RTIP ID# *(required)***:** ORA000146

TCWG Consideration Date: October 25, 2016

Project Description *(clearly describe project)***:**

The California Department of Transportation (Caltrans), in coordination with the City of Orange (City), is proposing to construct a new interchange along State Route (SR-) 55 at the existing Meats Avenue Overcrossing (OC) (Bridge No. 55-923; post mile [PM] 16.10) in the City of Orange, Orange County, California (see Figures 1 and 2). The limits of construction/PM limits would extend from PM 15.5 to PM 16.8 along SR-55 for a distance of 1.3 miles. The overall project limits would extend from PM 14.2 to PM 17.8 to account for advanced signage during construction (see Figures 1 and 2). The proposed interchange would be constructed south of the existing Lincoln Avenue Interchange and north of the existing Katella Avenue Interchange along SR-55 and would consist of a new tight diamond interchange with on-and off-ramps. Auxiliary lanes would also be constructed along SR-55 between Katella Avenue and Meats Avenue and between Meats Avenue and Lincoln Avenue/Nohl Ranch Road in both the northbound and southbound directions. Construction of the proposed project is expected to begin in February 2021 and is anticipated to be completed in June 2023.

This proposed project is included in the 2015 Federal Transportation Improvement Program (FTIP) as project ID ORA000146. It is also included in the Southern California Association of Governments (SCAG) 2016–2040 Regional Transportation Plan (RTP) as project ID ORA000146.

The proposed Build Alternative would construct a new tight diamond interchange along SR-55 at Meats Avenue (see Figure 3). The proposed project would provide a freeway access ramp at each of the four quadrants of the interchange. The northbound and southbound off-ramps would widen from two lanes where the ramps diverge from SR-55 to three lanes as they approach the intersection with Meats Avenue. The northbound off-ramp at Meats Avenue would consist of two dedicated left turn lanes and one dedicated right turn lane while the southbound off-ramp at Meats Avenue would consist of one dedicated left turn lane and two dedicated right turn lanes. The northbound and southbound on-ramps would include two lanes at the intersection with Meats Avenue and would taper to one lane prior to merging onto SR-55. Traffic signals would be installed at the two ramp intersections with Meats Avenue. Ramp metering would be installed at the northbound and southbound on-ramps. The centerline of SR-55 just north of the Meats Avenue OC would be realigned to provide stopping sight distance that meets the current Caltrans design standards. Auxiliary lanes would be constructed along SR-55 between Katella Avenue and Meats Avenue and between Meats Avenue and Lincoln Avenue/Nohl Ranch Road in both the northbound and southbound directions. To accommodate the auxiliary lane, the Taft Avenue Undercrossing (UC) (Bridge No. 55-326) would be widened approximately 12 feet on the northbound side of SR-55.

Through the interchange, Meats Avenue would be widened from Park Lane to just east of Breckenridge Street, with transition striping included at each end just beyond Park Lane and Breckenridge Street to match the existing lane configuration. Across the bridge, Meats Avenue would consist of two 11-foot through lanes, two 11-foot dedicated left turn lanes, a 5-foot bike lane, and a 10-foot sidewalk in both directions (eastbound and westbound), along with a 2-foot median. Meats Avenue would transition to the east and the west of the bridge to two 11-foot lanes in each direction (eastbound and westbound) to match the existing Meats Avenue configuration and the existing bike lanes (Class 3/shared to the west and Class 2/striped to the east) and 8-foot sidewalk. In addition, dedicated right turn lanes would be constructed on Meats Avenue for the eastbound to southbound on-ramp (600-feet in length) and westbound to northbound on-ramp (400-feet in length) movements. The existing Meats Avenue OC would not require widening as it already has the necessary width to accommodate the proposed improvements. To the west of SR-55, a median island would be constructed along Meats Avenue to limit left turn movements from Park Lane onto Meats Avenue and exclusive right-turn lanes from eastbound Meats Avenue onto Park Lane would be constructed. To the east of SR-55, the connection of Breckenridge Street to Meats Avenue would be eliminated with a dead end and a barrier would be constructed at the end of the street. In addition, the connection of Pami Circle to Meats Avenue would be relocated to the east.

