D.
MAR 02 2020
BUSINESS SERVICES

→ J. Hills for response to questionnaire

TRANSMITTAL

DATE	February 26, 2020
TO	Garden Grove Unified School District
ADDRESS	10331 Stanford Avenue, Garden Grove, CA 92840
CONTACT	Rick Nakano, Assistant Superintendent of Business Services
FROM	Jasmine A. Osman, Project Planner
SUBJECT	Service Provider Questionnaire
PROJECT NUMBER	SNT-20.0

These items are transmitted via: ☒ US Mail ☐ Express Mail ☐ Courier ☐ Hand Delivery ☐ E-mail

GENERAL REMARKS

PlaceWorks has been retained by the City of Santa Ana to prepare an Environmental Impact Report for the proposed City of Santa Ana General Plan Update. This letter is to request your assistance in updating information regarding existing school services in the City and assessing the potential impacts that would be created by the proposed project.

Please see the attached Notice of Preparation which provides details on the proposed project. Additionally, a brief questionnaire has been included.

Please provide your responses to the enclosed questionnaire. Note that your responses will become a part of the administrative record for this project and will be included as an appendix to the EIR. Please respond to PlaceWorks no later than March 6th, 2020. If you need additional time to respond or would like an MSWord version of the questionnaire, please let us know. You may mail the responses to the questionnaire to the address in the footer, or you may email the responses to josman@placeworks.com

Please feel free to call at 714.966.9220 if you have any questions or require further information.

Jasmine A Osman

Jasmine A. Osman

California Environmental Quality Act

NOTICE OF PREPARATION AND SCOPING MEETING

Date: February 26, 2020
To: Responsible Agencies and Interested Parties
Subject: Notice of Preparation and Scoping Meeting for the Santa Ana General Plan Program Environmental Impact Report

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To: Reviewing Agencies and Other Interested Parties

Project Title: Santa Ana General Plan

Project Applicant: City of Santa Ana

Notice of Preparation Review Period: 2/26/20 through 3/27/2020 (30 days)

Scoping Meeting: Thursday, March 5, 2020, Santa Ana Police Community Room

NOTICE IS HEREBY GIVEN that the City of Santa Ana (City) will prepare a program environmental impact report (EIR) for the Santa Ana General Plan. The City is the lead agency for the project. The purpose of this notice is (1) to serve as a Notice of Preparation of an EIR pursuant to the California Environmental Quality Act (CEQA) Guidelines Section 15082, (2) to advise and solicit comments and suggestions regarding the scope and content of the EIR to be prepared for the proposed project, and (3) to notice the public scoping meeting.

The City determined that the proposed project would require preparation of a full-scope EIR; thus, an Initial Study was not prepared in conjunction with this Notice of Preparation.

1. Introduction

The City's General Plan was last comprehensively updated in 1982. Various updates to the City's Land Use Element, Circulation Element, Urban Design Element and Economic Development were completed in 1998. In March 2014 the City Council adopted the Santa Ana Strategic Plan. The Strategic Plan was the result of an extensive community outreach process and established specific goals, objectives and strategies to guide the City's major efforts. One of the key strategies identified is to complete a comprehensive update of the City's Existing General Plan. The updated General Plan will provide long-term policy direction to guide the physical development, quality of life, economic health, and sustainability of the Santa Ana community through 2045. The updated General Plan will address the eight topics required by state law as well as five optional topics. The topic of housing will also be addressed as a separate effort in late 2021 in accordance with state law.

2. Environmental Setting

Project Location

The City of Santa Ana encompasses roughly 27 square miles of land in central Orange County. The cities of Orange and Costa Mesa border Santa Ana to the north and south, respectively. Santa Ana's western border connects with the cities of Garden Grove, Westminster, and Fountain Valley, while Santa Ana's eastern border touches the cities of Irvine and Tustin. Regional connectivity to the City of Santa Ana is provided by interstates 15 and 405 and by State Routes 22 and 55. The City of Santa Ana is the second largest city in Orange County in terms of both population (approximately 340,000 residents as of 2019) and workers (approximately 160,000 jobs as of 2019).

3. Project Description

The City of Santa Ana is in the process of preparing a comprehensive update to its existing General Plan. Santa Ana's "Golden City Beyond: A Shared Vision" General Plan is expected to be completed in 2020 and will guide the City's development and conservation for the next 25 years through 2045. The update will provide long-term policy direction and communicate the vision, values, and goals for the City's physical development, fiscal and environmental sustainability, and overall quality of life. The new Santa Ana General Plan will serve to identify areas of opportunity and provide options to enhance development potential in key areas of the city while bringing the City into compliance with recent state laws and reflect updates to current conditions and input from the general public, city staff, and other stakeholders.

Santa Ana's General Plan is based on a vision statement and core values established as part of an extensive multi-year community outreach effort, a Technical Advisory Committee, and a General Plan Advisory Group.

Vision Statement

"Santa Ana is a city that promotes the physical, social, and economic health and wellness of our people and our community. We celebrate our past, embrace the power of diversity, and work together to create economic and educational opportunities for the next generation, leading to a more sustainable and prosperous future."

Core Values

- **Health.** The people of Santa Ana value a physical environment that encourages healthy lifestyles, a planning process that ensures that health impacts are considered, and a community that actively pursues policies and practices that improve the health of our residents.
- **Equity**. Our residents value taking all necessary steps to ensure equitable outcomes, expanding access to the tools and resources that residents need, and to balance competing interests in an open and democratic manner.
- **Sustainability.** Santa Ana values land use decisions that benefit future generations, plans for the impacts of climate change, and incorporates sustainable design practices at all level of the planning process.
- **Culture.** Our community values efforts that celebrate our differences as a source of strength, preserve and build upon existing cultural resources, and nurture a citywide culture of empowered residents.
- **Education.** We are a city that values the creation of lifelong learners, the importance of opening up educational opportunities to all residents and investing in educational programs that advance our residents' economic wellbeing.

General Plan Topics

State law requires that a general plan address eight specific topics, which each topic commonly presented as an element of the general plan. State law gives jurisdictions the discretion to incorporate optional topics and to address any of these topics in a single element or across multiple elements of the general plan. Santa Ana's General Plan will address the following eight mandatory and five optional topics:

Mandatory Topics

- Land Use
- Circulation
- Housing*
- Environmental Justice**
- Open Space
- Conservation
- Safety
- Noise

Optional Topics

- Health and Wellness
- Historic Preservation
- Urban Design
- Economic Prosperity
- Community Services

** The updated General Plan will incorporate the current 2014–2021 Housing Element and no substantive changes are anticipated as part of the comprehensive general plan update. The topic of housing will be addressed as a separate effort in late 2021 in accordance with state law.*

*** The topic of environmental justice will be incorporated throughout the General Plan, with goals and policies incorporated into multiple elements.*

Project Buildout

In coordination with the General Plan Advisory Group, the City identified five areas suited for new growth and development: South Main Street, Grand Avenue/17th Street, West Santa Ana Boulevard, 55 Freeway/Dyer Road, and South Bristol Street. These five areas are located along major travel corridors, the future OC Streetcar line, and/or linked to the Downtown. In general, many areas currently designated for General Commercial and Professional Office are expanding opportunities for residential development through a proposed change to the Urban Neighborhood or District Center General Plan land use designations. Industrial Flex would be introduced where Industrial land use designations currently exist within each of the five focus areas in order to allow for cleaner industrial and commercial uses with live-work opportunities.

There are seven other planning areas that represent specific plans and other special zoning areas that were previously adopted: Adaptive Reuse Overlay (2014), Bristol Street Corridor Specific Plan (1991/2018), Harbor Mixed Use Corridor Specific Plan (2014), MainPlace Specific Plan (2019), Metro East Overlay Zone (2007/2018), Midtown Specific Plan (1996), and Transit Zoning Code Specific Development (2010). The potential for new development in these areas is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between their adoption date and 2019. The most recent adoption/amendment date for each zoning document is noted in parentheses.

Growth outside of the focus areas and special planning areas is expected to be incremental and limited. Some growth was projected for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan. Some growth was also projected for the commercial and retail area south of the West Santa Ana Boulevard focus area. Finally, some additional residential development is expected to occur on a small portion (five percent) of single-family and multi-family lots through the construction of second units.

Table 1 provides a statistical summary of the buildout potential associated with the General Plan compared to existing conditions. Figure 1 displays the draft General Plan Land Use Map while Figure 2 illustrates the boundaries of the five focus areas and special planning areas.

4. Probable Environmental Effects

The City has determined that a Program EIR will be prepared for the proposed General Plan. Section 15168 of the CEQA Guidelines states that a Program EIR may be prepared on a series of actions that can be characterized as one large project and are related either: 1) geographically; 2) as logical parts in the chain of contemplated actions; 3) in connection with issuance of rules, regulations, plans, or other general criteria to govern the conduct of a continuing program; or 4) as individual activities carried out under the same authorizing statutory or regulatory authority and having generally similar environmental effects that can be mitigated in similar ways.

The Program EIR will be prepared in accordance with the requirements of CEQA Statute and Guidelines, as amended. Pursuant to Section 15146 of the CEQA Guidelines, the degree of specificity in the Program EIR will correspond to the degree of specificity involved in the proposed General Plan. The EIR will focus on the primary effects that can be expected to follow from adoption of the proposed project and will not be as detailed as an EIR on the specific development or construction projects that may follow. Based on the City's preliminary analysis of the project, the following environmental impact categories and their associated impact thresholds will be examined in the Program EIR:

- Aesthetics
- Agricultural/Forest Resources
- Air Quality
- Biological Resources
- Cultural Resources
- Energy
- Geology and Soils
- Greenhouse Gas Emissions
- Hazards/Hazardous Materials
- Hydrology/Water Quality
- Land Use/Planning
- Mineral Resources
- Noise
- Population/Housing
- Public Services
- Recreation
- Transportation
- Tribal Cultural Resources
- Utilities/Service Systems
- Wildfire

The Draft EIR will address the short- and long-term effects of the General Plan on the environment. Mitigation measures will be proposed for impacts that are determined to be significant. A mitigation monitoring program will also be developed as required by Section 15150 of the CEQA Guidelines.

5. Public Review Period

This NOP will be available for a 30-day public review period from **February 26, 2020,** to **March 27, 2020,** on the City's website at https://www.santa-ana.org/general-plan. Hard copies will also be available at:

City of Santa Ana, Planning Division
20 Civic Center Plaza, M-20
Santa Ana, CA 92701

City of Santa Ana Public Library
26 Civic Center Plaza
Santa Ana, CA 92701

The City is seeking input from both agencies and members of the public on the scope and content of the environmental information and analysis in the EIR. Due to the time limits mandated by state law, written comments must be sent via mail, e-mail, or fax no later than 5:00 PM on **Thursday March 27, 2020**. Please send your comments at the earliest possible date to:

Verny Carvajal, Principal Planner
City of Santa Ana Planning and Building Agency
PO BOX 1988 (M-20)
Santa Ana, CA 92702
Email: VCarvajal@santa-ana.org

6. Public Scoping Meeting

Pursuant to the California Public Resources Code Section 21083.9, the City will conduct a public scoping meeting. This meeting will provide a public forum for information dissemination and dialogue regarding the components of the proposed project and the environmental review process. Please note the main purpose of the public scoping meeting is to provide a project description and solicit comments to refine and/or expand the scope of the EIR. **Although staff will summarize the issues raised at these meetings, anyone wishing to make formal comments on the scope of the EIR must do so in writing.** The public scoping meeting will be held on:

Date: Thursday, March 5, 2020
Time: from 6:00 to 7:30 PM
Location: Santa Ana Police Community Room, 60 Civic Center Plaza, Santa Ana, CA 92701

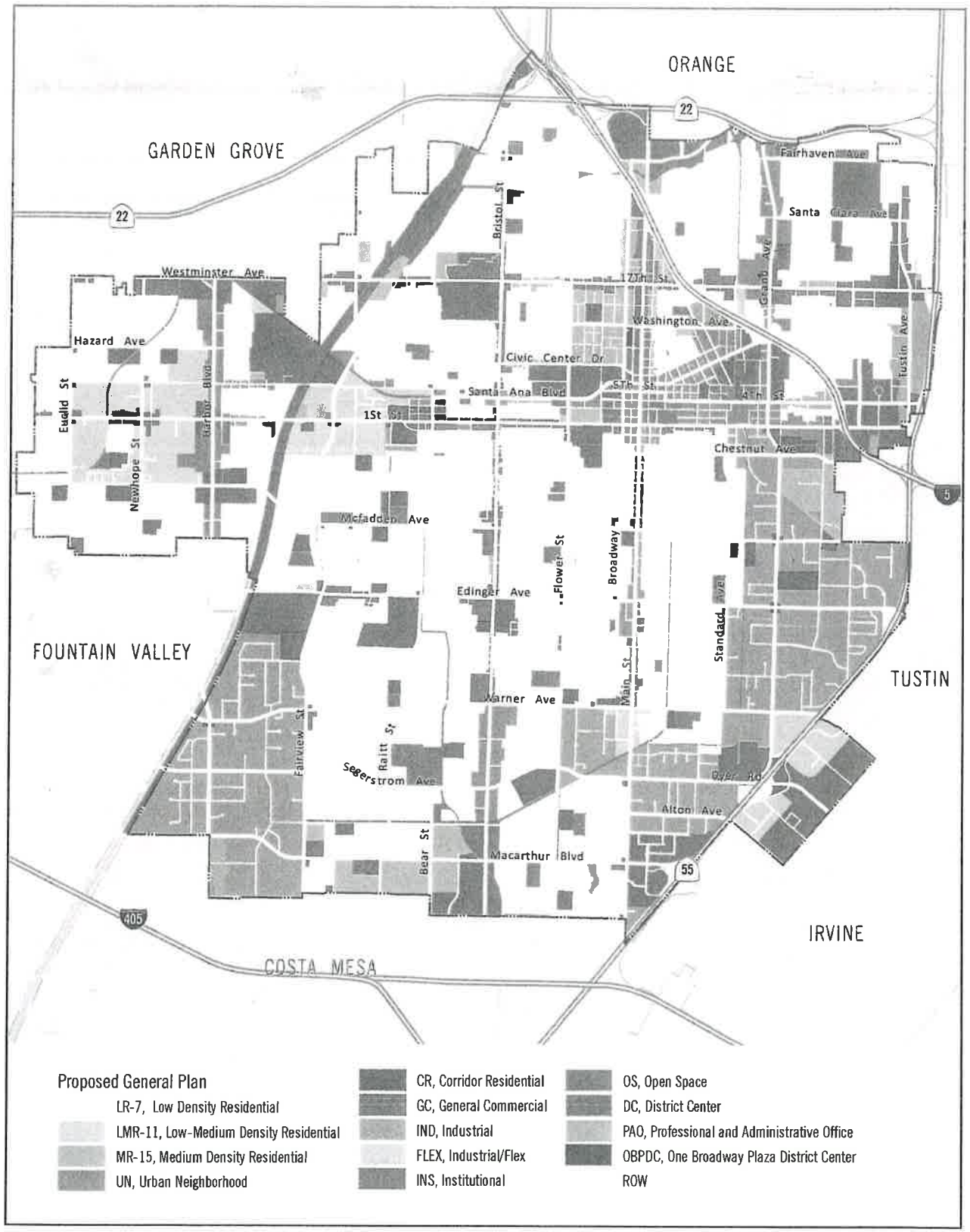
Table 1 Existing Conditions, Potential Growth, and Buildout Conditions in Santa Ana, 2020 to 2045

PLANNING AREA	EXISTING [1]			GROWTH [2]			BUILDOUT		
	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs	Housing Units	Bldg. Sq. Ft.[3]	Jobs
FOCUS AREAS	**6,380**	**12,849,259**	**29,931**	**17,481**	**3,233,332**	**9,542**	**23,861**	**16,082,591**	**39,473**
55 Freeway/Dyer Road	1,221	5,094,557	10,401	8,731	1,434,665	3,849	9,952	6,529,222	14,250
Grand Avenue/17th Street	561	1,400,741	3,568	1,667	-689,325	-1,929	2,228	711,416	1,639
South Bristol Street	220	1,577,511	3,337	5,233	3,508,975	11,319	5,453	5,086,486	14,656
South Main Street	1,720	1,685,978	3,455	588	-739,316	-1,304	2,308	946,662	2,151
West Santa Ana Boulevard	2,658	3,090,472	9,170	1,262	-281,667	-2,393	3,920	2,808,805	6,777
SPECIFIC PLAN / SPECIAL ZONING	**4,685**	**13,924,891**	**38,548**	**15,839**	**3,033,554**	**1,154**	**20,524**	**16,958,445**	**39,702**
Adaptive Reuse Overlay Zone [4]	260	976,935	3,043	1,000	0	-476	1,260	976,935	2,567
Bristol Street Corridor Specific Plan	136	140,348	294	-1	2,791	-12	135	143,139	282
Harbor Corridor Specific Plan	1,324	1,767,937	3,286	3,298	200,045	-1,708	4,622	1,967,982	1,578
Main Place Specific Plan	0	1,108,080	2,216	1,900	1,318,843	3,164	1,900	2,426,923	5,380
Metro East Overlay Zone	844	2,516,056	7,524	4,707	2,169,891	4,734	5,551	4,685,947	12,258
Midtown Specific Plan	607	1,885,065	4,824	0	-66,812	-209	607	1,818,253	4,615
Transit Zoning Code	1,514	5,530,470	17,361	4,935	-591,204	-4,339	6,449	4,939,266	13,022
ALL OTHER AREAS OF THE CITY [5]	**67,727**	**39,772,550**	**92,004**	**2,847**	**552,536**	**3,666**	**70,574**	**40,325,086**	**95,670**
CITYWIDE TOTAL	**78,792**	**66,546,700**	**160,483**	**36,167**	**6,819,422**	**14,362**	**114,959**	**73,366,122**	**174,845**

Source: City of Santa Ana, 2020.

