2.19 Cumulative Impacts

2.19.1 Regulatory Setting

Cumulative impacts are those that result from past, present, and reasonably foreseeable future actions, combined with the potential impacts of the proposed project. A cumulative effect assessment looks at the collective impacts posed by individual land use plans and projects. Cumulative impacts can result from individually minor but collectively substantial impacts taking place over a period of time.

Cumulative impacts to resources in the project area may result from residential, commercial, industrial, and highway development, as well as from agricultural development and the conversion to more intensive agricultural cultivation. These land use activities can degrade habitat and species diversity through consequences such as displacement and fragmentation of habitats and populations, alteration of hydrology, contamination, erosion, sedimentation, disruption of migration corridors, changes in water quality, and introduction or promotion of predators. They can also contribute to potential community impacts identified for the project, such as changes in community character, traffic patterns, housing availability, and employment.

California Environmental Quality Act (CEQA) Guidelines Section 15130 describes when a cumulative impact analysis is necessary and what elements are necessary for an adequate discussion of cumulative impacts. The definition of cumulative impacts under CEQA can be found in Section 15355 of the CEQA Guidelines. A definition of cumulative impacts, under the National Environmental Policy Act (NEPA), can be found in 40 Code of Federal Regulations (CFR), Section 1508.7 of the CEQ Regulations.

2.19.2 Methodology

The cumulative impact analysis methodology utilized was based on the eight-step process set forth in the California Department of Transportation (Caltrans) Standard Environmental Reference (SER) Guidance for Preparers of Cumulative Impact Analysis (2005). The eight-step process is as follows:

- Identify resources to be analyzed
- Define the study area for each resource (i.e., Resource Study Area [RSA])
- Describe the current health and historical context for each resource
- Identify direct and indirect impacts of the proposed project

- Identify other reasonably foreseeable actions that affect each resource
- Assess potential cumulative impacts
- Report results
- Assess the need for mitigation

2.19.3 Resources Excluded from Cumulative Impacts Analysis

As specified in the Caltrans guidance, if the proposed project would not result in a direct or indirect impact to a resource, it would not contribute to a cumulative impact on that resource and need not be evaluated with respect to potential cumulative impacts.

Those resources for which cumulative effects are not anticipated or for which the impacts were already analyzed in a cumulative context are briefly discussed below.

- **Coastal Zones:** The project area is not located within the Coastal Zone. Therefore, the proposed project would not contribute to cumulative adverse impacts to coastal zones.
- **Wild and Scenic Rivers:** There are no wild and scenic rivers in the project area. Therefore, the proposed project would not contribute to cumulative adverse impacts to wild and scenic rivers.
- **Farmlands or Timberlands:** The designated farmland adjacent to the State Route 55 (SR-55)/Interstate 405 (I-405) interchange would not be impacted by the Build Alternatives. There are no timberlands in the project area. Therefore, the proposed project would not contribute to cumulative adverse impacts to farmlands or timberlands.
- **Land Use:** The freeway improvements to accommodate the Build Alternatives are consistent with local and regional goals to improve traffic operations and reduce congestion in the area. The project improvements would occur in an area already designated and currently used for transportation. Therefore, no adverse cumulative impacts related to land use are expected.
- **Parks and Recreation:** The Build Alternatives would not impact parks, recreational facilities, or Section 4(f) resources. Therefore, the proposed project would not contribute to cumulative adverse impacts related to parks and recreation.
- **Growth:** The Build Alternatives would improve existing and future traffic operations, reduce congestion, and accommodate existing and future planned growth. The Build Alternatives do not induce growth or remove obstacles to

growth in the area and therefore would not contribute to cumulative adverse impacts related to growth.

- **Utilities and Emergency Services:** With the exception of short-term effects during construction, the Build Alternatives would not result in adverse effects to utilities and emergency services. Because the proposed project would not adversely affect utilities or emergency services, it would not contribute to cumulative adverse effects to utility facilities and emergency service providers.
- **Traffic/Transportation:** The Build Alternatives would improve traffic operations and reduce congestion. The analysis of future traffic conditions in Section 2.5 of this Initial Study/Environmental Assessment (IS/EA) for 2020 (Opening Year) and 2040 (Horizon Year) is a cumulative analysis in that it considers traffic generated by existing and future planned land uses and the effect of future planned transportation improvements.
- **Visual/Aesthetics:** The Build Alternatives would not substantially change the existing views of and from SR-55. Therefore, the proposed project would not contribute to cumulative adverse effects to visual resources.
- **Cultural Resources:** Construction of the Build Alternatives would not impact known cultural resources. While cultural resources in the study area outside the project area may be directly or indirectly impacted by other projects, the proposed project would not directly or indirectly impact those resources and therefore would not contribute to adverse impacts related to cultural resources.
- **Floodplains:** Although the Build Alternatives would encroach in the Lane Channel floodplain, the change in the water surface elevation in this channel as a result of the Build Alternatives would be minor, and the base flood would still be contained within the channel. Therefore, the proposed project would not contribute to cumulative adverse effects related to hydrology and floodplains.
- **Geology and Soils:** The potential impacts of the Build Alternatives related to geologic conditions and soils would be avoided or minimized based on implementation of geotechnical design features and Soil Management Best Management Practices (BMPs). As a result, the Build Alternatives would not contribute to cumulative adverse impacts related to geology and soils.
- **Paleontological Resources:** Excavation during the construction of Build Alternatives is not expected to extend deeper than 10 feet (ft) below the original ground surface and, as a result, it is unlikely that older sensitive sediments that might contain paleontological resources would be encountered. Therefore, the proposed project would not contribute to cumulative adverse effects related to paleontological resources.