Type of Project *(use Table 1 on instruction sheet)*: New interchange

County: Orange	**Narrative Location/Route & Postmiles:** PM 15.5 to PM 16.8 along SR-55 for a distance of 1.3 miles Caltrans Projects – EA 12-078100

Lead Agency: Caltrans

Contact Person	**Phone#**	**Fax#**	**Email**
Arman Behtash	657-328-6143		arman.behtash@dot.ca.gov

Hot Spot Pollutant of Concern *(check one or both)* **PM2.5** ✓ **PM10** ✓

Federal Action for which Project-Level PM Conformity is Needed *(check appropriate box)*

Categorical Exclusion (NEPA)	✓ **EA or Draft EIS**	**FONSI or Final EIS**	**PS&E or Construction**	**Other**

Scheduled Date of Federal Action: February 2017

NEPA Assignment – Project Type *(check appropriate box)*

Exempt	**Section 326 –Categorical Exemption**	✓ **Section 327 – Non-Categorical Exemption**

Current Programming Dates *(as appropriate)*

	PE/Environmental	**ENG**	**ROW**	**CON**
Start	October 2012	July 2018	August 2018	February 2021
End	February 2017	December 2019	February 2021	June 2023

Project Purpose and Need (Summary): *(attach additional sheets as necessary)*:
See *Purpose and Need* attachment.

Surrounding Land Use/Traffic Generators *(especially effect on diesel traffic)*:
The project vicinity of the existing SR-55/Meats Avenue overcrossing is fully developed. All four quadrants are dominated by residential development (both single-/multi-family and mobile homes) that has generally been constructed up to the existing State right of way. No warehouse-distribution centers, or other heavy-truck intensive land uses, are present within the general project vicinity.

Opening Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

See Table 1 (Project Opening Year Traffic Volumes), attached. Shown therein, the Build Alternative and No Build Alternative truck volumes as a percentage of AADT volumes are expected to be similar at Project Opening Year. This is because the study area does not have a large presence of truck-intensive land uses. The development of a new local interchange itself would not generate new truck trips.

The published Caltrans truck percentage on freeways is 6 percent. The Project traffic consultant (Iteris) investigated the SCAG 2012 RTP model forecast truck percentages on the freeway and found a forecast of 5.5 percent trucks in 2035. As such, the conservative estimate of 6 percent trucks was then used to estimate Year 2020 truck volumes. Coincidentally, this is the same truck volume percentage as the baseline/existing condition.

RTP Horizon Year / Design Year: Build and No Build LOS, AADT, % and # trucks, truck AADT of proposed facility

See Table 2 (Project Horizon Year Traffic Volumes), attached. Shown therein, the Build Alternative and No Build Alternative truck volumes as a percentage of AADT volumes are expected to be similar at Project Horizon Year. This is because the study area does not have a large presence of truck-intensive land uses. The development of a new local interchange itself would not generate new truck trips.

The published Caltrans truck percentage on freeways is 6 percent. The Project traffic consultant (Iteris) investigated the SCAG 2012 RTP model forecast truck percentages on the freeway and found a forecast of 5.5 percent trucks in 2035. As such, the conservative estimate of 6 percent trucks was then used to estimate Year 2040 truck volumes. Coincidentally, this is the same truck volume percentage as the baseline/existing condition.

Opening Year: If facility is an interchange(s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Meats Avenue Volumes – **Project Opening Year 2020**

Cross Street	No Build Alternative*				Build Alternative			
	Total AADT	Truck AADT	Truck Percent	LOS AM/PM	Total AADT	Truck AADT	Truck Percent	LOS AM/PM
SR-55 NB Ramps	14,480	434	3%	N/A	27,965	838	3%	C/C
SR-55 SB Ramps	14,480	434	3%	N/A	36,425	1,093	3%	C/C

* Since no ramps existing under the No Build Alternative, provided volumes are simply Meats Avenue No Build Alternative volumes at the SR-55 grade separation; and no intersection LOS provided since on intersection present.

Note: All intersection AADT volumes were estimated adding total AM + PM volumes, then multiplying by 5. Hence, AM + PM volumes assumed to represent 20% AADT volumes.

Source: Iteris, March 2016.