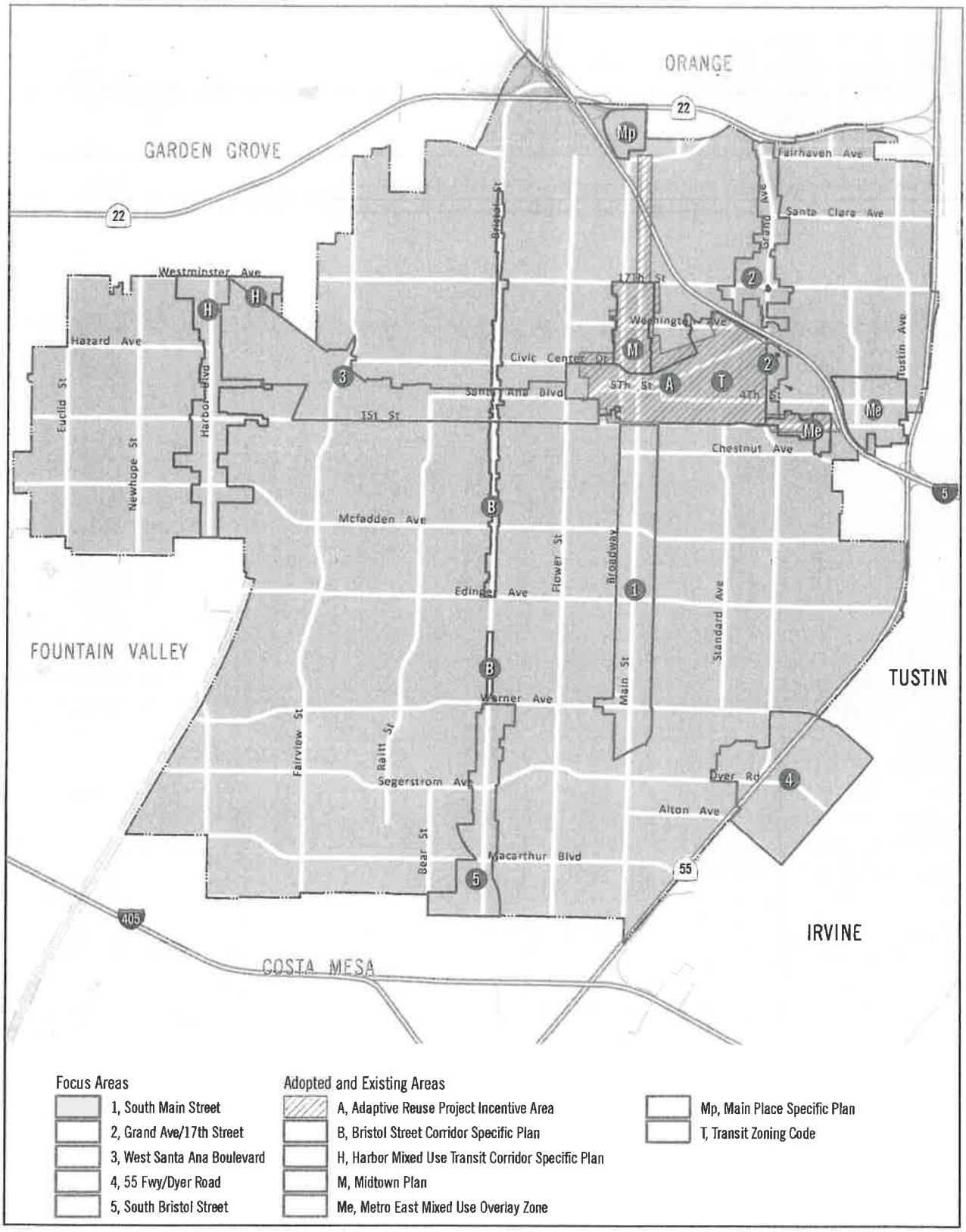
1. Existing represents conditions as of December 2019 as derived from the City of Santa Ana Planning Information Network and projects already under construction per the January 2020 monthly development project report.
2. The potential growth for new development in specific plan/special zoning area is based on the forecasted buildout at the time of the respective zoning document's adoption, minus the amount of new development built between its adoption date and 2019.
3. Only includes nonresidential building square footage.
4. The figures shown on the row for the Adaptive Reuse Overlay represents parcels that are exclusively in the Adaptive Reuse Overlay boundary. Figures for parcels that are within the boundaries of both the Adaptive Reuse Overlay Zone and a specific plan, other special zoning, or focus area boundary are accounted for in the respective specific plan, other special zoning, or focus area.
5. The City has included an assumption for growth on a small portion (five percent) of residential parcels through the construction of second units, which is distributed throughout the City and is not concentrated in a subset of neighborhoods. Additional growth includes known projects in the pipeline and an increase of 10 percent in building square footage and employment for the professional office surrounding the Orange County Global Medical Center and along Broadway north of the Midtown Specific Plan, as well as the commercial and retail area south of the West Santa Ana Boulevard focus area.

Figure 1 - Proposed General Plan Land Use



PlaceWorks

Figure 2 - Proposed General Plan Focus Areas and Other Special Planning Areas



1. Please **confirm or update** the following information we obtained from the District's website:

Data only Available for 2019-2020

GGUSD schools serving the City of Santa Ana include:
(Please enter enrollments and capacities in the table.)

GGUSD Schools Serving Residents from the City of Santa Ana

School	*Grades*	*Location*	*Academic Year 2020-2021 Enrollment*	Perm/ Inc. Portable *Capacity*
R. F. Hazard Elementary School	K-6th	4218 West Hazard Avenue	432	350/700
Rosita Elementary School	K-6th	4726 West Hazard Avenue	503	450/725
Heritage Elementary School	K-6th	426 South Andres Place	506	550/850
Edward Russell Elementary School	K-6th	600 South Jackson	492	500/875
Newhope Elementary	K-6th	4419 West Regent Drive	394	450/600
Stephen R. Fitz Intermediate	7th-8th	4600 West McFadden Avenue	640	783/719

Calculated at 25 per class k-6, 27 per class 7-12

2. Does the District plan to build any new schools that would potentially serve the project area? If so, please provide grade levels, location, and capacity for each planned school.

Grades	*Location/Address*	*Capacity*	*Anticipated Opening Year*

NA

3. Are there any existing shortages in the amount of classroom, athletic, recreational or other facilities available to serve the current number of students? If shortages exist, what is the basis for determining those shortages?

TABLE 1
FACILITIES CAPACITY AND STUDENT ENROLLMENT

SCHOOL LEVEL	EXISTING PERMANENT FACILITIES CAPACITY	STUDENT ENROLLMENT (OCTOBER 2019)	AVAILABLE/ (DEFICIT) CAPACITY
Elementary School (TK-6)	22,100	20,748	1,352
Intermediate School (7-8)	6,399	6,735	(336)
High School (9-12)	12,069	13,742	(1,673)
TOTAL	**40,568**	**41,225**	**(657)**

4. Please **confirm or update** the following developer impact fees for residential and commercial development (obtained from the GGUSD's Website).

   a. Residential development fees are $3.79 per square foot.
   Proposed increase to $4.09 on 5/16/20

   b. Commercial/Industrial/Senior Housing development fees are $0.61 per square foot.
   Proposed increase to $0.66 on 5/16/20

   c. Assessable space for self-storage development fees are $0.06 per square foot.
   Confirmed

5. What are the student generation rates for elementary, intermediate, and high schools within the District?

   a. Are there generation rates specific to housing type (i.e., single-family, multifamily, etc.)?

TABLE 3
STUDENT GENERATION RATES

SCHOOL LEVEL	STUDENT GENERATION RATES PER RESIDENTIAL UNIT		
	SFD	SFA	MF
Elementary School (TK-6)	0.2989	0.0876	0.2296
Intermediate School (7-8)	0.0969	0.0272	0.0734
High School (9-12)	0.2029	0.0562	0.1421
TOTAL	**0.5987**	**0.1710**	**0.4451**

6. How would the proposed project, which includes land use designation changes that would accommodate a buildout of 6,819,422 additional nonresidential square feet, 36,167 additional dwelling units, and 14,362 jobs affect the existing GGUSD school services and facilities?

   In the 2 areas where GGUSD students are drawn from: Focus area 3, West Santa Ana Boulevard and Specific plan area H, Harbor Mixed use Transit corridor residential units and Commercial square footage will produce an estimated 848 net increase in students.

7. Please provide any additional comments you may have regarding the proposed project.

Response Prepared By:

Jerry Hills — Facilities Director

Name — **Title**

Garden Grove Unified School District — 3/10/20

Agency — **Date**

School site	grades	location	2019-2020 enrollment	capacity permanent building	Capacity relocatable	total capacity
Clinton	k-6	13641 Clinton St., Garden Grove	595	600	475	**1075**
Post	k-6	14641 Ward St. ,Westminster	462	500	150	**650**
Paine	k-6	15792 Ward st., Garden Grove	442	500	75	**575**
Monroe	k-6	16225 Newhope St., Fountain Valley	416	500		**500**
Riverdale	k-6	13222 Lewis St., Garden Grove	558	350	375	**725**
Anthony	k-6	15320 Pickford st., Westminster	359	500	50	**550**
Morningside	k-6	10521 Morningside Dr., Garden Grove	432	500	100	**600**
Peters	k-6	13162 Newhope st., Garden Grove	1118	775	675	**1450**
Doig	7-8	12752 Trask Ave., Garden Grove	765	621	297	**918**
Irvie	7-8	10552 Hazard Ave., Garden Grove	674	783	108	**891**
Santiago	9-12	12342 Trask Ave., Garden Grove	1967	1782	621	**2403**
Los Amigos	9-12	16566 Newhope St., Fountain Valley	1741	1539	540	**2079**
LaQuinta	9-12	10372 McFadden Ave., Westminster	2145	2214	243	**2457**
Bolsa Grande	9-12	9401 Westminster Ave., Garden Grove	1916	1674	216	**1890**

SANTA ANA GENERAL PLAN UPDATE
Tustin Unified School District Questionnaire

1. Please provide the following:

   - A list of all the schools in TUSD that service Santa Ana residents,
   - The existing enrollments of each of these schools, and
   - The existing capacities of each of these schools.

   Please see Appendix A from the attached a table Fee Justification Report adopted by the Board of Education on April 13, 2020. Schools that service students from the general plan area are highlighted in yellow.

2. Does the District plan to build any new schools that would potentially serve the project area? If so, please provide grade levels, location, and capacity for each planned school.

Grades	***Location/Address***	***Capacity***	***Anticipated Opening Year***

3. Are there any existing shortages in the amount of classroom, athletic, recreational or other facilities available to serve the current number of students? If shortages exist, what is the basis for determining those shortages?

   As a whole, schools in the District are at or above capacity per the Table attached in item 1. The District strives to provide adequate facilities at all of its schools. The collection of developer fees helps the District to fund projects that may help to fill any shortages.

4. Please **confirm or update** the following developer impact fees for residential and commercial development (obtained from the TUSD website).

    a. Residential development fees are $3.79 per square foot.

    b. Commercial development fees are $0.61 per square foot.

The Board of Education took action of April 13, 2020 to increase residential development fees to $4.08 per square foot and commercial/industrial development fees to $0.66 per square foot. These increased fees will take effect on June 12, 2020.

5. Please **confirm or update** the following student generation rates for elementary, intermediate, and high schools obtained from the District's 2018 Residential, Commercial/Industrial Development School Fee Justification Study.

    a. Elementary school (Grades K-5): 0.1434 per multi-family housing unit

    b. Intermediate school (Grades 6-8): 0.0736 per multi-family housing unit

    c. High school (Grades 9-12): 0.0902 per multi-family housing unit

There are no student generation rates for single-family homes because "the vast majority of future unmitigated residential dwelling units expected to be constructed consist of multi-family dwelling units."[1]

Table 4 on page 8 of the attached District's Fee Justification Report adopted by the Board of Education on April 13, 2020, shows current student generation rates, including rates for single family detached units.

6. How would the proposed project, which includes land use designation changes that would accommodate a buildout of 6,819,422 additional nonresidential square feet, 36,167 additional dwelling units, and 14,362 jobs affect the existing TUSD school services and facilities?

As stated above, school facilities in TUSD are at or near capacity. The addition of k-12 students would create a major impact on our facilities unless mitigation is provided to help the District respond to the facilities needs created by those new students.

[1] Fee Justification Report for Residential and Commercial/Industrial Development https://www.tustin.k12.ca.us/uploaded/District_Office/Business_Services/Fiscal_Services/School_Facilities_Fees/Fee_Justification_Report_March_2018.pdf (page 13)

7. Please provide any additional comments you may have regarding the proposed project.

The District expects that all future development created by this project will pay the maximum development fee in place at the time building permits are obtained.

The District has attached the Fee Justification Report adopted by the Board of Education on April 13, 2020 as a reference to this request.

Response Prepared By:

Tom Rizzuti	Director, Facilities & Planning
Name	**Title**
Tustin Unified School District	April 17, 2020
Agency	**Date**

Tustin Unified School District
Capacity Calculation - State Loading Standards

Fiscal Year 2019/20

	School	Total CR [1]	Current Classroom Counts [1] TK-6 (25)		7-12 (27)		Severe (9)		Non Severe (13)		Capacity 2019/20 100%	Enrollment 2019/20 Enrollment	State Loading 100% Capacity vs Enrollment +/-
ELEM	Arroyo	24	24	600		0	0	0	0	0	600	637	-37
ELEM	Benson	17	14	350		0	0	0	3	39	389	391	-2
ELEM	Beswick	12	11	275		0	0	0	1	13	288	511	-223
ELEM	Estock	21	21	525		0	0	0	0	0	525	516	9
ELEM	Guin Foss	15	15	375		0	0	0	0	0	375	427	-52
ELEM	Heideman	29	29	725		0	0	0	0	0	725	606	119
ELEM	Heritage	21	21	525		0	0	0	0	0	525	485	40
ELEM	Hicks Canyon	36	36	900		0	0	0	0	0	900	934	-34
ELEM	Ladera	14	14	350		0	0	0	0	0	350	318	32
ELEM	Loma Vista	25	22	550		0	0	0	3	39	589	469	120
ELEM	Myford	28	25	625		0	0	0	3	39	664	594	70
ELEM	Nelson	26	24	600		0	0	0	2	26	626	531	95
ELEM	Orchard Hills - k-8 (see below)	18	18	450		0	0	0	0	0	450	431	19
ELEM	Peters Canyon	22	19	475		0	0	0	3	39	514	510	4
ELEM	Red Hill	23	21	525		0	0	0	2	26	551	553	-2
ELEM	Thorman	30	30	750		0	0	0	0	0	750	787	-37
ELEM	Tustin Connect Academy	1	1	25		0	0	0	0	0	25	17	8
ELEM	Tustin Memorial Academy	22	22	550		0	0	0	0	0	550	602	-52
ELEM	Tustin Ranch	21	21	525		0	0	0	0	0	525	570	-45
		405	388		0		0		17		9,921	9,889	32

	School	Total CR	TK-6 (25)		7-12 (27)		Severe (9)		Non Severe (13)		2019/20 100%	2019/20 Enrollment	100% Capacity vs Enrollment +/-
MID	Columbus Tustin	38	0	0	28	756	0		5	65	821	808	13
MID	Currie	31	0	0	24	648	0		2	0	648	591	57
MID	Hewes	38	0	0	33	891	0		1	13	904	984	-80
MID	Orchard Hills	28	0	0	25	675	0		2	26	701	993	-292
MID	Pioneer	46	0	0	41	1107	0		1	13	1,120	1,189	-69
MID	Tustin Connect Academy	1	0	0	1	27	0		0	0	27	31	-4
MID	Utt	36	0	0	29	783	0		3	39	822	937	-115
	Totals	218	0		181		0		14		5,043	5,533	-490

	School	Total CR	TK-6 (25)		7-12 (27)		Severe (9)		Non Severe (13)		2019/20 100%	2019/20 Enrollment	100% Capacity vs Enrollment +/-
HIGH	Beckman	107		0	91	2457	0	0	6	78	2,535	2,947	-412
HIGH	Foothill	95		0	81	2187	0	0	6	78	2,265	2,424	-159
HIGH	Hillview/Sycamore at Lambert	25		0	13	351	0	0	0	0	351	230	121
HIGH	Tusin Connect Center	3		0	3	273	0	0	0	0	273	98	175
HIGH	Tustin	97		0	82	2214	0	0	8	104	2,318	2,282	36
		327	0		270		0		20		7,742	7,981	-239

SUMMARY	Total CR	TK-6	7-12	Severe	Non Severe	2019/20 Capacity 100%	2019/20 Enrollment	100% Capacity vs Enrollment +/-
	950	388	451	0	51	22,706	23,403	-697

(1) Classroom Counts exclude classroom facilities that do not meet state requirements (i.e., less < 960 square feet) or which are used for other educational purposes (ROP, etc).

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Tustin Unified School District

FEE JUSTIFICATION REPORT

For Residential & Commercial/Industrial Development

March 2020



PREPARED FOR:
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EXECUTIVE SUMMARY

This Fee Justification Report ("Report") for Residential and Commercial/Industrial Development has been prepared by Special District Financing & Administration ("SDFA") for the purpose of identifying the impact of projected future development on the school facilities of the Tustin Unified School District ("TUSD" or "District"), the ability of the District's current facilities to accommodate the impact, and the extent to which projected demand exceeds the District's current facilities capacity as well as quantify the costs associated with meeting the increased demand.

Specifically, this Report is intended to provide the Board of Education of the District with the required information to make the necessary findings set forth in Government Code Section 66001 et seq. and in accordance with Government Code Section 65995 et. seq, to support the District's collection of its fair share of the statutory fees allowed by the State of California, which for unified districts (K-12) is currently $4.08 per square foot of new residential development and $0.66 per square foot of new commercial/industrial development. The TUSD is a unified school district providing school facilities to elementary and secondary students living within the cities of Irvine, Santa Ana and Tustin as well as small portions of unincorporated areas within the County of Orange.