- **Air Quality:** The analysis of air quality provided in Section 2.13 of this IS/EA is a cumulative analysis in that it considers the emissions of traffic generated by existing and future planned land uses and the effects of other future planned transportation improvements. Temporary air quality impacts would be minimized through implementation of dust control and equipment management measures. The proposed project would not contribute to cumulative air quality impacts because it would not violate any air quality standard, would not contribute substantially to an existing air quality violation, and would not expose sensitive receptors to substantial pollutant concentrations.
- **Noise:** The analysis of noise impacts provided in Section 2.14 of this IS/EA is a cumulative analysis in that it considers the traffic noise generated by existing and future planned land uses and the effects of other future planned transportation improvements on the noise environment. After implementation of noise abatement, the noise level increase attributable to the Build Alternatives will not be perceptible to the human ear in an outdoor environment; therefore, the proposed project would not contribute to cumulative adverse effects related to noise.
- **Natural Communities:** The project area does not contain any natural communities. The five habitat types present include ruderal, ornamental landscaping, clear or graded, urban, and transportation. As a result, the Build Alternatives would not impact natural communities and therefore would not contribute to cumulative adverse effects related to natural communities.
- **Wetlands and Other Waters:** The proposed project would not impact wetlands. The potential California Department of Fish and Wildlife (CDFW) jurisdictional area that would be impacted by the Build Alternatives through the realignment and reconfiguration of Lane Channel is concrete-lined. No conversion of natural streambeds would occur. The Build Alternatives would result in an increase in United States Army Corps of Engineers (Corps) jurisdiction within Lane Channel. Therefore, the proposed project would not contribute to cumulative adverse effects related to wetlands and other waters.
- **Plant Species:** The project area does not contain suitable habitat for any special-status plant species, and no special-status plants were observed or otherwise detected during field surveys for the proposed project. As a result, the Build Alternatives would not impact special-status plant species and therefore would not contribute to cumulative adverse effects related to special-status plant species.
- **Animal Species:** The project area does not contain suitable habitat for any special-status animal species, and no special-status animal species were observed

or otherwise detected during field surveys for the proposed project. As a result, the Build Alternatives would not impact special-status animal species and therefore would not contribute to cumulative adverse effects related to special-status animal species.

- **Threatened and Endangered Species:** The project area does not contain suitable habitat for any threatened or endangered species, and no threatened or endangered plant or animal species were observed or otherwise detected during field surveys for the proposed project. As a result, the Build Alternatives would not impact threatened and endangered species and therefore would not contribute to cumulative adverse effects related to threatened and endangered species.
- **Invasive Species:** The Build Alternative would not substantially increase the potential for the spread of invasive species. Compliance with standard procedures would address this impact. Therefore, the proposed project would not contribute to cumulative adverse effects related to invasive species.
- **Climate Change:** The analysis of air quality provided in Section 2.20, Climate Change, is a cumulative analysis in that it considers the emissions of traffic generated by existing and future planned land uses and the effects of other future planned transportation improvements. The Build Alternatives would result in a small increase (substantially less than 1 percent) in carbon dioxide (CO_2) emissions in the region in 2020 and 2040 when compared to 2020 and 2040 without the project. However, as discussed in Section 2.20, it is too speculative to make a determination regarding the project's direct impact and its contribution on a cumulative scale to climate change.

2.19.4 Resources Evaluated for Cumulative Impacts

The following discussion of potential cumulative impacts is presented by environmental resource area. The reasonably foreseeable projects considered in this analysis are presented in Table 2.19.1 and are shown on Figure 2.19-1. Most of the projects are infill projects, while the transportation projects are all along existing facilities. The following resources are evaluated in this section for cumulative impacts: community impacts and surface water quality. In the context of the respective RSA, the four Build Alternatives studied would have a similar potential contribution to cumulative impacts for these resources.

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
1	Tustin Ranch Road Extension	City of Tustin	The project involves construction of the extension of Tustin Ranch Road from its current terminus at Walnut Avenue to Warner Avenue. It includes a bridge over the Santa Ana-Santa Fe Channel, the OCTA/SCRRA Railway, and Edinger Avenue.	Completed
2	Tustin Legacy (MCAS Tustin Specific Plan)	City of Tustin	Specific Plan for the maximum development of 4,199 DUs, 8.2 million sf of commercial development, 2.0 million sf of institutional/recreational development, and 133,294 sf of transitional housing. A Specific Plan Amendment is currently being studied that would permit development of 2,212 additional DUs, and 1,755,306 less square feet of non-residential land uses than the Adopted Specific Plan.	2,405 DUs, 1,016,000 sf of commercial development, 128,122 sf of institutional uses, and transitional housing completed
3	Tustin Fire Station No. 37 at Tustin Legacy – 15011 Kensington Park Drive	City of Tustin	New 9,670 sf fire station with three apparatus bays, served by 21 on-site parking spaces.	Completed
4	Pacific Center East Specific Plan	City of Tustin	Maximum of 2.2 million sf of new commercial, office, hotel, and research and development uses.	57,151 sf in Pacific Business Center, 66,578 sf in Pacific Office Plaza, and two hotels completed (see below for additional information)
5	Hotel and Commercial Mixed-Use – Newport Avenue	City of Tustin	Four-story Residence Inn with 149 guest rooms; four-story Fairfield Inn with 144 guest rooms, 8,900 sf restaurant building, and 7,300 sf retail building. Part of Pacific Center East Specific Plan.	Completed
6	Residential development at 1872 San Juan Street	City of Tustin	Residential development consisting of demolition of 6 single-family DUs and construction of 26 detached condominium DUs.	Approved
7	Residential development at 1381 & 1392 San Juan Street	City of Tustin	Residential development consisting of demolition of 1 single-family DU and construction of 6 detached condominium DUs.	Under review
8	Residential development at 1051 Bonita Street	City of Tustin	Residential development consisting of demolition of 1 single-family DU and construction of an apartment building with 4 DUs.	Under review