RTP Horizon Year / Design Year: If facility is an interchange (s) or intersection(s), Build and No Build cross-street AADT, % and # trucks, truck AADT

Meats Avenue Volumes – **Project Horizon Year 2040**

Cross Street	No Build Alternative*				Build Alternative			
	Total AADT	Truck AADT	Truck Percent	LOS AM/PM	Total AADT	Truck AADT	Truck Percent	LOS AM/PM
SR-55 NB Ramps	16,555	497	3%	N/A	31,505	945	3%	C/C
SR-55 SB Ramps	16,555	497	3%	N/A	40,235	1,207	3%	C/D

* Since no ramps existing under the No Build Alternative, provided volumes are simply Meats Avenue No Build Alternative volumes at the SR-55 grade separation; and no intersection LOS provided since no intersection present.

Note: All intersection AADT volumes were estimated adding total AM + PM volumes, then multiplying by 5. Hence, AM + PM volumes assumed to represent 20% AADT volumes.

Source: Iteris, March 2016.

Describe potential traffic redistribution effects of congestion relief *(impact on other facilities)***:**

Implementation of the new proposed Meats Avenue interchange on SR-55 would result in changes to local circulation patterns focused on access to and from the SR-55 freeway. Currently, there are two interchanges with local access ramp systems in the vicinity of the proposed Meats interchange; Lincoln Avenue/Nohl Ranch Road to the north of Meats Avenue, and Katella Avenue to the south. Both the Lincoln Avenue/Nohl Ranch Road and Katella Avenue interchanges provide for northbound and southbound access to the freeway.

Adding the new Meats Avenue interchange would allow some of the current traffic that uses the two interchanges discussed above to shift to the new Meats Avenue interchange. The interchange would provide a more direct route for some traffic and thus reduce volumes at the two adjacent arterial interchanges. Also, it is expected that other localized traffic redistribution would result from the project due to traffic shifting from one ramp to another. The Meats Avenue interchange would also result in entirely new ramp traffic, and it will not completely shift all volumes from Lincoln Avenue/Nohl Ranch Road and Katella Avenue. Those two interchanges will continue to carry freeway access traffic but will be reduced.

In summary, the proposed project would reduce congestion at the existing SR-55/Lincoln Avenue and SR-55/Katella Avenue Interchanges.

Comments/Explanation/Details *(attach additional sheets as necessary)*:

The United States Environmental Protection Agency (EPA) specifies in 40 CFR 93.123(b)(1) that only ”projects of air quality concern” (POAQC) are required to undergo a PM2.5 and PM10 hot-spot analysis. EPA defines POAQCs as certain highway and transit projects that involve significant levels of diesel traffic or any other project that is identified by the PM2.5 SIP as a localized air quality concern. A discussion of the proposed project compared to POAQCs, as defined by 40 CFR 93.123(b)(1), is provided below:

New or expanded highway projects that have a significant number of or significant increase in diesel vehicles. The proposed Project would involve installation of a new interchange location along the existing SR-55 freeway within Project limits. Medium- and heavy-trucks are estimated to comprise 6% of SR-55 mainline AADT volumes under both the Build Alternative and No Build Alternative at Opening Year 2020 and Horizon Year 2040. As shown above, there would be no material change in SR-55 truck volumes occurring under the Build Alternative when compared to the No Build Alternative. See discussion above under “potential traffic redistribution effects of congestion relief” for additional explanation.

Projects affecting intersections that are at level –of –service (LOS) D, E, or F with a significant number of diesel vehicles or those that will change to LOS D, E, or F because of increased traffic volumes from a significant number of diesel vehicles related to the project. Overall, the proposed Project would reduce congestion at project vicinity intersections. See discussion above under “potential traffic redistribution effects of congestion relief” for detailed explanation. AADT and truck volumes would increase along Meats Avenue under the Build Alternative when compared to the No Build Alternative, but the level of truck volumes (1,207 daily truck volumes at Horizon Year 2040) would not be considered significant.

New bus and rail terminals and transfer points that have a significant number of diesel vehicles congregating at a single location. The proposed Project has no bus or rail terminal component, nor would it alter travel patterns to/from any existing bus or rail terminal.

Expanded bus and rail terminals and transfer points that significantly increase the number of diesel vehicles congregating at a single location. The proposed Project would not expand any bus terminal, rail terminal, or related transfer point that would increase the number of diesel vehicles congregating at any single location.

Projects in or affecting locations, areas, or categories of sites that are identified in the PM2.5- or PM10-applicable implementation plan or implementation plan submission, as appropriate, as sites of violation or possible violation. The Project site is not in or affecting locations, areas, or categories of sites that are identified in a PM10 or PM2.5 implementation plan. The immediate Project area is not considered to be a site of violation or possible violation.