The findings contained in this Report include the following:

- *In accordance with state classroom loading standards, the District currently has school capacity to house approximately 22,706 students.*

- *As of October 2, 2019, current enrollment, including Special Day Class students, is approximately 23,403 students resulting in an aggregate capacity deficit of 697 seats.*

- *At least 3,127 new dwelling units could be constructed during the next twenty years within the boundaries of the school district and for which they have not mitigated the impact of their development through participation in a community facilities district, a negotiated fee payment or some other mitigation measure ("Mitigated Developments").*

- *Future development of single-family housing is largely expected to occur within the District's remaining mitigated developments (i.e., Orchard Hills and Tustin Legacy) and almost all future unmitigated development will consist of multi-family housing and the District's student generation rates indicate that almost one and one-half elementary, one middle, and one high school student is generated from every ten multi-family ("MF") dwelling units constructed.*

- *Approximately eighty-two percent (82%) of an elementary school and forty-two percent (42%) of a Grade 6-12 school facility will need to be constructed in order to*

provide adequate facilities to house students to be generated from currently unmitigated developments which lie within the boundaries of the District. The estimated cost of these school facilities, excluding interim housing requirements and central administrative support, is almost $78 million dollars.

- *Taking into account the cost of interim housing and administrative support, the total cost of school facilities results in a cost of approximately $78,661 per elementary student, $90,919 per school student in grades 6-12. Thus, estimated school facilities cost per dwelling unit is approximately $26,065.*

- *Based on development plans for projects within the Cities of Irvine, Santa Ana and Tustin, the District estimates that the average size of future residential dwelling units to be constructed within the TUSD will be approximately 1,414 square feet. Based upon the average square footage, the District would need to collect approximately $18.43 per square foot of new residential development to mitigate the school facilities impacts. This amount is well in excess of the amount that may be currently collected by the District (i.e., the District's maximum fee amount is $4.08 per square foot) and permitted by state statute. Thus, the District is justified in collecting the statutory fees for residential development as permitted by state law.*

- *Utilizing estimates regarding employee generation and associated residential household generation gleaned from recent Census data, it was determined that the District would need to collect between $0.38 and $60.35 per square foot of commercial/industrial development to mitigate the gross school facilities impacts resulting from almost all new non-residential development. This amount is well in excess of the amount currently collected by the District (i.e., the District's maximum fee amount is $0.66 per square foot) and permitted by state statute. Thus, the District is justified in collecting $0.38 per square foot for new self-storage development and the District is justified in collecting the matimum statutory fee of $0.66 per square foot for all commercial/industrial development as permitted by state law.*

- *Absent additional state or local funding, the District will not be able to provide adequate school facilities for new residential, commercial or industrial developments that are constructed within the boundaries of the District and for which no additional mitigation is received.*

Section
One

INTRODUCTION

This Section of the Report sets forth the legislative requirements as well as the methodology and data sources utilized in the analysis of the District's school facilities impact. Also included in this Section is a brief description of the TUSD, its current student enrollment and its current capacity.

The Tustin Unified School District

The TUSD is a political subdivision of the State of California and encompasses more than twenty-four (24) square miles in central Orange County and includes almost all of the territory within the boundaries of the City of Tustin as well as portions of the cities of Irvine and Santa Ana as well as an unincorporated area known as Tustin Foothills located primarily in the northern portion of the District. Its western boundary includes portions of Santa Ana with the portion of the western boundary line that lies north of Interstate 5 running along Marbury and Wright Streets and the portion that lies south of the Interstate largely coterminous with Lyon Avenue. Its southern boundary line runs along Warner Avenue on both the west and east areas of the District with the central portion of the district's southern boundary (between Armstrong and Jamboree) extending south to McGaw Avenue. The eastern boundary of the District is coterminous with Jamboree Road south of Interstate 5 and then is represented by Culver Drive north of Interstate 5 with the boundary line extending north of Portola Parkway into the area known as Orchard Hills (Planning Area No. 1 of the City of Irvine). The eastern portion of the District's northern boundary lies adjacent to Peters Canyon Regional Park and then follows along a number of residential streets in the Tustin Foothills on the west side of the District.

The TUSD is a geographically small, unified (K-12) school district that primarily serves an urban population with an enrollment of almost 24,000 students housed in twenty-nine different schools, including seventeen elementary, one K-8 school, five middle (grades 6-8), three comprehensive high schools as well as one alternative education school and one continuation school. The District serves a diverse ethnic population that includes more than 100,000 people in the cities of Irvine, Tustin and Santa Ana as well as the unincorporated area known as the Tustin Foothills.

Synopsis of District Growth & Student Capacity

During the past thirty years, the District has experienced significant student growth as well as accompanying demographic changes both in terms of ethnicity and economic diversity. With the development of Tustin Ranch, Lower Peter's Canyon, MCAS/Legacy and Orchard Hills master-planned communities as well as other projects, the last decade has seen continuous enrollment growth. During the ten-year period from 2009 to 2018, District enrollment went up by almost 1,800 students, an increase of more than eight percent (8%).

Student enrollment for 2019/20 by school type is as follows:

Table I

FY 2019/20 Student Enrollment

School Type	Current Enrollment (1)
Elementary School (Grades K-6)	9,889
Middle School (Grades 7-8)	5,533
High School (Grades 9-12)	7,981
Total 2019/20 Enrollment	23,403

(1) Reflects enrollment in District's iniital enrollment data file from October 2, 2019 and may not correspond to CSIS enrollment figures.

Current enrollment figures show that the total student population is just over 23,400 students. For purposes of calculating current capacity under the School Facilities Program the District relies on capacity computations as summarized on its School Capacity Study worksheet, attached as Appendix "A". This worksheet indicates that the District's current school facilities are sufficient to house 9,921 elementary, 5,034 middle, and 7,742 high school students or a total of 22,706 pupils. A comparison of current student enrollment to current capacity demonstrates that the District currently has insufficient facilities to adequately house its current enrollment at both middle and high school levels with approximately one classroom of excess capacity at the elementary school level. While there may be some short-term surplus capacity at various sites, with the pending build-out of the Orchard Hills Development (which has already mitigated its obligation via the funding and construction of the Orchard Hills K-8 facility located in CFD No. 14-1), any current surplus seats in the District will likely be absorbed as students from CFD 14-1 are generated.

Based upon the most recent population and housing estimates and trends as indicated by recent census data and corroborated by recent development within the District, it is anticipated that the growth experienced by the District during the past decade is likely to continue in the near future with the redevelopment of the Marine Corps Air Base (MCAS). Specifically, current growth estimates of the cities of Santa Ana, and Irvine indicate that housing development in the northwest portion of Irvine and the eastern portion of Santa Ana, and more particularly within the jurisdictional boundaries of the TUSD, will continue. Thus, as the District's current facilities are inadequate to house *all* of the additional students beyond its current enrollment and the future dwelling units to be constructed within Mitigated Developments, additional facilities must be added to provide some incremental capacity for students that will be generated from new non-mitigated development.

During the past twenty-eight years the District and the development community have entered into various mitigation agreements in order to ensure the timely construction of school facilities to house students from new development (Mitigated Development). The primary financing mechanism authorized in the mitigation agreements is the formation of a community facilities district (CFD). The District can then issue bonds to construct school facilities with repayment of the bonds being accomplished through the levy of a special tax on properties within the CFDs. These developments that are subject to the special tax are considered Mitigated Developments as they have provided significant funding and support to the TUSD facilities program since 1989. Nevertheless, increased student generation within existing developments as well as new residential construction for which a mitigation agreement does not exist continues to cause the District to operate with inadequate school facilities.

Legislative History

School districts have historically relied upon state funds and local bond measures to provide funding for the acquisition and construction of new school facilities. Prior to the passage of Proposition 13 in 1978, a school district's share of local property taxes was typically sufficient to build necessary schools to accommodate new development. The rapid increase in real estate prices within California during the 1970's and 1980's ensured that revenues would expand as the "ad valorem" tax base grew. However, limitations on the growth of this funding source were significantly constrained by the passage of Proposition 13, which limited annual increases in assessed values, except in the case of ownership transfers, to two percent (2%). This action, combined with a compounding need for new construction monies, caused significant hardships in many school districts during the early 1980's.

In 1986 the state legislature attempted to address this funding shortfall through the enactment of Assembly Bill 2926 ("School Fee Legislation"), which provided for the imposition of development fees on new residential and commercial/industrial construction. The School Fee Legislation provides that development fees are to be collected prior to the issuance of a building permit. Furthermore, no city or county is authorized to issue a building permit for new residential or commercial/industrial projects unless it first certifies with the appropriate school districts that the developer of the project has complied with the development fee requirement.

Shortly thereafter, AB 1600 ("Mitigation Fee Act") was enacted by the state legislature and took effect on January 1, 1989. Government Code Section 66001 and following sets forth the requirements for establishing, imposing and increasing development fees initially authorized under AB 2926. Specifically, the Mitigation Fee Act requires that a reasonable relationship or "nexus" exist between the type and the amount of a development fee imposed and the cost of the benefit to be derived from the fee. Specifically, Section 66001 of the Government Code with respect to the imposition of development fees provides, in pertinent part, that any action establishing, increasing, or imposing a fee on new development shall do all the following:

- *Identify the purpose of the fee.*
- *Identify the use to which the fee is to be put.*

- *Determine how there is a reasonable relationship between the fee's use and the type of development project on which the fee is imposed.*
- *Determine how there is a reasonable relationship between the need for the public facility and the type of development project on which the fee is imposed.*

The development fees are currently authorized under Education Code Section 17620 and are $4.08 per square foot of new residential construction and $0.66 per square foot of new commercial/industrial development (for K-12 school districts). These development fees may next be increased by the SAB in 2022 and every two years thereafter.

In June of 2006, Assembly Bill 2751 was passed which added the criteria that a fee is prohibited from including the cost attributable to existing deficiencies in public facilities. In the case of a school district, this would mean that existing capacity deficits could not be added to the facilities funding required from future development. In this Report, this is demonstrated in the calculations by not including any deficit which would be shown in Table II, if any, to the School Facilities Required for New Development (Unmitigated) (Table X) or to the cost of such school facilities (Tables XII, XIII and XIV).

Methodology

In order to determine the impact of new construction on TUSD facilities the relationship between the new construction and its impact on the demand for school facilities must be identified. For residential development this determination includes the following:

- *Projecting the number of future residential dwelling units to be constructed within TUSD boundaries.*
- *Calculating a student generation rate (i.e., students expected to be generated from each new home) for the future dwelling types expected to be constructed in the future.*
- *Determining the number of students to be generated from new development.*
- *Identifying the "per student cost" for new elementary, middle and high school facilities.*
- *Multiplying the per student costs for elementary, middle and high school facilities by the applicable student generation rate.*

The methodology for determining the impact of new commercial/industrial development is similar. However, instead of determining the number of students to be generated per new dwelling unit, the focus is on the number of students generated per employee.

This Report utilizes in part, employee generation factors derived from the Traffic Generator's Guide prepared by the San Diego Association of Governments (SANDAG), last updated in April of 2002, as well as certain census data compiled by the U.S. Census Bureau.

Data Sources

The primary information used to establish a nexus between new development and school facilities impacts includes residential housing projections, employment impacts from new commercial/industrial development, historical student generation rates and facilities cost estimates. Primary information sources regarding future housing projections includes preliminary data for the Legacy Project gleaned from the Specific Plan for the Marine Corps Air Station (MCAS) as well as planning and current project documents obtained from the cities of Irvine, Santa Ana and Tustin. Data for determining commercial/industrial impacts was derived from the Traffic Generators Guide prepared by SANDAG as well as 2006-2010 Census Data for the cities of Irvine, Tustin and Santa Ana. Student generation rates for this Report were calculated by SDFA. Equal Employment Opportunity Commission (EEOC) worksite data derived from the American Community Survey (2006-10) conducted by the US Census Bureau was utilized to determine school facilities impacts associated with new non-residential development. Facilities cost estimates were prepared using cost information obtained from the District's Facilities Department.

Section
Two

RESIDENTIAL DEVELOPMENT

This Section of the Report identifies the school facilities impact from new residential construction.

Existing Facilities Capacity and Current Enrollment

Prior to examining the school facilities impacts from new development, the District's current capacity and enrollment were reviewed to identify existing facilities that may be available to house future students. As shown in Appendix "A" (School Capacity Worksheet), the District has determined that its existing school building capacity is approximately 22,706 elementary, middle and high school seats. As shown in Table I, CSIS enrollment figures for 2019/20 include 23,403 students. The resulting capacity deficit is shown in Table II.

Table II
Existing School Facilities Capacity

School Type	2019/20 Capacity (1)	2019/20 Enrollment (2)	Existing Seat Surplus/(Deficit)
Elementary (K-6)	9,921	9,889	32
Middle (7-8)	5,043	5,533	(490)
High (9-12)	7,742	7,981	(239)
Aggregate	22,706	23,403	(697)

(1) Includes Permanent Facilities & Interim Facilities.

(2) For purposes of determining available overall facilities capacity in accordance with state classroom loading standards, both capacity and enrollment figures identified in Appendix "A" and Table II reflect grades K-6 at the elementary school level and grades 7-8 at the middle school level. However, consistent with current District educational program policies, the District's sixth graders are predominantly attending the District's middle schools. Thus, for determining the facilities impact from future development and future school design goals, the District will assume that sixth grade students generated from future unmitigated development will continue to be housed at middle school facilities.

Future Residential Unit Projections

In the summer of 2005, the District entered into a mitigation agreement with the Irvine Company for the future development project known as Orchard Hills (Planning Area No. 1), which is primarily located northwest of the intersection of Culver Drive and Portola Parkway in the City of Irvine. And in the fall of 2015, TUSD completed its negotiations with the City Tustin related to the redevelopment of the remaining portion of the Tustin Marine Corps Air Station (MCAS). Both of these projects are expected to generate a significant number of students that must be housed in school facilities provided by the District but as a result of successful negotiations, their anticipated facilities impacts will be met through the formation of two CFDs and the issuance of bonds to construct facilities to serve their communities.

As a result, the anticipated student impacts from these communities at grades kindergarten through twelfth (K-12) are excluded from this analysis, so that only the net impact from unmitigated developments that will be subject to statutory fees will be considered.

Thus, for purposes of this analysis, the District's projection of future housing that is not yet mitigated consists primarily of (i) underdeveloped property located north of McGaw Avenue between Armstrong and Jamboree Road which is referred to as the IBC (Irvine Business Center), (ii) the Metro-East Overlay Zone located in the City of Santa Ana and (iii) future "in-fill" developments within the City of Tustin. The District has not incorporated in its estimate a significant number of future dwelling units expected from currently unidentified in-fill development. This estimate is summarized in Table III and is also included in Appendix "D".

Table III
Projected Future Residential Units located within Unmitigated Developments [(1)]

Jurisdiction	Single-Family Detached (SFD) Dwelling Units	Single-Family Attached (SFA) Dwelling Units	Multi-Family Apartment Dwelling Units	Total Future Dwelling Units
City of Irvine (IBC)	0	357	0	357
City of Santa Ana	24	0	2,205	2,229
City of Tustin	0	115	426	541
Unincorporated	0	0	0	0
Total for TUSD	24	472	2,631	3,127

(1) Future Planned Residential Projects without Mitigation as identified in planning documents or as estimated by planning agencies responsible for approving projects located within the jurisdictional boundaries of TUSD.

As previously indicated, a significant number of future dwelling units will be constructed within master-planned communities which are considered Mitigated Developments because they have already mitigated their school impacts through the formation of a community facilities district. These units are considered part of Mitigated Developments and therefore, both their impact on school facilities and their mitigation payments are excluded from the fee calculation in this Report.

Student Generation Rates

To establish a nexus between anticipated future residential development and a corresponding need for additional school facilities, the number of future students anticipated to be generated from the new residential development must be determined. This calculation often results in a student generation rate or factor, which represents the number of students, or portion thereof, expected to attend District schools from each new house. While additional single-family and multi-family housing will be constructed in both Orchard Hills and in Tustin Legacy (MCAS), these two areas represent mitigated developments and are excluded from this report.

For purposes of estimating the school facilities impact expected from future development, the District utilized its student generation rates tabulated for single-family detached (SFD), single-family attached (SFA) and multi-family units (apartments) located within its CFDs (CFD Nos. 88-1, 97-1, 06-1, 07-1 and 14-1) as well as the City of Tustin's CFD 14-1 – (Greenwood @ Legacy). Student generation rates for the District's CFDs were computed in February of 2020 and a summary of these generation rates is contained in Appendix "C". The student generation rates for multi-family apartment units, single-family attached (SFAs) and single-family detached (SFDs) dwellings located within the District's CFDs are summarized in Table IV.

Table IV
Student Generation Rates for Residential Units Located in CFDs (1)

School Level	Multi-Family Units (Apartments)	Single-Family Attached (SFAs)	Single-Family Detached (SFDs)
Elementary (K-5) (2)	0.1402	0.1584	0.1968
Middle (6-8) (2)	0.0647	0.0945	0.1319
High (9-12)	0.0878	0.1154	0.1968
Aggregate	0.2927	0.3683	0.5255

(1) *Rounded to the nearest ten-thousandth.*
(2) *For determining the facilities impact from future development and future school design goals, the District assume that sixth-grade students generated from future unmitigated development will continue to be housed at middle school facilities.*

Students Generated by New Unmitigated Development

The number of students estimated to be generated from future Unmitigated Development is determined by multiplying the projected number of future unmitigated dwelling units (Table III) by the corresponding generation rates (Tables IV). This computation is reflected in Table V:

Table V
Student Generation from Future Residential Dwelling Units

	Future MF (Apt) Units: *2,631*		Future SFA Dwellings: *472*		Future SFD Dwellings: *24*	
School Level	MF Student Generation Rate	MF Future Students (1)	SFA Student Generation Rate	SFA Future Students (1)	SFD Student Generation Rate	SFD Future Students (1)
Elementary (K-5)	0.1402	369	0.1584	75	0.1968	5
Middle (6-8)	0.0647	170	0.0945	45	0.1319	3
High (9-12)	0.0878	231	0.1154	54	0.1968	5
Aggregate (K-12)	0.2927	770	0.3683	174	0.5255	13

(1) Students shown are rounded to the nearest integer.