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
9	Red Hill Apartments - 13751 & 13841 Red Hill Avenue	City of Tustin	Mixed-use development consisting of 201 apartment DUs, 10,000 sf of retail space, and parking structure.	Under review
10	The Met at South Coast Multifamily Residential Project, 200 East First American Way	City of Santa Ana	The project consists of 284 multifamily DUs in five- and six-story condominium buildings over parking.	Approved
11	Bristol Street Widening	City of Santa Ana	Widening of Bristol Street to six lanes. Phase I will extend from McFadden Avenue to Pine Street. Phase II will extend from Pine Street to Civic Center Drive. Phase III will extend from Civic Center Drive to 17th Street. Phase IV will extend from Warner Street to St. Andrew Place.	Design construction, ROW phases of certain segments
12	Lyon Homes, 100 East MacArthur Boulevard	City of Santa Ana	Four-story apartment/condominium project with 300 DUs.	Under construction
13	Legado at the MET, 200 East First American Way	City of Santa Ana	Project consists of 281 DUs (apartments) within a five-story building.	Approved
14	The Heritage, 2001 East Dyer Road	City of Santa Ana	Project consists of 1,221 DUs (apartments), approximately 20,000 sf of commercial space and 60,000 sf of office.	EIR currently being prepared
15	Grand Avenue Grade Separation	City of Santa Ana	Grade separation along Grand Avenue from Wakeham Avenue to Chestnut Avenue.	PRE completed
16	Alton Avenue Overcrossing	City of Santa Ana	The proposed project would consist of Alton Avenue as a four-lane overcrossing with a 14 ft median connecting each side of SR-55 and the addition of HOV direct access drop ramps to support circulation between the Cities of Santa Ana and Irvine, relieve local traffic congestion, support planned development and growth in both cities, and improve HOV access.	PS&E completed
17	Warner Avenue Widening from Main Street to Grand Avenue	City of Santa Ana	The proposed project is the widening of an approximately 1 mi long segment of Warner Avenue between Main Street and Grand Avenue from four lanes to six.	Preliminary design
18	Grand Avenue Widening from 1st Street to 4th Street	City of Santa Ana	The project is the widening of Grand Avenue from two lanes to three in each direction, an additional turn lane at First Street, a raised median, and bike lanes.	Under construction
19	Grand Avenue Widening from 4th Street to 17th	City of Santa Ana	The proposed project is the widening of an approximately 1 mi long segment of Grand Avenue.	Preliminary design

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
	Street			
20	Edwards Life Science, 1 Edwards Way	City of Irvine	36,000 sf office building and parking structure.	Under construction
21	Pacific Dental, 17000 Red Hill Avenue	City of Irvine	Conversion of industrial space to office uses.	Under construction
22	Dyer Road Widening	City of Irvine and City of Santa Ana	Phase II widening of Dyer Road to eight lanes from Red Hill Avenue to SR-55.	Planned
23	Red Hill Avenue Widening	City of Irvine	Widen Red Hill Avenue to six lanes from Main Street to MacArthur Boulevard.	Planned
24	Jamboree Road/ Barranca Parkway	City of Irvine	Intersection improvements at Jamboree Road/Barranca Parkway, including adding a fifth northbound through lane.	Preliminary design
25	Jamboree Road/Main Street	City of Irvine	Intersection improvements at Jamboree Road/Main Street, including adding a fifth northbound through lane, a fifth southbound through lane, and conversion of the westbound right-turn lane to a standard right-turn lane.	Preliminary design
26	Jamboree Road Widening at I-5	City of Irvine, City of Tustin	Widening of Jamboree Road to eight through lanes between El Camino Real and Michelle Drive.	Completed
27	Newport Extension Project – Phase II	City of Tustin	The project consists of the extension of Newport Avenue from its present cul-de-sac north of the OCTA/SCRRA Railway Line to Edinger Avenue.	EIR approved. Final design @ 90% completion level.
28	SR-55 (I-5 to SR-22)	City of Orange, City of Santa Ana, and City of Tustin	The objective of the proposed improvements to SR-55 is to determine the preliminary geometric design and operational characteristics of providing new mainline lanes on SR-55 from I-5 to SR-22. Operational improvements and possible capacity enhancements on SR-55 from SR-22 to SR-91 will be studied. The goal of this study is to identify proposed improvements that could be constructed generally within existing ROWs. Specific improvements will be coordinated with Caltrans, local jurisdictions, and affected cities.	In PSR/PDS phase

Table 2.19.1 Planned Projects List

Figure 2.19-1 ID No.	Name	Jurisdiction	Project Uses	Status
29	Southbound SR-55 Project to Widen Freeway and Bridge and Construct Retaining/Tieback Wall	City of Irvine, City of Santa Ana	The project will consist of adding an auxiliary lane on southbound SR-55 from Edinger Avenue to Dyer Road, widening the bridge on Dyer Road, and constructing a retaining/tieback wall at Warner Avenue. This project will improve the weaving operation of vehicles entering and exiting the freeway, help reduce overall traffic delay, and relieve traffic congestion on this portion of southbound SR-55. This will also allow for dissipation of traffic flow coming from the I-5/SR-55 interchange.	Completed
30	2851 Alton Parkway	City of Irvine	170 DUs (condominiums).	Approved, in for building permits
31	2801 Kelvin Avenue	City of Irvine	381 DUs (apartments; 305 base/76 density bonus).	Under construction
32	2501 Alton Parkway	City of Irvine	344 DUs (apartments).	Under construction
33	2500 Main Street	City of Irvine	457 DUs (apartments; 368 base/89 density bonus).	Under construction
34	16952 Millikan Avenue	City of Irvine	156 DUs (apartments; 126 base/30 density bonus).	Under construction
35	17150 Von Karman Avenue	City of Irvine	434 DUS (apartments/condominiums; 347 base/87 density bonus).	Approved
36	17275 Derian Avenue	City of Irvine	80 DUs (apartments; all affordable).	Approved
37	2852 McGaw Avenue	City of Irvine	280 DUs (apartments; 224 base/56 density bonus).	Approved
38	17422 Derian Avenue	City of Irvine	371 DUs (apartments; 297 base/74 density bonus).	Approved
39	Park Place Apartments, 3395 Michelson Drive	City of Irvine	1,776 DUs (apartments).	Approved/Under construction
40	2699 Main Street	City of Irvine	388 DUs (apartments; 310 base/78 density bonus).	Approved
41	Jamboree Road Widening	City of Irvine	Widen Jamboree Road from eight to ten lanes between Main Street and Barranca Parkway.	Planned

Caltrans = California Department of Transportation
DU = dwelling unit
EIR = Environmental Impact Report
ft = feet
HOV = high-occupancy vehicle
I-5 = Interstate 5
MCAS = Marine Corps Air Station
mi = miles
OCTA = Orange County Transportation Authority
PRE = Project Report Equivalent
PS&E = Plans, Specifications, and Estimates
PSR/PDS = Project Study Report/Project Development Support
ROW = right-of-way
SCRRA = Southern California Regional Rail Authority
sf = square feet
SR-22 = State Route 22
SR-55 = State Route 55
SR-91 = State Route 91

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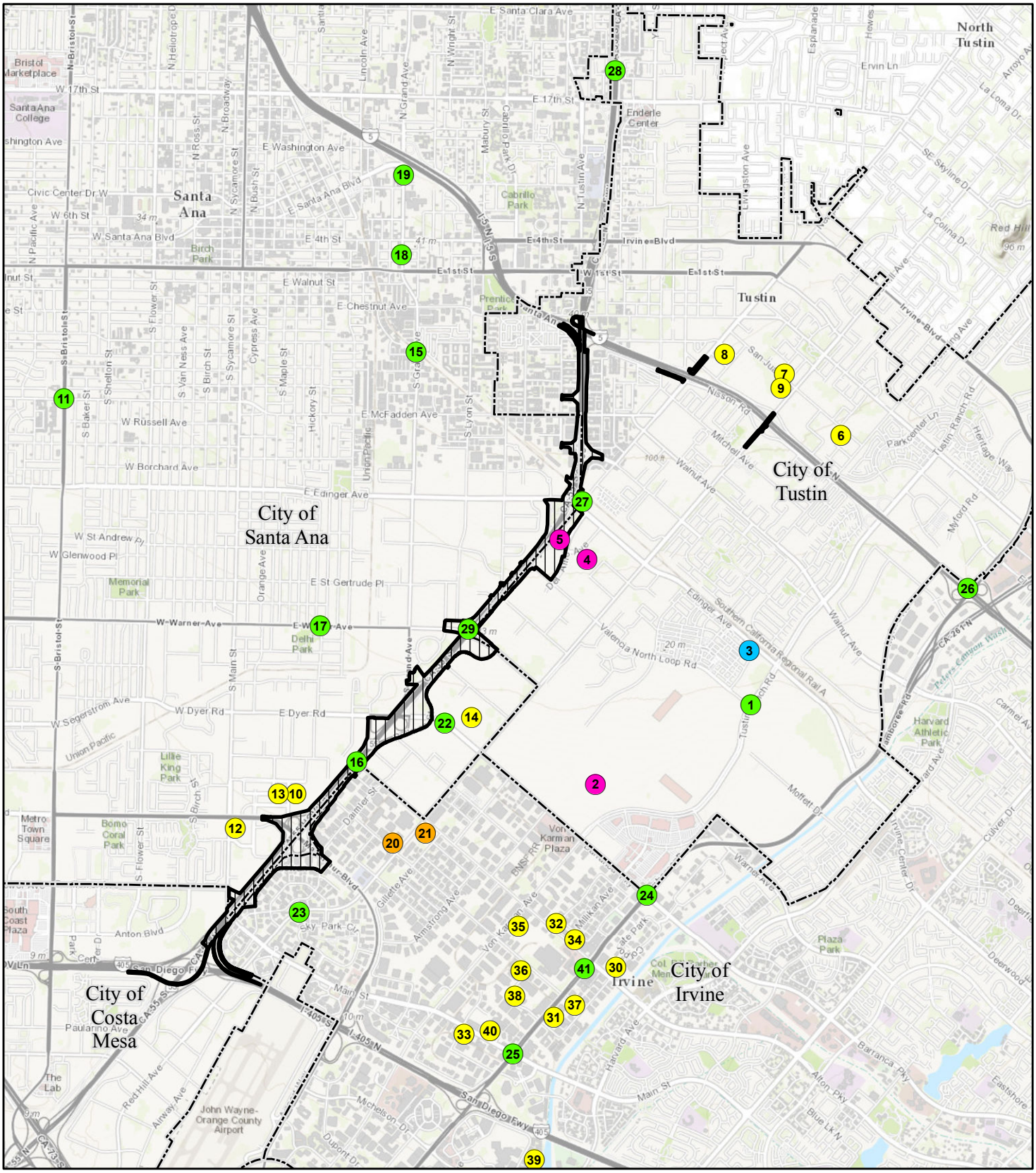
City of Santa Ana
City of Tustin
City of Costa Mesa
City of Irvine
Santa Ana
Tustin
Irvine
North Tustin
Santa Ana College
Bristol Marketplace
Enderle Center
Cabrillo Park
Birch Park
Prentice Park
Memorial Park
Delhi Park
Lillie King Park
Bomo Coral Park
Metro Town Square
South Coast Plaza
Harvard Athletic Park
Plaza Park
Von Karman Plaza
John Wayne-Orange County Airport
The Lab
Red Hill
Red Hill Ave
Airway Ave
Paularino Ave
Anton Blvd
Main St
Michelson Dr
Dupont Dr
Barranca Pky
Alton Pky
Blue Lk N
Eastshore
Deerwood
Culver Dr
Irvine Center Dr
Moffett Dr
Jamboree Rd
Harvard Ave
Milliken Ave
Armstrong Ave
Gillette Ave
Daintree St
Von Karman Ave
BNSF RR
Sky Park Cir
Cortez Park
Col Bud Barber Mem Park
Tustin Ranch Rd
Parkcenter Ln
Heritage Way
Myford Rd
Tustin Ranch Rd
Irvine Blvd
Nisson Rd
Mitchell Ave
Walnut Ave
Edinger Ave
Valencia North Loop Rd
Southern California Regional Rail A
Peters Canyon Wash
CA-261 N
Ervin Ln
La Loma Dr
SE Skyline Dr
La Colina Dr
Red Hill
Esplanade
Hewes
Arroyo Av
Irvine Blvd
San Juan
Cypress Ave
Orange Ave
Lincoln Ave
N Grand Ave
N Wright St
Mabury St
Cabrillo Park Dr
N Tustin Ave
Livingston Ave
N Bristol St
S Bristol St
N Heliotrope Dr
N Ross St
N Broadway
N Sycamore St
N Bush St
N Pacific Ave
S Flower St
S Van Ness Ave
S Birch St
S Sycamore St
S Maple St
Hickory St
S Baker St
S Shelton St
S Grand Ave
S Lyon St
S Main St
S Birch St
S Flower St
Union Pacific
E Santa Clara Ave
E 17th St
W 17th St
E Washington Ave
W Washington Ave
Civic Center Dr W
W 6th St
W Santa Ana Blvd
E Santa Ana Blvd
E 4th St
E 1st St
W 1st St
E Walnut St
E Chestnut Ave
E McFadden Ave
W Russell Ave
W Borchard Ave
E Edinger Ave
W St Andrew Pl
W Glenwood Pl
E St Gertrude Pl
W Warner Ave
E Warner Ave
W Segerstrom Ave
W Dyer Rd
E Dyer Rd
Anton Blvd
Paularino Ave
Main St
Michelson Dr
Dupont Dr
Harvard Ave