School Facilities Required to Serve New Development

In order to determine the number of schools, or portions thereof, necessary to serve students generated from new development, the aggregate future students shown in Table V is divided by the school capacity (i.e., design population). Table VI shows the number of new elementary, middle and high schools required to serve new development:

Table VI
School Facilities Required for New Development (Unmitigated)

School Facility	Current Available Capacity (1)	Design Capacity	Future Unhoused Students	Required Facilities (2)
Elementary School (K-5)	0	550	449	0.8164
Middle/High School (6-12)	0	1,200	508	0.4233

(1) While Table II indicates a current capacity surplus of 32 seats at the Elementary school level, these seats are reserved for future mitigated students expected to be generated from new residential development in Orchard Hills (CFD No. 14-1).
(2) Rounded to the nearest ten-thousandth.

Estimated School Facilities Costs

To calculate the cost for new school facilities, SDFA relied on actual historical costs and current estimates of costs associated with the construction of recent school facilities. These numbers reflect the District's estimate of land acquisition and construction costs, and also include anticipated costs for furniture, equipment and technology. Based on the District's most recent transfer of property to the City of Tustin, the District has utilized a land cost of $1.5 million per acre as the *average* acquisition price associated with providing future elementary school facilities for future unmitigated development. For future middle and high school facilities the District has assumed that such facilities may be partially or entirely housed at a facility to be constructed on the 40-acre site located within the MCAS/Legacy project area. Pursuant to the Reuse Plan for the MCAS, this site has already been acquired from the City.

The estimated costs for elementary, middle and high school facilities are contained in Appendix "E". The resulting facilities costs per school site, including acquisition and site development are shown in Table VII.

Table VII
Estimated Facilities Costs per School Site

School Facility	Site Acquisition/ Development	Construction (1)	Total Cost
Elementary (K-5)	$16,000,000	$25,000,000	$41,000,000
Middle & High (6-12)	$4,000,000	$100,000,000	$104,000,000

(1) Includes plans, tests and inspections, furniture and equipment, technology and other items.

The aggregate facilities cost impact from new, Unmitigated Development is determined by multiplying the per site costs shown in Table VII by the required number of sites reflected in Table VI. This resulting impact is shown in Table VIII.

Table VIII
Estimated Facilities Costs (Excluding Interim Housing & Admin. Facilities)

School Type	Required Schools (1)	Site Acquisition/ Development	Construction (2)	Total Cost
Elementary (K-5)	0.8164	$13,062,400	$20,410,000	$33,472,400
Middle & High (9-12)	0.4233	$1,693,333	$42,333,333	$44,026,666
Aggregate		$14,755,733	$62,743,333	$77,499,066

(1) Rounded to four decimals.
(2) Includes plans, tests and inspections, furniture and equipment, technology and other items.

Interim Housing and Administrative Support

In addition to the need for incremental permanent K-12 school facilities, new development imposes additional facilities impacts on school districts. Because development fees are collected at the time a building permit is issued, funds to provide facilities accumulate over a period of time and revenues, particularly when other local or state funds are not available, are not sufficient to build a school when development so warrants. The solution to this problem is most often addressed through "interim housing" in which the District purchases or leases relocatable classrooms that are used to temporarily alleviate overcrowding at existing school sites. Utilizing recent cost data associated with the setup and leasing of portables at its current sites, the TUSD has determined that it costs the District approximately $3,212 per elementary, and $3,352 per middle or high school student to provide interim housing until new facilities are available.

Additional central administrative facilities and support is also required as new students place incremental demands on school administration. The District has determined that $900 for each new student is necessary to provide for corresponding central administrative facilities. The estimated total cost of interim housing and central administrative facilities is shown in Table IX.

Table IX
Costs for Interim Housing & Administrative Support Facilities

School Level	Future Students	Per Pupil Costs		Total Cost
		Interim Housing (1)	Administrative Support (1)	
Elementary (K-5)	449	$3,212	$900	$1,846,288
Middle/High (6-8)	508	$3,352	$900	$2,160,016
Aggregate	957			$4,006,304

(1) Per Pupil costs estimates for interim Housing and administrative support are included in Appendix E-2..

Thus, the estimated total cost of school facilities (Table VIII) and ancillary facilities (Table IX) necessary to accommodate students generated from new residential development is shown in Table X:

Table X
Total Estimated Facilities Costs

School Level	School Facilities	Interim Housing (1)	Administrative Support (1)	Total Cost
Elementary (K-5)	$33,472,400	$1,442,188	$404,100	$35,318,688
Middle & High (6-12)	$44,026,666	$1,702,816	$457,200	$46,186,682
Aggregate	$77,499,066	$3,145,004	$861,300	$81,505,370

(1) Amounts shown are equal to the number of future students shown in Table IX multiplied by the respective estimated facilities costs included in Appendix E-1 and E-2.

Total Estimated Cost per Student

The estimated facilities cost for each elementary, middle and high school student is derived by dividing the school facilities costs by the respective number of students expected to be generated from new residential development. The per pupil costs for interim housing and administrative support (Table IX) are added to the per pupil school facilities cost to determine the total per student facilities costs for elementary, middle and high school facilities. The total estimated per pupil facilities cost is shown below:

Table XI
Total Facilities Costs per Pupil

School Level	Base School Facilities Cost	Future Students	Per Pupil Costs (1)			
			School Facilities	Interim Housing	Administrative Support	Total Cost
Elementary (K-5)	$33,472,400	449	$74,549	$3,212	$900	$78,661
Middle & High (6-12)	$44,026,666	508	$86,667	$3,352	$900	$90,919
Weighted Average (2)	$77,499,066	957	$80,981	$3,287	$900	$85,167

(1) Rounded to the nearest dollar.
(2) Reflects a weighted average based upon anticipated number of K-5 and 6-12 pupils expected to be generated.

School Facilities Impact per Dwelling Unit

The total estimated facilities cost for each new residential unit is determined by multiplying the facilities costs per student (Table XI) by the applicable student generation rate (Table IV) and is shown in the following table:

Table XII
Total Facilities Costs per Residential Unit

Housing Type	Per Pupil Cost	Composite -Wtd Avg. Student Generation Rate (1)	Composite -Wtd Avg. Facilities Cost Per Dwelling Unit (2)
Elementary (K-5)	$78,661	0.1436	$11,295
Middle &High (6-12)	$90,919	0.1625	$14,770
Weighted Average	$85,168	0.3060	$26,065

(1) Rounded to the nearest ten-thousandth.

(2) Facilities costs per dwelling unit as shown differs slightly from the product of the Per Pupil Cost and the SGRs shown above because the Per Pupil Cost is, in part, derived from the number of students generated to the nearest whole integer.

The District estimates that the weighted average assessable space of future multi-family dwelling units constructed within the expected unmitigated development will be approximately 1,414 square feet. This figure incorporates the weighted average size of future dwelling units as identified in Appendix "D". Dividing the total facilities cost per dwelling unit of $26,065 by the average size of a dwelling unit yields a school facility cost of $18.43 per square foot.

As previously indicated, the current statutory development fee authorized by Government Code Section 65995 (b)(1) for new residential construction is $4.08 per square foot. Based on the District's student generation rates, actual costs to provide school facilities and the average square footage for new dwelling units, the District, as outlined above, would need to levy an additional $14.35 per square foot to actually provide the school facilities necessitated by new residential development. This Report demonstrates that the school facilities impact amount per square foot equals $18.43 for future unmitigated residential development within the boundaries of the District, Thus, there is full justification for collecting the District's share of the maximum statutory developer fee allowed of $4.08 per square foot (K-12) of new residential development.

Since the District's school facilities impact per square foot is greater than the maximum statutory fee allowed under Government Code Section 65995 (b)(1), the District actually suffers unmitigated impacts from new residential development, which not only supports the collection of the statutory development fee for residential developments, but also those fees for new commercial/industrial development as provided for in Section Three of this Report. In this instance, TUSD is justified in levying and collecting the maximum fee per square foot from new residential developments in the amount indicated in the following Table:

Table XIII
Fee Allocation by School Type -- Residential Development

Authorized Fee Pursuant to Government Code Section 65995	Amount (*)
Statutory School Fee (Level I Fee)	$4.08 per square foot

* Fees collected by TUSD effective June 12, 2020 if adopted by the Board on April 13, 2020.

Table XIV identifies the facilities costs per dwelling unit and on a square foot basis -- the facilities cost per square foot, the amount of the proposed fee to be collected by TUSD and the net fee deficit for new development. As can be seen, the amount required is over five times the amount that can be collected ($4.08) by the TUSD if adopted by the Board:

Table XIV
Comparison of Facilities Cost to Currently Authorized Fee (*)

Facilities Cost Per D/U	Average SqFt Per Dwelling Unit	Facilities Cost Per Sqft	Current Fee Per Sqft	Fee Deficit Per Sqft
$26,065	1,414	$18.43	$4.08	($14.35)

* Fees collected by TUSD effective June 12, 2020 if adopted by the Board on April 13, 2020.

Section
Three

COMMERCIAL/INDUSTRIAL DEVELOPMENT

This Section of the Report identifies the school facilities impact from new commercial and industrial development.

School Facilities Impacts from Commercial/Industrial Development

Just as the District is required to establish the impact of new residential development on student enrollment and a corresponding need for additional school facilities, a similar nexus must be established between new commercial/industrial development and the corresponding need for additional school facilities. The four-step methodology used to quantify the impact of commercial/industrial development on student enrollment is discussed in this section of the report and is summarized as follows:

1. *Determine the number of employees required per square foot for specific types of commercial and industrial development (i.e., new jobs created within the school district).*
2. *Determine the number of new employees that would both live and work within the school district.*
3. *Determine the number of occupied housing units that would be associated with new employees.*
4. *Determine the number of new students generated from these employees utilizing the estimated student generation rates.*

Estimated Number of Employees per Square Foot

Because the utilization of commercial and industrial buildings varies significantly, in order to estimate the number of employees and hence, the number of school age children generated by employees, it is important that the relationship between the size of any commercial/industrial development and its associated employee base, be established for various development or land use types. To do this, the TUSD relied on survey results published in SANDAGs report entitled Traffic Generators Guide. This Traffic Generators Guide reflects data gleaned from a site-specific employment inventory of diverse developments throughout San Diego County. Multiple sites for 17 different development types are included in the survey data and the square footage and number of employees has been averaged for each development type yielding the average number of employees per thousand square feet as shown in the following table:

Table XV
Region-wide Employment Per 1,000 Square Feet by Development Type [1]

Development Type	Square Feet of Dev. Type	Total Employees	Employees per 1,000 Sqft. [2]
Self-Storage	34,191	2	0.058
Specialized Recreation	19,850	9	0.453
Hotel /Motel	165,200	184	1.114
Discount Retail Club	128,679	215	1.671
Commercial Strip Center	27,677	50	1.807
Regional Shopping Center	1,496,927	2,777	1.855
Car Dealers	28,433	57	2.005
Industrial Parks (No Commercial)	351,266	733	2.087
Community Shopping Center	151,525	363	2.396
Industrial Plants (Mult. Shift)	456,000	1,120	2.456
Neighborhood Shopping Center	69,509	178	2.561
Corporate Office (Single User)	127,331	342	2.686
Banks	9,203	26	2.825
Scientific Research & Development	221,184	673	3.043
Industrial/Business Parks	260,379	972	3.733
Commercial Offices (>100,000 sqft)	135,433	625	4.615
Commercial Offices (<100,000 sqft)	27,100	130	4.797
Medical Offices	15,306	96	6.272
Restaurants	5,267	48	9.113

(1) Source: SANDAG Publication, Traffic Generators Guide
(2) Employees per 1,000 Sqft = (Total Employees divided by Square Feet of Development Type x .0001)

Estimated Number of Employees Living & Working within the School District

In order to determine the minimum number of students that will be generated as a result of new commercial/industrial development, an estimate of the number of employees (i.e., parents of the children expected to attend schools within the District) that will both work and live within the District must be determined. To make this determination, SDFA relied on Census data and Worksite information provided by the Equal Employment Opportunity Commission (EEOC). Specifically, SDFA obtained employment and population estimates for the cities of Irvine, Santa Ana and Tustin. Tabulations of the Worksite and population estimates are contained in Appendix 'F'.

Based on its American Community Survey (2006-2010), the US Census Bureau estimated that there was a total of 408,950 employees working within the cities of Irvine, Santa Ana and Tustin (the "Worksite Census Area"). The census data also contains "place of residence" information for these employees. The following table identifies the residential employee generation rate (REGR) for the three cities, which is determined by dividing the total number of employees within the Worksite Census Area by the total number of employees that *both live and work* within the boundaries of Worksite Census Area.

Table XVI
Estimated Resident Employees within the Worksite Census Area [1]

Jurisdiction	Total Employees	Place of Residence			Pct of Employees Residing in Irvine, Santa Ana or Tustin
		Irvine	Santa Ana	Tustin	
Irvine	216,375	42,265	19,910	7,495	32.20%
Santa Ana	154,675	6,390	41,630	5,460	34.58%
Tustin	37,900	2,815	4,490	6,325	35.96%
Total	408,950	51,470	66,030	19,280	33.45%

(1) Source: US Census Bureau American Community Survey (2006-2010)

Because the census data does not identify a place of residence which corresponds solely to the jurisdictional boundaries of the TUSD, it was assumed that the REGR for the Worksite Census Area would produce a close approximation of the actual REGR for the TUSD. This assumption is reasonable because the commercial and industrial development characteristics of areas outside of the TUSD but within the jurisdictional boundaries of the Worksite Census Area are similar to those of commercial and industrial developments within the boundaries of the TUSD.

It should be noted that by considering only those employees that both live and work within the TUSD (as expressed by the REGR), the District is being conservative in its estimate of the impact of commercial/industrial development on student enrollment because the methodology identified herein does not take into account any students who may attend schools within the District as a result of Education Code Section 48204 (i.e., interdistrict transfers). Section 48204 of the Education Code permits employees working within the school district who do not reside within the boundaries of the school district to request that their children be permitted to attend a school within the boundaries of the District in which they work. The census data suggests that approximately sixty-seven percent (67%) of Worksite Census Area workers commute from outside of the Worksite Census Area to their jobs.

Nevertheless, by multiplying the number of employees per thousand square feet as shown in Table XV by the REGR computed for the Worksite Census Area, one can derive a REGR for the various commercial/industrial development types. The following table indicates that for every 1,000 square feet of new commercial or industrial development, expected residential employee generation ranges from a low of 0.019 employees for *Self-Stor5age* to a high of 3.048 employees for *Restaurants*.

Table XVII
Resident Employee Generation Factors by Development Type

Development Type	Employees per 1,000 Sqft.	Residential Employment Generation Rate	Resident Employee Per 1,000 Sqft.
Self-Storage	0.058	.3345	0.019
Specialized Recreation	0.453	.3345	0.152
Lodging	1.114	.3345	0.373
Discount Retail Club	1.671	.3345	0.559
Commercial Strip Center*	1.807	.3345	0.604
Regional Shopping Center	1.855	.3345	0.620
Car Dealers*	2.005	.3345	0.671
Industrial Parks (No Commercial)	2.087	.3345	0.698
Community Shopping Center	2.396	.3345	0.801
Industrial Plants (Mult. Shift)*	2.456	.3345	0.821
Neighborhood Shopping Center	2.561	.3345	0.857
Corporate Office (Single User)	2.686	.3345	0.898
Banks	2.825	.3345	0.945
Scientific Research & Development	3.043	.3345	1.018
Industrial/Business Parks	3.733	.3345	1.249
Commercial Offices (>100,000 sqft)	4.615	.3345	1.544
Commercial Offices (<100,000 sqft)	4.797	.3345	1.604
Medical Offices	6.272	.3345	2.098
Restaurants*	9.113	.3345	3.048

Estimated Household Rate per Resident Worker

In order to quantify the impact of these residential workers on the District, two additional relationships must be established. The first of these is the number of households per resident worker. Utilizing estimates of occupied housing within the Worksite Census Area as prepared by the California Department of Finance, SDFA identified the household rate (i.e., the number of occupied housing units per residential worker) to be 0.7596:

Table XVIII
Household Rate for Worksite Census Area

Worksite Census Area Component	Resident Workers (Irvine, Santa Ana or Tustin)	Occupied Housing Units	Household Rate *
City of Irvine	51,470	81,165	63.41%
City of Santa Ana	66,030	73,242	90.15%
City of Tustin	19,280	25,662	75.13%
Aggregate Worksite Census Area	**136,780**	**180,069**	**75.96%**

Source: 2006-2010 Census Data and 2013 Housing Unit Estimates from the California Department of Finance
** Household Rate = Occupied Housing Units / Resident Workers*

By applying the household generation rate for the Worksite Census Area of .7596 to the Resident Employee Generation Factors shown in Table XVII, housing units required per employee for each commercial/industrial land use category can then be determined. Expected household generation per 1,000 square feet of commercial/industrial development appears in the following table:

Table XIX
Household Generation for Commercial/Industrial Land Uses

Development Type	Residential Employees per 1,000 Sqft.	Household Generation Rate	District Households Per 1,000 Sqft
Self-Storage	0.019	.7596	0.015
Specialized Recreation	0.152	.7596	0.115
Lodging	0.373	.7596	0.283
Discount Retail Club	0.559	.7596	0.425
Commercial Strip Center*	0.604	.7596	0.459
Regional Shopping Center	0.620	.7596	0.471
Car Dealers*	0.671	.7596	0.509
Industrial Parks (No Commercial)	0.698	.7596	0.530
Community Shopping Center	0.801	.7596	0.609
Industrial Plants (Mult. Shift)*	0.821	.7596	0.624
Neighborhood Shopping Center	0.857	.7596	0.651
Corporate Office (Single User)	0.898	.7596	0.682
Banks	0.945	.7596	0.718
Scientific Research & Development	1.018	.7596	0.773
Industrial/Business Parks	1.249	.7596	0.948
Commercial Offices (>100,000 sqft)	1.544	.7596	1.172
Commercial Offices (<100,000 sqft)	1.604	.7596	1.219
Medical Offices	2.098	.7596	1.593
Restaurants*	3.048	.7596	2.315

School Facilities Cost from Commercial/Industrial Development

Since the school facilities cost per new dwelling unit was already identified in Table XII, by applying the total cost per dwelling unit to the district household generation shown in Table XIX, the gross school facilities impact of commercial/industrial development can be determined. The resulting facilities cost per square foot is shown in Table XX and ranges from $.038 to $60.35 per square foot of development.