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2.19.4.1 Community Impacts

Community Character and Cohesion

The RSA for cumulative community impacts consists of Census Tracts 740.03, 740.04, and 744.03 in the City of Santa Ana; Census Tracts 525.02, 744.08, 755.05, 755.08, 755.12, 755.13, and 755.14 in the City of Tustin; and Census Tract 755.15 in the Cities of Santa Ana and Tustin. Census tracts provide established boundaries for community demographics. The demographics of the City of Santa Ana are more of an average of the demographics of the three RSA census tracts in this city. In the City of Tustin, the demographics are specific to each census tract and do not correlate well with the city overall. In other words, the demographics in the RSA are more defined by neighborhoods rather than individual city limits. The community impact RSA is shown on Figure 2.19-2.

The RSA was historically ranchland and farmland.[1] The City of Santa Ana was incorporated in 1886 and takes its name from the vast Rancho Santiago de Santa Ana. By 1887–1888, Santa Fe trains reached Santa Ana, and in 1906, a Pacific Electric line connected the city to Los Angeles. By the 1980s, huge apartment houses and high rises became prolific. A redevelopment program for downtown Santa Ana was also undertaken using federal aid in an attempt to bring back lost business and encourage new business activity.

Although “Tustin City” was established in 1868, the city was not incorporated until 1927. By the 1890s, the City of Tustin was a well-established agricultural community. Tustin’s proximity to three military bases during World War II greatly benefited it during the 1940s and into the 1950s. All three bases (i.e., Santa Ana Army Air Base, El Toro Marine Corps Air Station [MCAS], and Santa Ana Naval Air Station) were activated in 1942. These bases exposed thousands of military personnel to Tustin and Santa Ana. As a result, many returned to the area after the war, spurring the biggest growth in Tustin’s history to that time. As the population increased, more and more orchards were sold for development.

Currently, almost all the orchards are gone, and the RSA is predominantly an urban area.

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[1] Information was summarized from the *Historical Resources Evaluation Report, SR-55 Improvement Project* (2014), which was based on information from several different sources.

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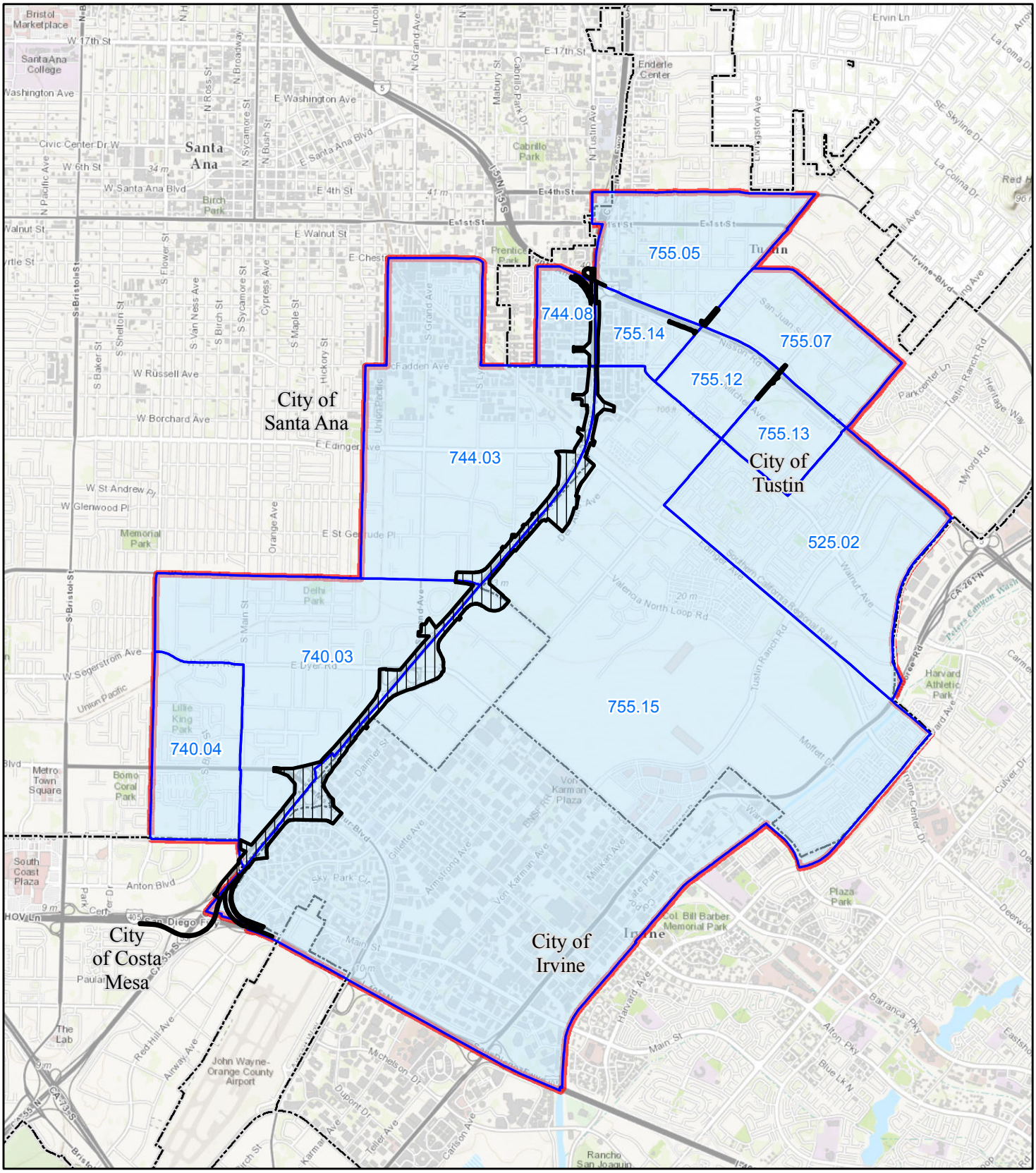

LEGEND

- Project Area
- 2010 Census Tract Boundaries
- Community Impact RSA
- City Boundary

0 2000 4000
FEET

SOURCE: USGS 7.5' QUAD - Newport Beach (1981); Tustin (1981), CA

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FIGURE 2.19-2

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Community Impact Resource Study Area (RSA)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

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The RSA is an urban community bisected by SR-55 and bounded by Interstate 5 (I-5), I-405, and Jamboree Boulevard. The former MCAS occupies a large area in the RSA. Based on the analysis of demographic data and community cohesion indicators included in Section 2.3, Community Impacts, and the mix of land uses, the RSA does not exhibit a pronounced degree of community character and cohesion overall, although Census Tracts 525.02 and 744.03 demonstrate a reasonably high level of community cohesion. Community cohesion is relatively low within all the other RSA census tracts.

The Build Alternatives would not divide an established community or substantially modify the character of the area. The project is consistent with the Circulation/ Mobility and Land Use Elements of the General Plans for the Cities of Santa Ana, Tustin, and Irvine.

In summary, because the RSA is largely developed and the project would not change the fundamental nature of the community, the project contribution to cumulative impacts to community character and cohesion is minimal.

General Plans

The planned projects shown on Figure 2.19-1 are infill projects surrounded by existing residential and commercial development. Approval of those projects by the respective local jurisdictions would be consistent with the respective City General Plans and visions for development of the area. Therefore, the planned development projects would not divide existing communities and would instead contribute toward improving community establishment and cohesion. The SR-55 (I-5 to State Route 91 [SR-91]) project may displace freeway-adjacent businesses and residences. Although this project combined with the local roadway projects may result in impacts to community cohesion, those impacts are not anticipated to be substantial based on the nature of the RSA, as described above.

Because the RSA does not display a pronounced degree of community cohesion, the planned development projects have the potential to support community character and cohesion, and the planned transportation projects would not divide the community or change community character. Therefore, the potential project contribution to cumulative community character and cohesion would not be substantial.

Displacements

Alternatives 1 and 2 would not result in any displacements. Alternatives 3 and 4 would displace two businesses. The types of businesses that would be potentially

displaced are not key to community vitality. In addition, neighborhood residents do not depend solely on those two businesses for essential goods and services because there are similar types of businesses in the project vicinity. Therefore, there are replacement businesses available to the local community in case the displaced businesses could not be relocated in the local area.

Based on the results of the *Draft Relocation Impact Statement* (2014), it is anticipated there will be sufficient properties available for relocation of the displaced businesses in the Cities of Santa Ana, Tustin, and Irvine.

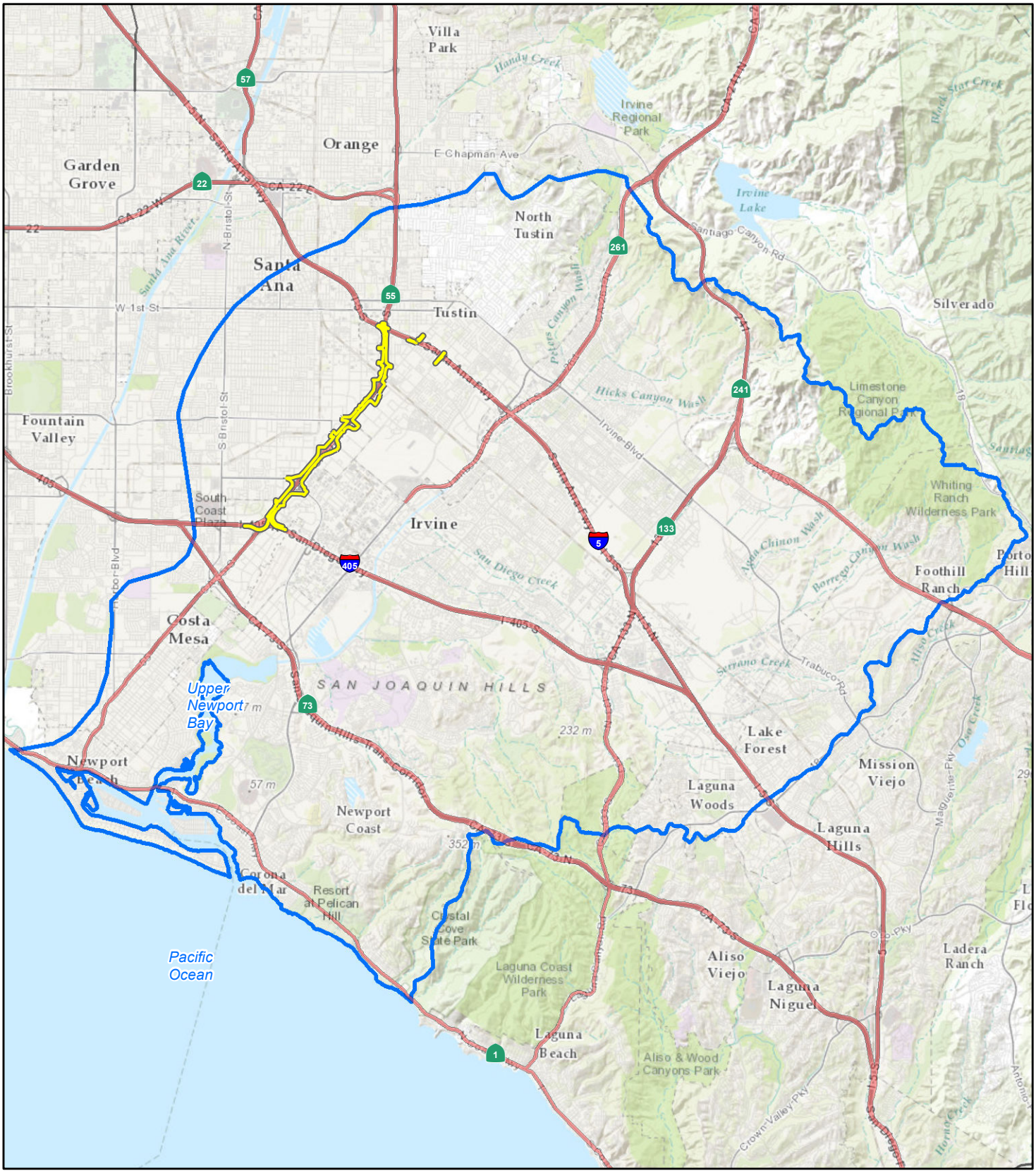
Based on the business types that would be displaced by the project, the displaced businesses are expected to serve local as well as adjacent communities and would therefore be able to maintain their clientele after relocation.