Table XX
Gross School Facilities Impact for Commercial/Industrial Land Uses

Development Type	District Households Per Sqft of Non-Res. Dev.	School Facilities Cost Per Dwelling Unit	Gross Facilities Cost Per Sqft of Commercial/industrial Development
Self-Storage	0.0000147	$26,0650.00	$0.38
Specialized Recreation	0.0001151	$26,065.00	$3.00
Lodging	0.0002830	$26,065.00	$7.38
Discount Retail Club	0.0004245	$26,065.00	$11.07
Commercial Strip Center*	0.0004591	$26,065.00	$11.97
Regional Shopping Center	0.0004713	$26,065.00	$12.28
Car Dealers*	0.0005094	$26,065.00	$13.28
Industrial Parks (No Commercial)	0.0005032	$26,065.00	$13.82
Community Shopping Center	0.0006087	$26,065.00	$15.87
Industrial Plants (Mult. Shift)*	0.0006240	$26,065.00	$16.26
Neighborhood Shopping Center	0.0006506	$26,065.00	$16.96
Corporate Office (Single User)	0.0006824	$26,065.00	$17.79
Banks	0.0007177	$26,065.00	$18.71
Scientific Research & Development	0.0007731	$26,065.00	$20.15
Industrial/Business Parks	0.0009484	$26,065.00	$24.72
Commercial Offices (>100,000 sqft)	0.0011725	$26,065.00	$30.56
Commercial Offices (<100,000 sqft)	0.0012187	$26,065.00	$31.77
Medical Offices	0.0015935	$26,065.00	$41.53
Restaurants*	0.0023152	$26,065.00	$60.35

Commercial/Industrial Development Impact

As noted, the school facilities impact shown above represents the total cost to provide school facilities required to serve new students resulting from the construction of new commercial/industrial development. This amount reflects the gross impact of such development and does not consider the impact fees already collected from new residential construction. Nor does it consider that as new commercial/industrial development occurs, some portion of the new employees will be housed in existing housing (from which no additional residential impact fee may be collected). Assuming that each resident employee also resides in a dwelling unit for which the statutory fee amount has also been paid, one could then derive the net facilities impact associated with each development type. If the statutory fee of $4.08 per square foot is imposed on the average home size of 1,414 per square foot (see Table XIV), then a total of $5,769 would be collected for each dwelling unit leaving a facilities deficit of $20,296 per dwelling unit. By applying the Per Square Foot Household Factors (PSFHF) shown in Table XX, one can then identify the net facilities impact.

The following table shows the *net facilities* impact remaining if the currently authorized maximum statutory fee (Level I Fee) was collected from all new residential development:

By multiplying the "fee deficit per D/U" of $20,296 by the PSFHF applicable to each of the non-residential development types, we can then see the net facilities cost remaining after collection of the statutory residential fee:

Table XXI
Net Facilities Deficit After Collection of Residential Impact Fee

Development Type	District Households Per Square Foot of Non-Residential Development	Unfunded Impact Per Square Foot After Collection of Statutory Fee
Self-Storage	0.0000147	$0.10
Specialized Recreation	0.0000115	$2.43
Lodging	0.0000283	$5.98
Discount Retail Club	0.0004245	$8.98
Commercial Strip Center*	0.0004591	$9.71
Regional Shopping Center	0.0004713	$9.96
Car Dealers*	0.0005094	$10.77
Industrial Parks (No Commercial)	0.0005032	$11.21
Community Shopping Center	0.0006087	$12.87
Industrial Plants (Mult. Shift) *	0.0006240	$13.19
Neighborhood Shopping Center	0.0006506	$13.76
Corporate Office (Single User)	0.0006824	$14.43
Banks	0.0007177	$15.18
Scientific Research & Development	0.0007731	$16.35
Industrial/Business Parks	0.0009484	$20.05
Commercial Offices (>100,000 sqft)	0.0011725	$24.79
Commercial Offices (<100,000 sqft)	0.0012187	$25.77
Medical Offices	0.0015935	$33.69
Restaurants*	0.0002315	$48.95

Thus, assuming that all employees working in new non-residential developments within the District also reside in new housing within the District and the District was collecting the current statutory fee (Level I) of $4.08 per square foot from each home, a fee deficit *after collecting the maximum statutory fee for residential development* would still range between $0.10 (Self-Storage) and $48.95 (Restaurants) per square foot of new non-residential development.

Thus, based on TUSD's authorized share of the proposed non-residential fee (i.e., $0.66 per square foot of non-residential development), assuming that every employee within the TUSD also resided within the TUSD and was housed in a dwelling unit for which the statutory fee (Level I Fee) for residential and the statutory non-residential fee was collected, with the exception of Self-Storage, a net facilities funding deficit would still remain for all of the development types listed in Table XXI .

And as previously mentioned, this analysis does not consider inter-district transfers pursuant to Education Code Section 48204. Section 48204 of the Education Code permits employees working within the school district who do not reside within the boundaries of the school district to

request that their children be permitted to attend a school within the boundaries of the District in which they work. For any of these pupils, the District will have collected no corresponding residential development impact fees.

Pursuant to Government Code Section 65995(b)(2), a unified school district is authorized to collect $0.66 per square foot of new commercial/industrial development. Since not all employees reside within the District and live in homes that have or will pay statutory school fees, for Self-Storage development, the District is justified in collecting the gross school facility impact of $0.38 per square foot as indicated in Table XX. For all other commercial/industrial development types shown in Table XXI, TUSD is justified in levying the maximum fee of $0.66 per square foot as shown in the following table.

Table XXII
Authorized Development Fee -- Commercial/Industrial Development

Fee Component	Total Statutory Fee Collected per Government Code §65995
Authorized Statutory Fee (Level 1) Per Square Foot of New Commercial/Industrial Development	$0.66 per square foot

Impacts from Senior Housing

As it relates to the imposition of developer fees upon senior citizen housing projects, Section 65995.1(a) of the Government Code reads as follows:

> *Notwithstanding any other provision of law, as to any development project for the construction of senior citizen housing, as described in Section 51.3 of the Civil Code, a residential care facility for the elderly as described in subdivision (k) of Section 1569.2 of the Health and Safety Code[1], or a multilevel facility for the elderly as described in paragraph (9) of subdivision (d) of Section 15432, any fee charge, dedication or other requirement that is levied under Section 53080[2] may be applied only to new construction and is subject to the limits and conditions under subdivision (b) of Section 65995 in the case of commercial or industrial development.*
>
> *[1] Although described in subdivision (k), the definition is found under subdivision (o) and (p).*
> *[2] Government Code Section 53080 was revised to Education Code Section 17620.*

The District acknowledges that students will not reside in senior citizen housing units. However, the development of such housing generally generates jobs for facilities maintenance and administration, and in the case of assisted care living situations, health professionals. These jobs may be filled by persons living either within the boundaries of the District or outside the boundaries of the District. In either case, the employees may enroll their students in the District. As, a result some students may be generated as a result of the development of new senior citizen housing.

The District conducted a survey of senior citizen housing projects within the District- both assisted-care and independent-living facilities and as a result of applying the methodology used to quantify the impacts of commercial and industrial development as set forth in this report,

determined that the expected facilities cost per square foot of senior housing was $2.40. Thus, the District acknowledges Section 65995.1 and will levy its share of developer fees on any senior citizen housing projects at the current commercial/industrial rate of $0.66 per square foot.

Redevelopment

Redevelopment means the voluntary demolition of existing residential dwelling units or commercial or industrial construction and the subsequent construction of new residential dwelling units or commercial/industrial construction (“Redevelopment”).

The District acknowledges that Redevelopment projects, more specifically, the demolishing of existing development replaced with new construction, may occur within the next five-year period. In such a situation, the District shall levy school fees authorized pursuant to Education Code Section 17620 and Government Code Sections 65995 et seq. ("School Fees") if there is a nexus established between the impact of the new construction in terms of a net increase in students generated and the fee to be imposed. In other words, the School Fees must bear a nexus to the burden caused by the Redevelopment project.

The purpose of this section is to set forth a general policy for the levy of Statutory School Fees on future Redevelopment projects within the District. The District may levy the applicable Statutory School Fees if an unmitigated impact exists once an analysis has been done on the impact on school facilities from such construction and consideration has been given as to the applicability of a “credit” for previously existing impacts, if any.

The analysis will identify if the Redevelopment project results in any additional impact to the District by comparing the potential students to be generated from the new construction to the potential students generated from the existing construction to be demolished. Statutory School Fees will be assessed only to the extent of the net school facilities impact from the new construction as noted above, but in no event will the School Fees assessed be greater than the applicable Statutory School Fees.

The District will perform an analysis utilizing the above-mentioned criteria to determine the applicability of Statutory School Fees to each Redevelopment project presented to the District.

Section
Four

CONCLUSIONS & STATEMENT OF FINDINGS

Based upon the data gathered by SDFA regarding future development within the boundaries of the TUSD, student generation, school facilities costs and the methodology employed to determine the school facilities impact from new residential and commercial development, TUSD makes the following findings pursuant to Section 66001 of the California Government Code:

- *The purpose of the fee is to pay for the construction and/or acquisition of new school facilities and equipment necessary to serve students expected to be generated from new residential and commercial/industrial development.*

- *The fees will be collected and may be used to repay debt service on bonds issued for the purpose of providing new school facilities or to pay directly for the acquisition and/or construction of such facilities and equipment. The fees may also be used to pay for the leasing or acquisition of portable classrooms to meet the temporary needs of students generated from new development.*

- *There is a reasonable relationship between the expected use of the fee (i.e., new school facilities and equipment) and the development on which the fee is imposed (i.e., new residential, commercial and industrial development) because additional students will be generated by new residential and commercial/industrial development.*

- *There is a reasonable relationship between the number of new residential units constructed and the number of elementary school students expected to be generated from the construction of such units. There is also a reasonable relationship between the construction of new commercial and industrial development and the number of students expected to be generated from the construction of such commercial/industrial development, as the parents of students will be employed by new businesses occupying the new commercial or industrial development and a portion of the students' parents will also choose to live within the boundaries of the District.*

- *There is a reasonable relationship between the amount of the fee identified in this Report and the cost of the school facilities to be constructed and deemed required to serve new residential, commercial and industrial developments.*

- *There is a reasonable relationship between the amount of the fee identified in this Report and the cost of the school facilities to be constructed and deemed required to serve new development projects that are intended to house senior citizens.*

Section
Five

APPENDICES

Appendix A: School Capacity Worksheet

Appendix B: Department of Finance – Population & Household Projections

Appendix C: Student Generation Rate Computations

Appendix D: Future Development Projects

Appendix E: School Facilities Cost Estimates

Appendix F: 2006-10 Census Data – Employment & Housing

Appendix A: School Capacity Worksheet

Tustin Unified School District
Capacity Calculation - State Loading Standards

Fiscal Year 2019/20

			Current Classroom Counts [1]								Capacity	Enrollment	State Loading
			TK-6		7-12		Severe		Non Severe		2019/20	2019/20 Enrollment	100% Capacity vs Enrollment +/-
	School	Total CR [1]	25		27		9		13		100%		
ELEM	Arroyo	24	24	600		0	0	0	0	0	600	637	-37
ELEM	Benson	17	14	350		0	0	0	3	39	389	391	-2
ELEM	Beswick	12	11	275		0	0	0	1	13	288	511	-223
ELEM	Estock	21	21	525		0	0	0	0	0	525	516	9
ELEM	Guin Foss	15	15	375		0	0	0	0	0	375	427	-52
ELEM	Heideman	29	29	725		0	0	0	0	0	725	606	119
ELEM	Heritage	21	21	525		0	0	0	0	0	525	485	40
ELEM	Hicks Canyon	36	36	900		0	0	0	0	0	900	934	-34
ELEM	Ladera	14	14	350		0	0	0	0	0	350	318	32
ELEM	Loma Vista	25	22	550		0	0	0	3	39	589	469	120
ELEM	Myford	28	25	625		0	0	0	3	39	664	594	70
ELEM	Nelson	26	24	600		0	0	0	2	26	626	531	95
ELEM	Orchard Hills - k-8 (see below)	18	18	450		0	0	0	0	0	450	431	19
ELEM	Peters Canyon	22	19	475		0	0	0	3	39	514	510	4
ELEM	Red Hill	23	21	525		0	0	0	2	26	551	553	-2
ELEM	Thorman	30	30	750		0	0	0	0	0	750	787	-37
ELEM	Tustin Connect Academy	1	1	25		0	0	0	0	0	25	17	8
ELEM	Tustin Memorial Academy	22	22	550		0	0	0	0	0	550	602	-52
ELEM	Tustin Ranch	21	21	525		0	0	0	0	0	525	570	-45
		405	388		0		0		17		9,921	9,889	32

			TK-6		7-12		Severe		Non Severe		2019/20	2019/20 Enrollment	100% Capacity vs Enrollment +/-
	School	Total CR	25		27		9		13		100%		
MID	Columbus Tustin	38	0	0	28	756	0		5	65	821	808	13
MID	Currie	31	0	0	24	648	0		2	0	648	591	57
MID	Hewes	38	0	0	33	891	0		1	13	904	984	-80
MID	Orchard Hills	28	0	0	25	675	0		2	26	701	993	-292
MID	Pioneer	46	0	0	41	1107	0		1	13	1,120	1,189	-69
MID	Tustin Connect Academy	1	0	0	1	27	0		0	0	27	31	-4
MID	Utt	36	0	0	29	783	0		3	39	822	937	-115
	Totals	218	0		181		0		14		5,043	5,533	-490

			TK-6		7-12		Severe		Non Severe		2019/20	2019/20 Enrollment	100% Capacity vs Enrollment +/-
	School	Total CR	25		27		9		13		100%		
HIGH	Beckman	107		0	91	2457	0	0	6	78	2,535	2,947	-412
HIGH	Foothill	95		0	81	2187	0	0	6	78	2,265	2,424	-159
HIGH	Hillview/Sycamore at Lambert	25		0	13	351	0	0	0	0	351	230	121
HIGH	Tusin Connect Center	3		0	3	273	0	0	0	0	273	98	175
HIGH	Tustin	97		0	82	2214	0	0	8	104	2,318	2,282	36
		327	0		270		0		20		7,742	7,981	-239

SUMMARY	Total CR	TK-6	7-12	Severe	Non Severe	2019/20 Capacity 100%	2019/20 Enrollment	100% Capacity vs Enrollment +/-
	950	388	451	0	51	22,706	23,403	-697

(1) Classroom Counts exclude classroom facilities that do not meet state requirements (i.e., less < 960 square feet) or which are used for other educational purposes (ROP, etc).

Appendix B: DOF – Population & Household Projections

Table 2: E-5 City/County Population and Housing Estimates, 1/1/2013

County / City	POPULATION			HOUSING UNITS							Vacancy Rate	Persons per Household
	Total	Household	Group Quarters	Total	Single Detached	Single Attached	Two to Four	Five Plus	Mobile Homes	Occupied		
Orange County												
Aliso Viejo	49,477	49,008	469	19,251	7,002	5,176	666	6,407	0	18,574	3.5%	2.64
Anaheim	346,161	342,604	3,557	105,846	44,903	8,902	11,390	35,966	4,685	99,811	5.7%	3.43
Brea	41,394	41,325	69	15,365	8,550	1,412	497	3,899	1,007	14,826	3.5%	2.79
Buena Park	81,953	81,139	814	24,714	14,396	1,812	1,740	6,413	353	23,774	3.8%	3.41
Costa Mesa	111,358	108,607	2,751	42,162	16,641	4,301	5,714	14,576	930	39,986	5.2%	2.72
Cypress	48,547	48,045	502	16,094	9,819	2,594	576	2,684	421	15,680	2.6%	3.06
Dana Point	33,863	33,622	241	15,960	8,724	1,995	2,633	2,372	236	14,201	11.0%	2.37
Fountain Valley	56,180	55,743	437	19,196	12,632	1,897	682	3,594	391	18,679	2.7%	2.98
Fullerton	138,251	134,246	4,005	47,976	24,279	4,856	4,040	13,922	879	45,492	5.2%	2.95
Garden Grove	173,075	171,134	1,941	47,702	27,284	3,976	4,188	10,626	1,628	45,986	3.6%	3.72
Huntington Beach	193,616	192,726	890	78,732	38,741	9,219	9,649	18,036	3,087	74,884	4.9%	2.57
Irvine	231,117	214,949	16,168	86,376	32,604	16,722	4,734	31,151	1,165	81,165	6.0%	2.65
Laguna Beach	23,105	23,016	89	12,958	8,533	686	1,523	1,927	289	10,851	16.3%	2.12
Laguna Hills	30,703	30,334	369	10,993	6,399	1,917	571	1,754	352	10,421	5.2%	2.91
Laguna Niguel	64,065	63,817	248	25,392	14,458	5,107	1,406	4,373	48	24,309	4.3%	2.63
Laguna Woods	16,500	16,333	167	13,079	918	3,721	2,237	6,203	0	11,360	13.1%	1.44
La Habra	61,202	60,862	340	19,963	10,560	1,509	1,553	5,449	892	19,015	4.7%	3.20
Lake Forest	78,501	77,986	515	27,142	14,683	4,125	1,513	5,549	1,272	26,276	3.2%	2.97
La Palma	15,818	15,798	20	5,234	3,764	469	127	861	13	5,090	2.8%	3.10
Los Alamitos	11,626	11,383	243	4,362	2,074	371	766	1,050	101	4,219	3.3%	2.70
Mission Viejo	94,824	93,882	942	34,307	24,771	4,122	936	4,427	51	33,284	3.0%	2.82
Newport Beach	86,436	86,034	402	44,221	20,146	7,010	5,114	10,777	1,174	38,775	12.3%	2.22
Orange	138,792	132,303	6,489	45,215	26,052	4,865	4,884	8,192	1,222	43,467	3.9%	3.04
Placentia	51,776	51,439	337	17,049	10,078	1,911	1,398	3,077	585	16,537	3.0%	3.11
Rancho Santa Margarita	48,550	48,548	2	17,268	9,355	3,538	622	3,743	10	16,673	3.4%	2.91
San Clemente	64,542	64,269	273	26,018	14,844	2,602	4,092	3,879	601	23,954	7.9%	2.68
San Juan Capistrano	35,321	35,234	87	12,022	6,402	2,362	795	1,079	1,384	11,472	4.6%	3.07
Santa Ana	329,915	324,685	5,230	76,968	35,481	5,657	7,499	24,283	4,048	73,242	4.8%	4.43
Seal Beach	24,487	24,263	224	14,546	4,734	1,518	1,120	7,020	154	13,004	10.6%	1.87
Stanton	38,764	38,414	350	11,296	3,059	1,799	1,321	3,679	1,438	10,837	4.1%	3.55
Tustin	77,983	77,463	520	26,958	9,454	3,564	4,048	8,983	909	25,662	4.8%	3.02
Villa Park	5,900	5,855	45	2,018	1,987	23	8	0	0	1,978	2.0%	2.96
Westminster	91,169	90,499	670	27,715	14,907	2,056	2,478	5,129	3,145	26,226	5.4%	3.45
Yorba Linda	66,437	66,247	190	22,751	17,852	2,245	760	1,466	428	22,007	3.3%	3.01
Balance Of County	120,396	119,628	768	39,346	30,476	3,794	865	3,578	633	37,835	3.8%	3.16
Incorporated	2,961,408	2,911,812	49,596	1,016,849	506,086	124,039	91,280	262,546	32,898	961,717	5.4%	3.03
County Total	3,081,804	3,031,440	50,364	1,056,195	536,562	127,833	92,145	266,124	33,531	999,552	5.4%	3.03