The health of the RSA is not dependent on the businesses anticipated to be displaced as part of Alternatives 3 and 4. The community does not rely solely on the businesses potentially being displaced. In addition, the businesses would still be accessible to the community once relocated. Displacement of the businesses would not affect the health of the neighborhood, and no diminishment of the community would result. Only two businesses would be displaced, which is a very small part of the total number of existing businesses in the community. Because the project would provide adequate relocation resources for the two displaced businesses, the project's contribution to cumulative displacement impacts would be minimal.

The planned land development projects would add or modify businesses or residences. The SR-55 (I-5 to SR-91) project and a few of the local road projects have the potential to displace some businesses and/or residents. However, similar to the SR-55 Improvement Project, it is anticipated that the affected businesses and/or residents could be relocated to surrounding areas. Therefore, the SR-55 Improvement Project, in combination with other planned projects, would not result in substantial cumulative impacts with respect to displacements in the community.

2.19.4.2 Surface Water Quality

The RSA for cumulative impacts to surface water quality is the Newport Bay Watershed because the project site is within this watershed. The Newport Bay Watershed is defined by the foothills of the Santa Ana Mountains to the east and the San Joaquin Hills to the west and southwest as shown on Figure 2.19-3. San Diego Creek is the primary receiving water in the RSA. With the exception of Upper Newport Bay itself, the RSA is highly urbanized. The existing trend of urbanization



LEGEND

Project Area

Surface Water Quality RSA

FIGURE 2.19-3

0 1.25 2.5
Miles

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Surface Water Quality Resource Study Area (RSA)

12-ORA-55 PM 6.4/10.3
EA 0J3400/EFIS 1200020328

SOURCE: USGS 7.5' QUAD - Newport Beach (1981); Tustin (1981), CA

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in the Newport Bay Watershed is projected to continue. Conversion of undeveloped land to transportation, commercial/industrial, retail, and residential uses results in hydromodification and an increased loading of pollutants into surface waters and indirectly into groundwater. It also introduces new sources of pollutants associated with the new land uses.

As discussed in the *Water Quality Assessment Report* (2014), the primary water quality concerns in the Newport Bay Watershed include excess algal blooms (nutrients), aquatic life toxicity, bacterial quality, stream channel erosion, sedimentation, and wetland protection. Upper Newport Bay is a designated Critical Coastal Area. The 2010 California 303(d) List of Water Quality Limited Segments designates San Diego Creek (Reach 1) as impaired by fecal coliform, nutrients, pesticides, sedimentation/siltation, selenium, and toxaphene. Upper Newport Bay is listed as impaired by chlordane, copper, dichlorodiphenyltrichloroethane (DDT), indicator bacteria, metals, nutrients, polychlorinated biphenyls (PCBs), pesticides, sedimentation/siltation, and sediment toxicity. Lower Newport Bay is listed as impaired by chlordane, copper, DDT, indictor bacteria, nutrients, PCBs, pesticides, and sediment toxicity.

The Build Alternatives would reconfigure Lane Channel from a trapezoidal channel to a rectangular channel and would realign this channel approximately 2 ft west of its current location due to the proposed road widening in this area. In addition, the Build Alternatives would replace several roadside ditches running parallel to SR-55 with pipe conduits. The project would only affect water quality during storm events because the project would not generate dry weather discharge or disturb natural drainages. The project would comply with the requirements of the Construction General Permit, the Caltrans Storm Water Management Plan (SWMP), and Caltrans and City National Pollutant Discharge Elimination System (NPDES) permit requirements. In addition, the project includes treatment BMPs to target pollutants of concern in storm water runoff during construction and operations. Based on an urbanized RSA, limited impacts, and application of regulatory requirements, the contribution of the project to cumulative impacts to surface water quality is not considerable.

The SR-55 (I-5 to SR-91) project is expected to impact concrete channels in the RSA through the extension of culverts. Planned local road projects in the RSA may directly impact existing channels/streams and have the potential to increase concentrations of pollutants in runoff. Land development projects may result in minor impacts to

improved channels to accommodate changes in drainage patterns. They also have the potential to increase concentrations of pollutants in runoff.

Because of the urban nature of the RSA, impacts to surface waters would mostly occur to engineered flood control channels. The planned projects are also expected to impact only small drainage areas. Each project is responsible for addressing its impacts to surface water quality and must comply with water quality regulations. The NPDES program controls water pollution by regulating point sources that discharge pollutants into waters of the United States. Since its introduction in 1972, the NPDES program has resulted in surface water quality improvements in the State.[1] The planned land use and transportation projects would be required to comply with NPDES regulations, implement BMPs, and mitigate for direct impacts to surface waters through habitat replacement, restoration, or enhancement. Therefore, the project, in combination with other planned projects would not result in substantial cumulative water quality impacts.