California Department of Finance
Demographic Research Unit

Appendix C: Student Generation Rate Computations

Tustin Unified School District

Student Generation Rate Computations - Dwelling Units Permitted from Project Inception through December 31, 2018
(Reflects Dwelling Units Constructed within CFD Nos. 88-1, 97-1, 06-1, 07-1 and 14-1)

CFD	Project Number	Project Name	Tract No.	Permitted Dwelling Units	Permitted D/Us with Sq Ft	Permitted Square Footage	Average Square Footage	Student Totals Grades K- 5	Grades 6 - 8	Grades 9 -12	Grades K - 12	Student Generation Rates Grades K- 5	Grades 6 - 8	Grades 9 -12	Grades K - 12
Apartment Units:															
07-1	99	Orchard Hills Apartments	16529	500	500	796,384	1,593	72	57	46	175	0.1440	0.1140	0.0920	0.3500
88-1	1	Rancho Maderas	13030	266	0			45	17	24	86	0.1692	0.0639	0.0902	0.3233
88-1	2	Rancho Tierra	13038	252	0			54	33	30	117	0.2143	0.1310	0.1190	0.4643
88-1	12	Rancho Mariposa	13735	238	0			23	9	13	45	0.0966	0.0378	0.0546	0.1891
88-1	14	Sierra Vista	13786	306	0			31	12	17	60	0.1013	0.0392	0.0556	0.1961
88-1	15	Shadow Canyon	13788	170	0			11	4	13	28	0.0647	0.0235	0.0765	0.1647
88-1	29	Rancho Monterey	14447	436	0			46	27	27	100	0.1055	0.0619	0.0619	0.2294
88-1	37	Rancho Santa Fe	15350	316	0			72	42	41	155	0.2278	0.1329	0.1297	0.4905
97-1	54	Estancia	15652-A	388	388	515,480	1,329	144	46	60	250	0.3711	0.1186	0.1546	0.6443
97-1	55	Solano	15652-B	356	356	424,941	1,194	79	24	23	126	0.2219	0.0674	0.0646	0.3539
97-1	56	Montecito Vista (Affordable)	15661	162	162	212,248	1,310	25	28	37	90	0.1543	0.1728	0.2284	0.5556
97-1	68	Somerset	15871	378	756	565,012	747	42	15	26	83	0.1111	0.0397	0.0688	0.2196
97-1	76	Las Palmas	15922-A	380	380	577,966	1,521	44	20	43	107	0.1158	0.0526	0.1132	0.2816
97-1	77	Anacapa	15922-B	736	736	888,429	1,207	85	40	57	182	0.1155	0.0543	0.0774	0.2473
97-1	94	Serrano	16319	756	756	910,093	1,204	68	24	86	178	0.0899	0.0317	0.1138	0.2354
MCAS	Aff	Amalfi (St Anton) - 3100 Park	17404	225	225	285,487	1,269	44	13	18	75	0.1956	0.0578	0.0800	0.3333
MCAS	Mkt	Anton @ Legacy - 16000 Legacy	17404	533	533	781,044	1,465	12	3	1	16	0.0225	0.0056	0.0019	0.0300
Total Apartment Dwelling Units:				6,398	4,792	5,957,084	1,243	897	414	562	1,873	0.1402	0.0647	0.0878	0.2927
Single-Family Attached (SFAs):															
06-1	102	Cambridge	16857	156	156	203,695	1,306	19	8	6	33	0.1218	0.0513	0.0385	0.2115
06-1	103	Camden	16857	222	222	354,108	1,595	39	12	12	63	0.1757	0.0541	0.0541	0.2838
06-1	105	Meriwether	16857	114	114	187,085	1,641	19	1	2	22	0.1667	0.0088	0.0175	0.1930
06-1	107	Mirabella	16857	60	60	114,594	1,910	7	4	4	15	0.1167	0.0667	0.0667	0.2500
14-1	115	Terraza	16719	149	149	307,459	2,063	36	13	10	59	0.2416	0.0872	0.0671	0.3960
88-1	6	Arcadia	13096	237	0	0		32	25	24	81	0.1350	0.1055	0.1013	0.3418
88-1	7	Sevilla	13106	110	0	0		19	9	15	43	0.1727	0.0818	0.1364	0.3909
88-1	8	Estancia	13161	145	0	0		10	10	13	33	0.0690	0.0690	0.0897	0.2276
88-1	10	Miramonte	13733	138	0	0		21	26	35	82	0.1522	0.1884	0.2536	0.5942
88-1	13	Mandevilla	13746	316	0	0		23	5	11	39	0.0728	0.0158	0.0348	0.1234
88-1	16	Corte Villa	13796	108	0	0		10	8	12	30	0.0926	0.0741	0.1111	0.2778
88-1	17	Rancho Vera Cruz	13824	317	0	0		18	3	4	25	0.0568	0.0095	0.0126	0.0789
88-1	18	Venturanza	13835	268	55	174,418	3,171	45	35	30	110	0.1679	0.1306	0.1119	0.4104
88-1	22	Ventana	14110	129	0	0		12	16	12	40	0.0930	0.1240	0.0930	0.3101
88-1	27-A	Presidio	14381	32	0	0		9	6	4	19	0.2813	0.1875	0.1250	0.5938
88-1	27-B	Presidio	14567	33	0	0		5	1	10	16	0.1515	0.0303	0.3030	0.4848
88-1	27-C	Presidio	14748	102	0	0		27	15	9	51	0.2647	0.1471	0.0882	0.5000
88-1	30	Cantada	14499	208	0	0		29	10	12	51	0.1394	0.0481	0.0577	0.2452
88-1	34	The Orchards	14883	223	0	0		26	16	26	68	0.1166	0.0717	0.1166	0.3049
97-1	58	Sheridan Place	15712	147	147	289,002	1,966	36	25	28	89	0.2449	0.1701	0.1905	0.6054
97-1	60	Brisbane	15740	130	130	275,530	2,119	21	16	18	55	0.1615	0.1231	0.1385	0.4231
97-1	61	Evergreen	15741	108	108	283,848	2,628	20	23	25	68	0.1852	0.2130	0.2315	0.6296
97-1	72	Summer Place	15875	69	69	172,335	2,498	12	11	11	34	0.1739	0.1594	0.1594	0.4928
97-1	74	Mandeville	15877	132	132	260,556	1,974	37	17	21	75	0.2803	0.1288	0.1591	0.5682
97-1	75	Andover	15878	138	138	257,007	1,862	35	21	31	87	0.2536	0.1522	0.2246	0.6304
97-1	81	Auburn	15975	152	152	328,268	2,160	45	17	22	84	0.2961	0.1118	0.1447	0.5526
97-1	82	San Simeon	15976	116	98	200,757	2,049	24	26	28	78	0.2069	0.2241	0.2414	0.6724
97-1	88	Vintner's Reserve	16080	64	64	162,078	2,532	9	10	21	40	0.1406	0.1563	0.3281	0.6250
97-1	92	San Juan Batista	16084	108	108	225,141	2,085	16	15	28	59	0.1481	0.1389	0.2593	0.5463
97-1	93	Monticello	16085	112	104	211,816	2,037	13	8	17	38	0.1161	0.0714	0.1518	0.3393
97-1	96	Tamarisk	16644	113	113	157,002	1,389	32	9	13	54	0.2832	0.0796	0.1150	0.4779
Total Single-Family Attached (SFAs):				4,456	2,119	4,164,699	1,965	706	421	514	1,641	0.1584	0.0945	0.1154	0.3683
Single-Family Detached (SFDs):															
06-1	101	Astoria	16857	102	102	298,214	2,924	26	5	1	32	0.2549	0.0490	0.0098	0.3137
06-1	104	Gables	16857	84	84	257,187	3,062	17	3	2	22	0.2024	0.0357	0.0238	0.2619
06-1	106	Verandas	16857	97	97	211,020	2,175	27	10	5	42	0.2784	0.1031	0.0515	0.4330
14-1	108	La Vita	16702	72	72	260,108	3,613	10	7	4	21	0.1389	0.0972	0.0556	0.2917
14-1	109	Saviero/Pasadena	16703	90	64	251,039	3,922	13	9	8	30	0.1444	0.1000	0.0889	0.3333
14-1	110	Vicenza	16704	91	91	364,354	4,004	24	17	14	55	0.2637	0.1868	0.1538	0.6044
14-1	111	Messina	16705	43	37	137,496	3,716	7	4	1	12	0.1628	0.0930	0.0233	0.2791
14-1	112	Tevi II	16707	35	29	154,708	5,335	8	5	5	18	0.2286	0.1429	0.1429	0.5143
14-1	113	Amelia	16708	70	65	300,357	4,621	12	8	7	27	0.1714	0.1143	0.1000	0.3857
14-1	114	Lucia (Amelia Ext)	16709	17	4	17,626	4,407	0	0	1	1	0.0000	0.0000	0.0588	0.0588
14-1	116	Strada	16722-Ptn	59	59	151,063	2,560	14	7	8	29	0.2373	0.1186	0.1356	0.4915
14-1	117	Messina II	16741	59	59	218,122	3,697	20	7	9	36	0.3390	0.1186	0.1525	0.6102
14-1	118	Trevi	17091	37	35	199,412	5,697	9	6	5	20	0.2432	0.1622	0.1351	0.5405
14-1	119	Capella	17619	72	72	221,669	3,079	32	12	8	52	0.4444	0.1667	0.1111	0.7222
14-1	120	Trevi III	17628	10	6	31,498	5,250	0	1	1	2	0.0000	0.1000	0.1000	0.2000
14-1	121	Bella Vista	17746	95	26	132,130	5,082	7	6	3	16	0.0737	0.0632	0.0316	0.1684
14-1	122	Alta Vista	17746	97	31	181,488	5,854	5	3	6	14	0.0515	0.0309	0.0619	0.1443
14-1	123	Varenna	17768	99	43	111,490	2,593	5	3	1	9	0.0505	0.0303	0.0101	0.0909
14-1	124	Pavoda	17767	69	12	37,997	3,166	4	3	3	10	0.0580	0.0435	0.0435	0.1449
88-1	3	Almeria	13053	118	0	0		18	14	24	56	0.1525	0.1186	0.2034	0.4746
88-1	4	Maricopa	13080	100	0	0		15	12	29	56	0.1500	0.1200	0.2900	0.5600
88-1	5	Monterey	13094	103	0	0		24	12	20	56	0.2330	0.1165	0.1942	0.5437
88-1	9	Malaga	13701	70	0	0		15	15	14	44	0.2143	0.2143	0.2000	0.6286
88-1	11	Pala Vista	13734	118	0	0		17	10	14	41	0.1441	0.0847	0.1186	0.3475
88-1	19	Montecito	13902	115	0	0		22	2	7	31	0.1913	0.0174	0.0609	0.2696
88-1	20	Sorrento	13908	97	0	0		9	6	10	25	0.0928	0.0619	0.1031	0.2577
88-1	21	Alicante	13990	91	0	0		16	15	17	48	0.1758	0.1648	0.1868	0.5275
88-1	23-A	San Miguel	14168	69	0	0		10	6	16	32	0.1449	0.0870	0.2319	0.4638
88-1	23-B	San Miguel	14669	69	0	0		20	10	18	48	0.2899	0.1449	0.2609	0.6957
88-1	24	San Marco	14188	57	0	0		8	8	14	30	0.1404	0.1404	0.2456	0.5263
88-1	25	Barcelona	14295	77	0	0		14	8	16	38	0.1818	0.1039	0.2078	0.4935
88-1	26-A	Serrano	14366	48	0	0		10	5	14	29	0.2083	0.1042	0.2917	0.6042
88-1	26-B	Serrano	14576	43	0	0		13	10	6	29	0.3023	0.2326	0.1395	0.6744
88-1	28	El Dorado	14410	171	0	0		53	38	58	149	0.3099	0.2222	0.3392	0.8713
88-1	31	Travilla	14782	94	0	0		16	8	5	29	0.1702	0.0851	0.0532	0.3085
88-1	32-A	Valencia	14784	98	0	0		10	10	11	31	0.1020	0.1020	0.1122	0.3163
88-1	32-B	Valencia	14837	52	0	0		9	9	9	27	0.1731	0.1731	0.1731	0.5192
88-1	33-A	Vidorra	14797	31	31	63,411	2,046	6	8	6	20	0.1935	0.2581	0.1935	0.6452
88-1	33-B	Vidorra	15428	30	2	3,572	1,786	10	4	14	28	0.3333	0.1333	0.4667	0.9333
88-1	33-C	Vidorra	15429	27	27	46,707	1,730	8	6	7	21	0.2963	0.2222	0.2593	0.7778
88-1	33-D	Vidorra	15430	34	34	60,846	1,790	9	7	8	24	0.2647	0.2059	0.2353	0.7059

Tustin Unified School District

Student Generation Rate Computations - Dwelling Units Permitted from Project Inception through December 31, 2018
(Reflects Dwelling Units Constructed within CFD Nos. 88-1, 97-1, 06-1, 07-1 and 14-1)

CFD	Project Number	Project Name	Tract No.	Permitted Dwelling Units	Permitted D/Us with Sq Ft	Permitted Square Footage	Average Square Footage	Student Totals Grades K- 5	Grades 6 - 8	Grades 9 -12	Grades K - 12	Student Generation Rates Grades K- 5	Grades 6 - 8	Grades 9 -12	Grades K - 12
88-1	35	La Montana	15292	65	0	0		9	11	19	39	0.1385	0.1692	0.2923	0.6000
88-1	36-A	Estrella	15316	28	28	48,482	1,732	8	4	8	20	0.2857	0.1429	0.2857	0.7143
88-1	36-B	Estrella	15373	3	0	0		2	0	0	2	0.6667	0.0000	0.0000	0.6667
88-1	36-C	Estrella	15374	30	0	0		5	9	13	27	0.1667	0.3000	0.4333	0.9000
88-1	36-D	Estrella	15375	10	10	16,472	1,647	3	2	0	5	0.3000	0.2000	0.0000	0.5000
88-1	38-A	Columbia/Westmont	15380	25	25	79,178	3,167	1	4	9	14	0.0400	0.1600	0.3600	0.5600
88-1	38-B	Columbia/Westmont	15502	9	9	27,962	3,107	1	0	0	1	0.1111	0.0000	0.0000	0.1111
88-1	38-C	Columbia/Westmont	15503	22	22	57,827	2,629	8	3	7	18	0.3636	0.1364	0.3182	0.8182
88-1	38-D	Columbia/Westmont	15504	17	17	51,174	3,010	3	5	6	14	0.1765	0.2941	0.3529	0.8235
88-1	38-E	Columbia/Westmont	15505	36	36	96,551	2,682	6	4	18	28	0.1667	0.1111	0.5000	0.7778
88-1	38-F	Columbia/Westmont	15506	23	23	60,327	2,623	10	5	5	20	0.4348	0.2174	0.2174	0.8696
88-1	38-G	Columbia/Westmont	15507	30	30	89,562	2,985	6	6	9	21	0.2000	0.2000	0.3000	0.7000
88-1	39	Madrid	15420	75	75	251,538	3,354	9	9	16	34	0.1200	0.1200	0.2133	0.4533
88-1	40-A	Arborwalk	15427	16	16	23,740	1,484	3	1	5	9	0.1875	0.0625	0.3125	0.5625
88-1	40-B	Arborwalk	15474	16	0	0		3	0	0	3	0.1875	0.0000	0.0000	0.1875
88-1	41	Arborwalk	15475	21	21	31,390	1,495	4	3	4	11	0.1905	0.1429	0.1905	0.5238
88-1	42-A	Tustin Estates	15563	46	38	184,812	4,863	8	4	12	24	0.1739	0.0870	0.2609	0.5217
88-1	42-B	Tustin Estates	15993	22	0	0		8	2	1	11	0.3636	0.0909	0.0455	0.5000
88-1	42-C	Tustin Estates	16184	51	27	149,172	5,525	7	3	8	18	0.1373	0.0588	0.1569	0.3529
88-1	43	Sedona	15568	130	90	200,896	2,232	35	27	34	96	0.2692	0.2077	0.2615	0.7385
88-1	44	Treviso	15601	44	33	135,084	4,093	5	6	14	25	0.1136	0.1364	0.3182	0.5682
88-1	45	Emerson	15681	114	107	397,577	3,716	11	14	33	58	0.0965	0.1228	0.2895	0.5088
88-1	97	Lennar - Tea Leaf	16782	25	0	0		9	7	9	25	0.3600	0.2800	0.3600	1.0000
97-1	46	Traditions	15432	127	114	394,867	3,464	27	13	22	62	0.2126	0.1024	0.1732	0.4882
97-1	47	Heritage	15433	46	46	118,642	2,579	15	5	15	35	0.3261	0.1087	0.3261	0.7609
97-1	48-A	Liberty	15434	74	74	165,473	2,236	16	13	19	48	0.2162	0.1757	0.2568	0.6486
97-1	48-B	Liberty	15512	72	72	188,552	2,619	20	8	19	47	0.2778	0.1111	0.2639	0.6528
97-1	49	Legacy	15435	37	23	93,605	4,070	2	1	12	15	0.0541	0.0270	0.3243	0.4054
97-1	50	Heritage	15511	65	37	94,604	2,557	15	10	17	42	0.2308	0.1538	0.2615	0.6462
97-1	51	Amberwood	15555	92	76	212,051	2,790	20	19	41	80	0.2174	0.2065	0.4457	0.8696
97-1	52	Glen Willows	15641	194	104	243,307	2,339	47	33	60	140	0.2423	0.1701	0.3093	0.7216
97-1	53	Briarwood	15642	78	20	65,164	3,258	15	7	14	36	0.1923	0.0897	0.1795	0.4615
97-1	57	Sheridan Square	15711	104	84	261,873	3,118	22	22	38	82	0.2115	0.2115	0.3654	0.7885
97-1	59	Terra Bella	15739	128	128	248,576	1,942	12	9	8	29	0.0938	0.0703	0.0625	0.2266
97-1	62-A	Sonoma	15742	42	35	90,490	2,585	4	8	11	23	0.0952	0.1905	0.2619	0.5476
97-1	62-B	Sonoma	15814	38	38	121,623	3,201	6	4	8	18	0.1579	0.1053	0.2105	0.4737
97-1	63	Mendocino	15743	88	88	258,916	2,942	15	17	27	59	0.1705	0.1932	0.3068	0.6705
97-1	64	Saratoga	15744	86	77	246,240	3,198	18	13	19	50	0.2093	0.1512	0.2209	0.5814
97-1	65-A	Brentwood	15745	71	71	251,321	3,540	14	16	20	50	0.1972	0.2254	0.2817	0.7042
97-1	65-B	Brentwood	15978	62	51	180,671	3,543	8	5	22	35	0.1290	0.0806	0.3548	0.5645
97-1	66-A	Huntington	15746	10	10	41,960	4,196	0	4	6	10	0.0000	0.4000	0.6000	1.0000
97-1	66-B	Huntington	15801	8	8	34,138	4,267	0	5	1	6	0.0000	0.6250	0.1250	0.7500
97-1	66-C	Huntington	15802	11	11	47,097	4,282	0	2	1	3	0.0000	0.1818	0.0909	0.2727
97-1	66-D	Huntington	15803	11	11	47,391	4,308	0	2	1	3	0.0000	0.1818	0.0909	0.2727
97-1	66-E	Huntington	15804	12	12	50,472	4,206	4	0	2	6	0.3333	0.0000	0.1667	0.5000
97-1	67	Cambria	15747	53	53	261,195	4,928	15	10	23	48	0.2830	0.1887	0.4340	0.9057
97-1	69	Concorde	15872	113	101	344,366	3,410	26	21	55	102	0.2301	0.1858	0.4867	0.9027
97-1	70	Barrington	15873	126	126	351,298	2,788	36	16	40	92	0.2857	0.1270	0.3175	0.7302
97-1	71	Kelsey Lane	15874	134	125	327,593	2,621	38	26	60	124	0.2836	0.1940	0.4478	0.9254
97-1	73	Wisteria	15876	164	164	329,142	2,007	37	27	34	98	0.2256	0.1646	0.2073	0.5976
97-1	78	Santa Venetia	15972	96	76	202,486	2,664	14	19	22	55	0.1458	0.1979	0.2292	0.5729
97-1	79	Mendocino North	15973	93	71	210,315	2,962	13	9	24	46	0.1398	0.0968	0.2581	0.4946
97-1	80	Miramar	15974	66	62	209,678	3,382	13	16	14	43	0.1970	0.2424	0.2121	0.6515
97-1	83	Monterey	15977	127	127	293,026	2,307	41	23	24	88	0.3228	0.1811	0.1890	0.6929
97-1	84-B	Huntington Collection	15980	13	13	58,475	4,498	1	1	4	6	0.0769	0.0769	0.3077	0.4615
97-1	84-C	Huntington Collection	16064	17	17	71,595	4,211	0	4	4	8	0.0000	0.2353	0.2353	0.4706
97-1	84-D	Huntington Collection	16065	15	15	67,172	4,478	0	1	3	4	0.0000	0.0667	0.2000	0.2667
97-1	84-E	Huntington Collection	16159	14	14	62,508	4,465	1	2	4	7	0.0714	0.1429	0.2857	0.5000
97-1	84-F	Huntington Collection	16160	10	10	45,353	4,535	0	1	3	4	0.0000	0.1000	0.3000	0.4000
97-1	84-G	Huntington Collection	16161	12	12	53,341	4,445	0	2	6	8	0.0000	0.1667	0.5000	0.6667
97-1	84-H	Huntington Collection	16162	15	14	62,828	4,488	3	2	1	6	0.2000	0.1333	0.0667	0.4000
97-1	84-I	Huntington Collection	16185	8	0	0		1	0	2	3	0.1250	0.0000	0.2500	0.3750
97-1	84-J	Huntington Collection	15979	8	8	30,994	3,874	0	0	0	0	0.0000	0.0000	0.0000	0.0000
97-1	85-A	Bel Air	16076	68	41	147,938	3,608	10	11	27	48	0.1471	0.1618	0.3971	0.7059
97-1	85-B	Bel Air	16077	53	29	108,567	3,744	6	12	22	40	0.1132	0.2264	0.4151	0.7547
97-1	86-A	Manchester	16078	42	25	95,757	3,830	5	11	12	28	0.1190	0.2619	0.2857	0.6667
97-1	86-B	Manchester	16086	26	26	99,025	3,809	9	1	6	16	0.3462	0.0385	0.2308	0.6154
97-1	86-C	Manchester	16087	27	27	104,163	3,858	10	6	14	30	0.3704	0.2222	0.5185	1.1111
97-1	87	Rutherford	16079	99	96	254,426	2,650	10	8	10	28	0.1010	0.0808	0.1010	0.2828
97-1	89	Triana	16081	92	91	314,469	3,456	8	5	10	23	0.0870	0.0543	0.1087	0.2500
97-1	90-A	Alder Creek	16082	51	50	126,873	2,537	18	11	16	45	0.3529	0.2157	0.3137	0.8824
97-1	90-B	Alder Creek	16088	80	56	144,687	2,584	24	15	26	65	0.3000	0.1875	0.3250	0.8125
97-1	91-A	Tiburon	16083	12	12	26,159	2,180	4	2	1	7	0.3333	0.1667	0.0833	0.5833
97-1	91-B	Tiburon	16172	10	10	21,456	2,146	4	2	4	10	0.4000	0.2000	0.4000	1.0000
97-1	91-D	Tiburon	16173	11	11	24,683	2,244	2	6	3	11	0.1818	0.5455	0.2727	1.0000
97-1	91-E	Tiburon	16174	13	13	27,544	2,119	1	3	3	7	0.0769	0.2308	0.2308	0.5385
97-1	91-F	Tiburon	16175	12	12	26,174	2,181	3	0	2	5	0.2500	0.0000	0.1667	0.4167
97-1	91-G	Tiburon	16176	12	12	26,361	2,197	0	2	8	10	0.0000	0.1667	0.6667	0.8333
97-1	92	San Juan Batista	16084	108	108	225,141	2,085	16	15	28	59	0.1481	0.1389	0.2593	0.5463
97-1	93	Monticello	16085	112	104	211,816	2,037	13	8	17	38	0.1161	0.0714	0.1518	0.3393
97-1	95	Mericort	16644	79	79	164,688	2,085	17	11	16	44	0.2152	0.1392	0.2025	0.5570
97-1	98	Montellena	16811	68	68	167,021	2,456	24	20	18	62	0.3529	0.2941	0.2647	0.9118
City	130	Sheldon	17507	103	103	216,519	2,102	11	3	4	18	0.1068	0.0291	0.0388	0.1748
City	131	Huntley	17507	77	77	219,481	2,850	19	3	2	24	0.2468	0.0390	0.0260	0.3117
City	132	Crawford	17507	96	96	332,073	3,459	31	2	1	34	0.3229	0.0208	0.0104	0.3542
City	133	Stafford	17507	99	99	376,432	3,802	27	2	0	29	0.2727	0.0202	0.0000	0.2929
Total Single-Family Detached (SFDs):				7,758	5,132	15,513,109	3,023	1,527	1,023	1,527	1,527	0.1968	0.1319	0.1968	0.5255
All Dwelling Types:				18,612	12,043	25,634,892	2,129	3,130	1,858	2,603	5,041	0.1682	0.0998	0.1399	0.4079
Weighted Average - Multi-Family				10,854	6,911	10,121,783	1,465	1,603	835	1,076	3,514	0.1477	0.0769	0.0991	0.3238

Appendix D: Future Development Projects

Tustin Unified School District
Pending and Future Development Areas - Unmitigated

General TUSD Location	Data Source	Project Status	Proposed Dwelling Type	Residential Land Use	Total Project D/Us	Permittted Prior to 01/01/2019	Net Future Unmitigated D/Us	Estimated Assessable Space Per Dwelling Unit	(1)
City of Tustin - Future Projects: (2)(3)									
S.E. Corner of Sixth & "B" Street	Vintage Website	Under Construction	SFA	Identified	140	(25)	115	1,742	(4)
Unmitigated High Density (5)	Tustin Housing Element		Multi-family	Unidentified	426		426	1,500	(6)
Subtotal - City of Tustin (3)					**566**	**(25)**	**541**	**1,551**	
Irvine Business Center (IBC): (3)									
Paseo Del Mar KB Homes (#42)	IBC Project List - Aug. 2018	Under Construction	Multi-family	Apartments/Condos	357	0	357	1,551	(7)
Subtotal - IBC (3)					**357**	**0**	**357**	**1,551**	
Santa Ana Metro-East Overlay Zone & Other TUSD Areas: (3)									
Madison - 200 N. Cabrillo Park Drive (#3)	Planning Dept's Website	Entitled	Multi-family	6-Story Mixed Use	260		260	1,346	(8)
Central Point Mixed-Use 1801 East 4th St	Planning Dept's Website	Under review	Multi-family	5-Story Mixed Use	650		650	1,346	(8)
AMG Family Units 2114 First St. (#25) (8)	Planning Dept's Website	Under Construction	Multi-family	6-Story Mixed use	694	0	694	1,346	(8)
Avery @ The Grove (Sexlinger Farmhouse)	Planning Dept's Website	Entitled	SFD	2,340-2,777 Sqft	24		24	2,500	
Wermer's Site 1660 E First St. (#26)	Planning Dept's Website	Entitled	Multi-family	6-Story Mixed use	601		601	1,346	(8)
Subtotal - Santa Ana (3)					**2,229**		**2,229**	**1,359**	
				Total Future TUSD Residential Dwelling Units:	**3,152**		**3,127**	**1,414**	(9)

(1) The plans and permit information for selected multifamily projects located within the Cities of Irvine, Santa Ana and Tustin were reviewed by SDFA in order to estimate the assessable space likely to be realized from similar projects to be constructed in the future.

(2) Excludes Future Development identified in the Housing Element as being located in Tustin/MCAS as that development has been mitigated with the formation of CFD No. 15-2.

(3) Includes only those projects that are located within the boundaries of TUSD and have not yet been constructed or were not issued a building permit as of January, 1, 2019.

(4) Average Square Footage of Project Ranges from 1,386 - 2,187 Square feet as identified on the Website for Vintage at Old Town Tustin by Taylor-Morrison.

(5) Of the 566 Multi-family units identified in the Housing Element of the 2013 General Plan, estimate assumes that 140 of those units are represented by the Vintage at Old Town project.

(6) Average Square Footage assumes a 50/ 50 mix of apartments and "for sale units with assessable space of 1,250 per apartment unit and average square footage of 1,750 for future "For-Sale condominium and townhome units. For that portion of the unidentified multi-family housing expected to be developed as apartments.

(7) For the Paseo Del Mar project located within the IBC, the average square footage was derived from the building permits issued in lated 2019 for 38 dwellling units.

(8) For the five and six-story residential and mixed-use projects expected in be developed within the the City of Santa Ana, the District estimates that the average assessable space per dwelling unit will be similar to the average assessable space computed for that portion of AMG Family Units for which permits were recently issued .

(9) Reflects the estimated weighted average of the 3,127 future unmitigated dwelling units expected to be constructed within District.

Appendix E: School Facilities Cost Estimates

TUSTIN UNIFIED SCHOOL DISTRICT
SUMMARY OF ESTIMATED COSTS

		Prototype Grade K-5 Elementary School	Prototype Grades 6-12 Academy School School
SITE ACQUISITION & DEVELOPMENT:			
Required Usable Acreage		10.0	40.0
Estimated Site Acquisition Costs (Per Acre)		$1,500,000	$0
Total Site Acquisition Costs [1]		$15,000,000	$0
Site Development Costs (Incl off-site, service site & utility services)	$100,000	$1,000,000	$4,000,000
Total Site Acquisition & Site Development Costs		$16,000,000	$4,000,000
SCHOOL CONSTRUCTION:			
Baseline Construction Cost Estimate [2]		$25,000,000	$100,000,000
TOTAL ESTIMATED COST:		$41,000,000	$104,000,000
DESIGN CAPACITY OF SCHOOL FACILITY		550	1,200
COST PER STUDENT		$74,545	$86,667

(1) Land price reflects District current estimated "average" land acquisition costs for future unidentified school sites; assumes that 6-12 will be located on the MCAS with no land cost.

(2) Reflects District's current estimate of construction costs to construct school facilities to serve the design capacities as shown.

Tustin Unified School District
Interim and Administrative Facilities Cost Estimates

Per Student Cost of Interim Facilities:

Per Student Cost for K-5 Interim Housing:

Estimated four-year period for unhoused students.
Monthly charges assumed for 1.5 years as an average requirement.

Monthly charges:	$850
Number of Periods:	18
Cost Per Classroom Unit	$15,300
Plus Incidentals (Set-up)	$65,000
Total Cost of Classroom	$80,300
Students to be Housed	25
Cost Per Student	**$3,212**

Per Student Cost for 6-8 Interim Housing:

Estimated four-year period for unhoused students.
Monthly charges assumed for 2.5 years as an average requirement.

Monthly charges:	$850
Number of Periods:	30
Cost Per Classroom Unit	$25,500
Plus Incidentals (Set-up)	$65,000
Total Cost of Classroom	$90,500
Students to be Housed	27
Cost Per Student	**$3,352**

Per Student Cost for High School Interim Housing:

Estimated six-year period for unhoused students.
Monthly charges assumed for 2.5 years as an average requirement.

Monthly charges:	$850
Number of Periods:	30
Cost Per Classroom Unit	$25,500
Plus Incidentals (Set-up)	$65,000
Total Cost of Classroom	$90,500
Students to be Housed	27
Cost Per Student	**$3,352**

Per Student Cost of Central Administrative Facilities:

Est Sqft. of Admin Facilities Required Per Student	4
Estimated Cost Per Sqft. of Construction	$225
Current Administrative Facilities Cost per Student	**$900**

Appendix F: 2006-2010 Census Data Employment and Housing Estimates

EEO-ALL01W

EEO 1w. Detailed Census Occupation by Sex and Race/Ethnicity for Worksite Geography

Universe: Civilians employed at work 16 years and over
EEO Tabulation 2006-2010 (5-year ACS data)

Note: This is a modified view of the original table.

The EEO Tabulation is sponsored by four Federal agencies consisting of the Equal Employment Opportunity Commission (EEOC), the Employment Litigation Section of the Civil Rights Division at the Department of Justice (DOJ), the Office of Federal Contract Compliance Programs (OFCCP) at the Department of Labor, and the Office of Personnel Management (OPM).

Geography: Irvine city, California
Estimate: Estimate

Occupation Code	Residence to Work Place Flows	Subject	Total, race and ethnicity
Total, all occupations	Worksite Total	Total, both sexes	
Total, all occupations	Worksite Total	Number	216,375
Total, all occupations	Irvine city, California to Irvine city, California	Total, both sexes	
Total, all occupations	Irvine city, California to Irvine city, California	Number	42,265
Total, all occupations	Santa Ana city, California to Irvine city, California	Total, both sexes	
Total, all occupations	Santa Ana city, California to Irvine city, California	Number	19,910
Total, all occupations	Tustin city, California to Irvine city, California	Total, both sexes	
Total, all occupations	Tustin city, California to Irvine city, California	Number	7,495

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:
An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended

distribution. A statistical test is not appropriate.
An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
An '(X)' means that the estimate is not applicable or not available.