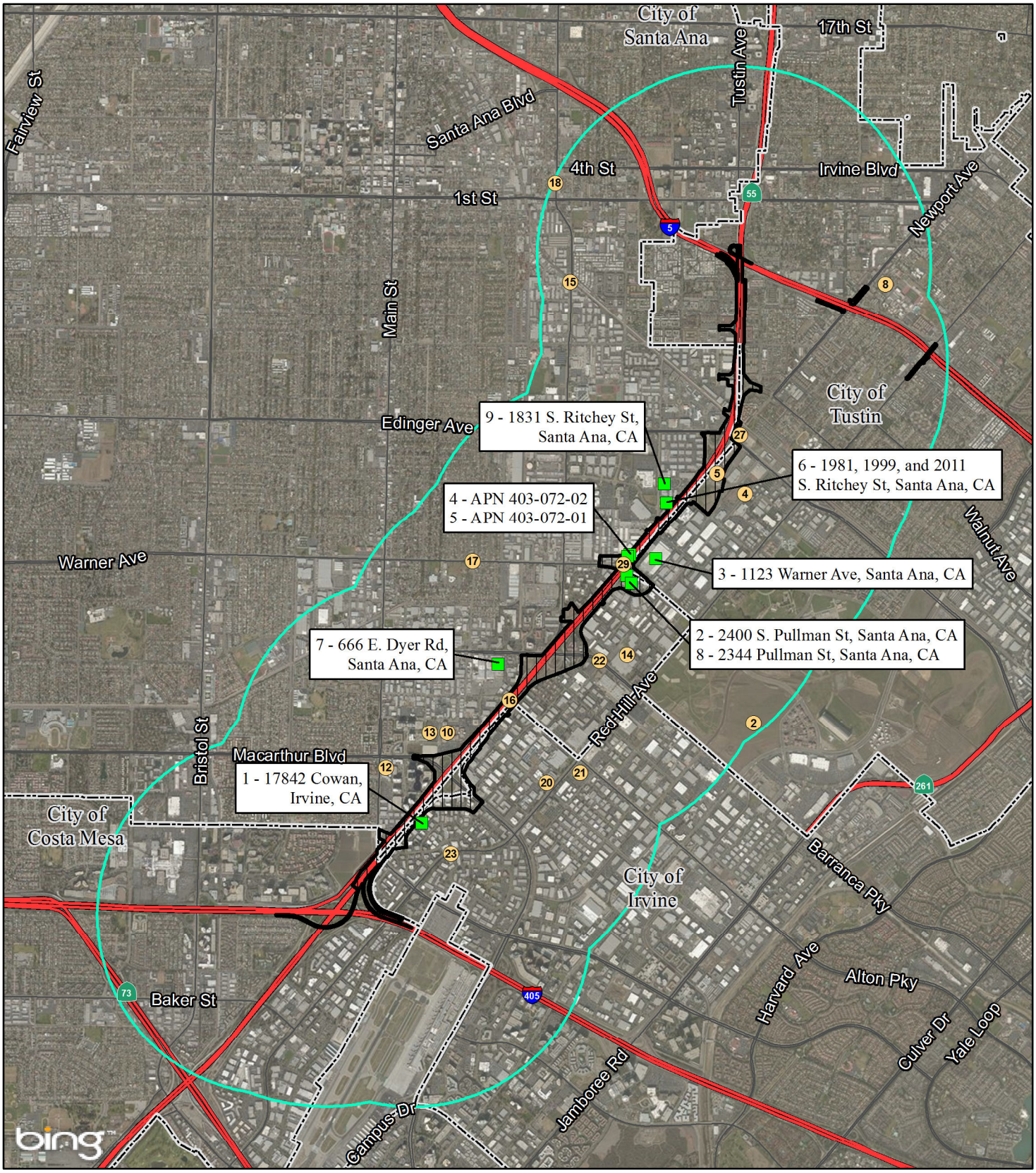
2.19.4.3 Hazardous Waste/Materials

The RSA for hazardous waste/materials is approximately 1 mile (mi) from the project segment of SR-55, consistent with the records search area for the Initial Site Assessment, and is shown on Figure 2.19-4.

As discussed in Section 2.19.4.1, the RSA was historically ranchland and farmland up until the early 20th century. The construction of military bases in Tustin and surrounding areas in the 1940s led to substantial growth in the surrounding areas, and orchards were converted to housing and commercial and industrial facilities.

Currently, the RSA is built out, with mostly commercial and industrial uses south of Edinger Avenue and primarily residential properties north of Edinger Avenue. The former MCAS Tustin is within the RSA.

[1] State Water Resources Control Board. National Pollutant Discharge Elimination System (NPDES) (http://www.waterboards.ca.gov/water_issues/programs/npdes/, accessed October 28, 2013).



LEGEND

- Resource Study Area
- Maximum Limit of Disturbance
- Planned Projects
- Recognized Environmental Concern

0 2000 4000
FEET

FIGURE 2.19-4

State Route 55 (SR-55) Improvement Project between Interstate 405 (I-405) and Interstate 5 (I-5)

Hazardous Waste/Materials Resource Study Area

SOURCE: Bing Maps (2013); HDR (9/2012, 2/2013, 10/2015)

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The use and generation of hazardous waste/materials is a normal function of commercial and industrial operations. Historically, poor business practices and inadequate storage facilities have resulted in contaminated soil and groundwater in the RSA, which is typical of southern California cities. In addition, many buildings and other infrastructure were constructed with building materials that are now considered hazardous and are typically removed during renovation, demolition, or after detection of leakage or exposure.

The Build Alternatives would require excavation, reconstruction of existing infrastructure, and demolition of acquired buildings. Through excavation activities, the Build Alternatives have the potential to encounter contaminated soil and groundwater (petroleum hydrocarbons and chlorinated solvents) from adjacent or nearby properties. In addition, reconstruction of transportation facilities and demolition of buildings associated with the Build Alternatives may involve exposure to hazardous building materials such as lead asbestos, mercury, PCBs, and chlorofluorocarbons, as well as pesticides from historic agricultural use.

Prior to project approval, site investigations will be conducted at several properties with hazardous waste releases that could impact the Build Alternatives in order to determine the extent of any subsurface investigations required to quantify and delineate the extent of contamination in the method detection limit (MDL). The site investigations will identify any site-specific steps that would be needed for construction of the Build Alternatives, consistent with regulatory requirements. In addition, the Build Alternatives would be required to adhere to State and federal regulations with respect to the use, generation, and disposal of hazardous waste/materials during construction and operation of the project. Based on an urbanized RSA and adherence to regulatory requirements, the contribution of the project to cumulative hazardous waste/materials impacts is not considerable.

The planned projects in Table 2.19.1 consist primarily of residential and transportation uses, which are low risk uses with respect to hazardous waste/materials impacts. Commercial and industrial facilities present a higher risk with respect to hazardous waste/materials impacts depending on the type of operations and the degree to which these materials are used. Regardless, there is an existing regulatory framework in place for use, generation, and disposal of hazardous waste/materials and penalties for noncompliance.

Like the Build Alternatives, each of the planned projects has the potential to be exposed to hazardous waste/materials through releases at adjacent or nearby properties or through renovation or demolition of buildings or other structures. Likewise, the planned projects would be required to comply with State and federal regulations with respect to the use, generation, and disposal of hazardous materials/ waste during construction and operation. Therefore, the project, in combination with other planned projects, would not result in substantial cumulative hazardous waste/materials impacts.

2.19.5 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures for cumulative impacts are required.