The U.S. Census Bureau collects race data in accordance with guidelines provided by the U.S. Office of Management and Budget (OMB). Except for the total, all race and ethnicity categories are mutually exclusive. "Black" refers to Black or African American; "AIAN" refers to American Indian and Alaska Native; and "NHPI" refers to Native Hawaiian and Other Pacific Islander. The reference to "Hawaii only" indicates that these columns are only tabulated for areas in the state of Hawaii. "Balance of Not Hispanic or Latino" includes the balance of non-Hispanic individuals who reported multiple races or reported Some Other Race alone. For more information on race and Hispanic origin, see the Subject Definitions at http://www.census.gov/acs/www/data_documentation/documentation_main/.

Race and Hispanic origin are separate concepts on the American Community Survey. "White alone Hispanic or Latino" includes respondents who reported Hispanic or Latino origin and reported race as "White" and no other race. "All other Hispanic or Latino" includes respondents who reported Hispanic or Latino origin and reported a race other than "White," either alone or in combination. To get a total for "Hispanic or Latino," add the two columns for "White alone Hispanic or Latino" and "All other Hispanic or Latino."

Occupation codes are 4-digit codes and are based on Standard Occupational Classification 2010.

EEO-ALL01W

EEO 1w. Detailed Census Occupation by Sex and Race/Ethnicity for Worksite Geography

Universe: Civilians employed at work 16 years and over
EEO Tabulation 2006-2010 (5-year ACS data)

Note: This is a modified view of the original table.

The EEO Tabulation is sponsored by four Federal agencies consisting of the Equal Employment Opportunity Commission (EEOC), the Employment Litigation Section of the Civil Rights Division at the Department of Justice (DOJ), the Office of Federal Contract Compliance Programs (OFCCP) at the Department of Labor, and the Office of Personnel Management (OPM).

Geography: Santa Ana city, California
Estimate: Estimate

Occupation Code	Residence to Work Place Flows	Subject	Total, race and ethnicity
Total, all occupations	Worksite Total	Total, both sexes	
Total, all occupations	Worksite Total	Number	154,675
Total, all occupations	Irvine city, California to Santa Ana city, California	Total, both sexes	
Total, all occupations	Irvine city, California to Santa Ana city, California	Number	6,390
Total, all occupations	Santa Ana city, California to Santa Ana city, California	Total, both sexes	
Total, all occupations	Santa Ana city, California to Santa Ana city, California	Number	41,630
Total, all occupations	Tustin city, California to Santa Ana city, California	Total, both sexes	
Total, all occupations	Tustin city, California to Santa Ana city, California	Number	5,460

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:
An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended

distribution. A statistical test is not appropriate.
An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
An '(X)' means that the estimate is not applicable or not available.

The U.S. Census Bureau collects race data in accordance with guidelines provided by the U.S. Office of Management and Budget (OMB). Except for the total, all race and ethnicity categories are mutually exclusive. "Black" refers to Black or African American; "AIAN" refers to American Indian and Alaska Native; and "NHPI" refers to Native Hawaiian and Other Pacific Islander. The reference to "Hawaii only" indicates that these columns are only tabulated for areas in the state of Hawaii. "Balance of Not Hispanic or Latino" includes the balance of non-Hispanic individuals who reported multiple races or reported Some Other Race alone. For more information on race and Hispanic origin, see the Subject Definitions at http://www.census.gov/acs/www/data_documentation/documentation_main/.

Race and Hispanic origin are separate concepts on the American Community Survey. "White alone Hispanic or Latino" includes respondents who reported Hispanic or Latino origin and reported race as "White" and no other race. "All other Hispanic or Latino" includes respondents who reported Hispanic or Latino origin and reported a race other than "White," either alone or in combination. To get a total for "Hispanic or Latino," add the two columns for "White alone Hispanic or Latino" and "All other Hispanic or Latino."

Occupation codes are 4-digit codes and are based on Standard Occupational Classification 2010.

EEO-ALL01W

EEO 1w. Detailed Census Occupation by Sex and Race/Ethnicity for Worksite Geography

Universe: Civilians employed at work 16 years and over
EEO Tabulation 2006-2010 (5-year ACS data)

Note: This is a modified view of the original table.

The EEO Tabulation is sponsored by four Federal agencies consisting of the Equal Employment Opportunity Commission (EEOC), the Employment Litigation Section of the Civil Rights Division at the Department of Justice (DOJ), the Office of Federal Contract Compliance Programs (OFCCP) at the Department of Labor, and the Office of Personnel Management (OPM).

Geography: Tustin city, California
Estimate: Estimate

Occupation Code	Residence to Work Place Flows	Subject	Total, race and ethnicity
Total, all occupations	Worksite Total	Total, both sexes	
Total, all occupations	Worksite Total	Number	37,900
Total, all occupations	Irvine city, California to Tustin city, California	Total, both sexes	
Total, all occupations	Irvine city, California to Tustin city, California	Number	2,815
Total, all occupations	Santa Ana city, California to Tustin city, California	Total, both sexes	
Total, all occupations	Santa Ana city, California to Tustin city, California	Number	4,490
Total, all occupations	Tustin city, California to Tustin city, California	Total, both sexes	
Total, all occupations	Tustin city, California to Tustin city, California	Number	6,325

Data are based on a sample and are subject to sampling variability. The degree of uncertainty for an estimate arising from sampling variability is represented through the use of a margin of error. The value shown here is the 90 percent margin of error. The margin of error can be interpreted roughly as providing a 90 percent probability that the interval defined by the estimate minus the margin of error and the estimate plus the margin of error (the lower and upper confidence bounds) contains the true value. In addition to sampling variability, the ACS estimates are subject to nonsampling error (for a discussion of nonsampling variability, see Accuracy of the Data). The effect of nonsampling error is not represented in these tables.

Source: U.S. Census Bureau, 2006-2010 American Community Survey

Explanation of Symbols:
An '**' entry in the margin of error column indicates that either no sample observations or too few sample observations were available to compute a standard error and thus the margin of error. A statistical test is not appropriate.
An '-' entry in the estimate column indicates that either no sample observations or too few sample observations were available to compute an estimate, or a ratio of medians cannot be calculated because one or both of the median estimates falls in the lowest interval or upper interval of an open-ended distribution.
An '-' following a median estimate means the median falls in the lowest interval of an open-ended distribution.
An '+' following a median estimate means the median falls in the upper interval of an open-ended distribution.
An '***' entry in the margin of error column indicates that the median falls in the lowest interval or upper interval of an open-ended

distribution. A statistical test is not appropriate.
An '*****' entry in the margin of error column indicates that the estimate is controlled. A statistical test for sampling variability is not appropriate.
An 'N' entry in the estimate and margin of error columns indicates that data for this geographic area cannot be displayed because the number of sample cases is too small.
An '(X)' means that the estimate is not applicable or not available.

The U.S. Census Bureau collects race data in accordance with guidelines provided by the U.S. Office of Management and Budget (OMB). Except for the total, all race and ethnicity categories are mutually exclusive. "Black" refers to Black or African American; "AIAN" refers to American Indian and Alaska Native; and "NHPI" refers to Native Hawaiian and Other Pacific Islander. The reference to "Hawaii only" indicates that these columns are only tabulated for areas in the state of Hawaii. "Balance of Not Hispanic or Latino" includes the balance of non-Hispanic individuals who reported multiple races or reported Some Other Race alone. For more information on race and Hispanic origin, see the Subject Definitions at http://www.census.gov/acs/www/data_documentation/documentation_main/.

Race and Hispanic origin are separate concepts on the American Community Survey. "White alone Hispanic or Latino" includes respondents who reported Hispanic or Latino origin and reported race as "White" and no other race. "All other Hispanic or Latino" includes respondents who reported Hispanic or Latino origin and reported a race other than "White," either alone or in combination. To get a total for "Hispanic or Latino," add the two columns for "White alone Hispanic or Latino" and "All other Hispanic or Latino."

Occupation codes are 4-digit codes and are based on Standard Occupational Classification 2010.

1. Please confirm or correct:
The Newhope Library at 122 North Newhope Street would serve the project area.

   Confirmed.

2. What is the square footage of the existing Newhope Library? What resources and special services are provided at this location?

   Santa Ana has two facilities, a Main library and the Newhope Library Learning Center. The Main Library is 39,790 square feet in size and the Newhope Library is 10,600 square feet. The libraries offer access to books, periodicals, e-content, online databases, computers and internet, a Learning Center, a TeenSpace, a Higher Education Center, and programming for all ages.

   a. Are the existing library space and number of books considered adequate for the existing population within the libraries' service area?

      No. A library service master plan or facility standards assessment would be required to best determine the needs of our service area. For the purpose of this questionnaire, the data will be gathered in comparison to Anaheim Public Library, who are simliar in terms of population to the City of Santa Ana.

   b. If not, what are the estimated deficits of:

      i. Building area in square feet? Deficit of 99,409 square feet total for the entire City population.

      ii. Volumes or collection size? Deficit of 234,483 in collection size This is total for the entire City.

      iii. Other resources (computers, etc.)? Yes, additional computers, staffing and programs.

3. What demand factors or standards are used to determine the amount of library space and number of volumes, or collection size, needed to serve a given population?

   A master plan or facility standards assessment would best determine the needs to serve the population. The library has neither, so we look at the circulation data as well as foot traffic at our existing libraries to help determine the needs. We also look at the service level of nearby cities with similar population sizes. For example, the Anaheim Public Library has 0.416 total library square footage per capita, while Santa Ana is at 0.1633.

4. The proposed project would introduce up to 36,167 residential units. What demands would you estimate the project would create:

   a. For library facilities in square feet? Additional 15,190 square feet

   b. For collection items? Additional 81,353 items

   c. For additional library staff? Additional 16.25 full time staff (FTE)

   d. Other? Additional computers and programming

5. Are there any plans for future library expansion or new libraries that would potentially serve the proposed project? If so, how would these facilities be funded?

There is currently no plan for future library facilities. The City is in the process of procuring a mobile library unit or bookmobile to better serve the population.

6. What measures, if any, would you recommend to reduce project impacts to library facilities and/or collections?

The recommendation would be to increase the number of library facillities and the number of resources.

7. Please add any other comments you may wish to make regarding this project.

Response Prepared By:

Lupita Arroyo	Principal Librarian
Name	**Title**
City of Santa Ana - Library Services	4/1/2020
Agency	**Date**

1. The existing General Plan states that the City has approximately 400 acres of public parks and recreation facilities distributed generally uniformly throughout the City. Please **confirm or update** the information in the following table reproduced from the City's website.

City Parks	Park Acreage	Joint Use Sites	Recreation Facilities
Adams Park	5.68	Godinez High School	Cabrillo Tennis Center
Angels Community Park	1.72	Madison Elementary School	Corbin Center
Birch Park	2.66	Monte Vista Elementary School	El Salvador Community Center+
Bomo Koral Park	10.40	Roosevelt Elementary School	Jerome Recreation Center+
Cabrillo Park	7.60	Spurgeon Intermediate School	Logan Recreation Center
Centennial Park	69.50	Willard Intermediate School	Memorial Recreation Center+
Cesar Chavez Camoesino Park	6.30	Garfield Elementary	Neal Machander Tennis Center
Chepa's Park	0.41	Monroe Elementary School	Salgado Recreation Center+
Delhi Park	10.40		Santa Anita Recreation Center+
Eldridge Park	1.2		Santa Ana Senior Center
Edna Park	2.82		Southwest Senior Center
El Salvador Park	8.4		Wildlife and Watershed Interpretive Center
Fairview Triangle Park	0.30		Godinez Gym and Performing Arts Center
Fisher Cabin Park	2.34		Santiago Lawn Bowling Center
French Park	0.17		Fisher Cabin
Friendship Park	0.09		Santiago Cabin
Garfield Exercise	0.10		Santa Ana Zoo at Prentice Park
Grise! Park	6.79		Santa Ana Stadium
Heritage Park	6.51		Central Public Library
Jerome Park	17.92		Newhope Library
Lillie King Park	9.60		Garfield Center
Mabury Park	5.46		RooseveiUWalker Community Center
Madison Park	6.06		
Maple and Occidental Park	0.43		
McFadden Triangle Park	0.80		
Memorial Park	17		
Memory Lane Park	0.47		
Morrison Park	5.07		

Pacific Electric Park	1.39		
Plaza Calle Cuatro Park	0.20		
Portola Park	9.07		
Prentice Park	18.75		
RaitUMyrtle Park*	1.09		
Riverview Park	8.76		
Rosita Park	8.68		
Saddleback View Park	0.92		
Sandpointe Park	6.63		
Santa Anita Park	4.86		
Santiago Park	34.43		
Sara May Downie Herb Garden	0.13		
Segerstrom Triangle Park	1.22		
Sasscer Park	0.92		
Standard/McFadden Park*	.75		
17th Stree!Triangle Park	0.66		
6th and Lacy Park*	0.42		
Thornton Park	32.83		
Windsor Park	10.48		
TOTAL	348.39	-	-

*Future Parks
+ Centers with oars

2. The City's website also identified future parks as noted in the table above.

   a. Have any of these parks been built? Which ones?

   Yes, 6th and Lacy (Mariposa Park) was built and opened on December 14, 2019.

   b. If not, are there stiU plans to build these parks?

   Yes, Grant funding was recently approved to develop Standard/McFadden and Raitt/Myrtle Park sites.

3. What is the City's funding source for park and recreational facilities maintenance and improvements?

   City General Funds are used to maintain the park sites. Improvement funding mainly comes from Federal/State Grants , Community Development Block Grant or Park Residential Development Fees (A & D Fees).

4. Are the existing parks and recreational facilities in the City adequate to serve the demands of the residents?

   No, the City has not met the Municipal Code 2 acres per/ 1000 requirement.

5. Are the existing parks and recreation facilities able to accommodate buildout of the proposed project, which includes land use designation changes that would accommodate a buildout of 6,776,298 additional nonresidential square feet, 36,167 additional dwelling units, and would create 14,276 jobs? If not, what additional facilities would be needed and how will they be funded?

   No, additional park acres, recreational support facilities and community centers are needed to meet the increasing population demand. Park/Recreational Improvements would be funded by grants, CDBG funds, and Park residential development fees.

6. What mitigation measures, if any, would you recommend for the proposed project?

   Additional Park Open Space.

7. Please add any other comments you may wish to make regarding the proposed project.

Response Prepared By:

RON ONO — PRCSA ADMINISTRATIVE SERVICES MANAGER

Name — Title

PARK, RECREATION AND COMMUNITY SERVICES AGENCY — 3/9/20

Agency — Date

1. What generation rates are used to estimate solid waste service requirements for various land uses (residential, commercial, industrial) in pounds/day or tons/year?

See attached solid waste generation by land use type. This information was obtained from the California Department of Resources Recovery and Recycling (CalRecycle) website.

2. Is Orange County currently meeting AB 939 goals?

AB 939, also known as the California Integrated Waste Management Act of 1989, requires all counties in California to prepare a Siting Element as part of each county's Countywide Integrated Waste Management Plan. As part of the Siting Element, each county is required to demonstrate that it has 15 years of available countywide solid waste landfill capacity, either in its jurisdiction, or has contracted with another entity (i.e., another county or waste hauler that owns a landfill that has available landfill capacity) to ensure 15 years of available countywide solid waste landfill capacity.

The County of Orange has 15 years of available countywide solid waste landfill capacity with available landfill capacity at the Olinda Alpha, Frank R. Bowerman and Prima Deshecha Landfills. All three landfills are owned by the County of Orange and are operated by the OC Waste & Recycling department.

3. Please provide any additional comments you may have regarding the proposed project.

The Orange County solid waste landfill system can serve the proposed project on both a project-specific and cumulative basis and will provide the project with long-term solid waste landfill capacity.

Response Prepared By:

John J. Arnau, CEQA Manager

Name	**Title**
OC Waste & Recycling	March 3, 2020
Agency	**Date**

1. Please **confirm** that the disposal sites used for the City's solid waste are the Frank R. Bowerman Landfill in Irvine and Olinda Alpha Landfill in Brea.

Confirmed.

   a. What additional sites, if any, are planned for solid waste disposal in the future?

None.

2. Please **confirm or update** the information in Table 1, using data from CalRecycle, regarding the three landfill's location, current remaining capacity, maximum capacity, estimated close date, and maximum daily load.

Table 1 Landfill Capacity

Landfill	Location	Current Remaining Capacity (cubic yards)	Maximum Capacity (cubic yards)	Estimated Close Date	Maximum Daily Load (tons/day)
Frank R. Bowerman	11002 Bee Canyon Road Irvine, CA 92602	~~205,000,000~~ 170,400,000*	266,000,000	2053	11,500
Olinda Alpha	1942 North Valencia Avenue Brea, CA 92823	~~34,200,000~~ 24,500,000	148,800,000	2021**	8,000

*Remaining capacity for Frank R. Bowerman and Olinda Alpha Landfills as of June 30, 2019.
**OC Waste & Recycling is currently working with the City of Brea to revise the closure date of the Olinda Alpha Landfill.

3. Are the existing landfill facilities able to accommodate buildout of the proposed project, which includes land use designation changes that would accommodate a buildout of 6,776,298 additional nonresidential square feet, 36,167 additional dwelling units, and would create 14,276 jobs? If not, what additional facilities would be needed?

Yes, the Orange County solid waste landfill system would have the ability to provide the proposed project with long-term solid waste landfill capacity, both on a project specific and cumulative basis. The County of Orange maintains 15-years of countywide solid waste landfill capacity, as required by AB 939.

4. Please provide any additional comments you may have regarding the proposed project.

N/A.

Response Prepared By:

John J. Arnau, CEQA Manager

Name	**Title**
OC Waste & Recycling	March 3, 2020
Agency	**Date**

Estimated Solid Waste Generation Rates by Land Use Type

Land Use Type	Estimated Solid Waste Generation Rate
Residential	12.23 lbs./household/day
Offices	0.084 lb./sq. ft./day
Commercial/Retail	3.12 lbs./100 sq. ft./day
Restaurants	.005 lb./s.f./day
Industrial/Warehouse	1.42 lb./100 sq. ft./day
Schools	1 lb./student/day
Hotel/Motel	4 lbs./room/day
Public/Institutional	.007 lb./sq. ft./day

Source: CalRecycle, 2020