The discussion provided above indicates that the proposed Project would not be considered a Project of Air Quality Concern, as defined by 40 CFR 93.123(b)(1). Therefore, PM2.5 and PM10 hot-spot evaluations are not required. It is unlikely that the proposed Project would generate new air quality violations, worsen existing violations, or delay attainment of national AAQS for PM2.5 or PM10.

Reference:

Iteris. 2016. *City of Orange Traffic Operations Analysis for PA/ED – Meats Avenue Interchange at SR-55.* March 23.

Attachments:

Table 1 – Project Opening Year SR-55 Mainline Traffic Volumes
Table 2 – Project Horizon Year SR-55 Mainline Traffic Volumes
Figure 1 – Regional Vicinity Map
Figure 2 – Project Location Map
Figure 3 – Build Alternative Illustration
Purpose and Need

TABLE 1. DIRECTIONAL FREEWAY DAILY TRAFFIC - OPENING YEAR

Segment Location	No Build Alternative			Build Alternative			Truck Volume Change
	Total AADT	Truck AADT	Truck Percent	Total AADT	Truck AADT	Truck Percent	
SR-55 Northbound							
Chapman Avenue On-ramp To Katella Avenue Off-Ramp	131,384	7,883	6%	132,033	7,922	6%	39
Katella Avenue Off-ramp To Katella Avenue EB On-ramp	109,124	6,547	6%	110,417	6,625	6%	78
Katella Avenue EB On-ramp To Katella Avenue WB On-ramp	115,496	6,930	6%	116,728	7,004	6%	74
Katella Avenue WB On-ramp To Meats Avenue Off-ramp	121,205	7,272	6%	122,397	7,344	6%	72
Meats Avenue Off-ramp To Meats Avenue On-ramp	121,205	7,272	6%	107,961	6,478	6%	(795)
Meats Avenue On-ramp To Santiago Boulevard Off-ramp	121,205	7,272	6%	117,249	7,035	6%	(237)
Santiago Boulevard Off-ramp To Nohl Ranch Road On-ramp	108,236	6,494	6%	105,470	6,328	6%	(166)
Lincoln Avenue/Nohl Ranch Road On-ramp To SR 91 WB Off-ramp	118,628	7,118	6%	114,428	6,866	6%	(252)
SR-55 Southbound							
SR 91 EB On-ramp To Tustin Street Off-ramp	119,264	7,156	6%	119,405	7,164	6%	8
Tustin Street Off-ramp To Tustin Street On-ramp	108,567	6,514	6%	110,094	6,606	6%	92
Tustin Street On-ramp To Meats Avenue Off-ramp	116,771	7,006	6%	117,939	7,076	6%	70
Meats Avenue Off-ramp To Meats Avenue On-ramp	116,771	7,006	6%	104,445	6,267	6%	(740)
Meats Avenue On-ramp To Katella Avenue Off-ramp	116,771	7,006	6%	117,534	7,052	6%	46
Katella Avenue Off-ramp To Katella Avenue On-ramp	103,547	6,213	6%	104,759	6,286	6%	73
Katella Avenue On-ramp To Chapman Avenue Off-ramp	121,698	7,302	6%	122,262	7,336	6%	34

Source: Iteris, 2016.

TABLE 2. DIRECTIONAL FREEWAY DAILY TRAFFIC - HORIZON YEAR

Segment Location	No Build Alternative			Build Alternative			Truck Volume Change
	Total AADT	Truck AADT	Truck Percent	Total AADT	Truck AADT	Truck Percent	
SR-55 Northbound							
Chapman Avenue On-ramp To Katella Avenue Off-Ramp	148,305	8,898	6%	150,904	9,054	6%	156
Katella Avenue Off-ramp To Katella Avenue EB On-ramp	125,273	7,516	6%	130,446	7,827	6%	310
Katella Avenue EB On-ramp To Katella Avenue WB On-ramp	132,770	7,966	6%	137,699	8,262	6%	296
Katella Avenue WB On-ramp To Meats Avenue Off-ramp	140,877	8,453	6%	145,645	8,739	6%	286
Meats Avenue Off-ramp To Meats Avenue On-ramp	140,877	8,453	6%	130,107	7,806	6%	(646)
Meats Avenue On-ramp To Santiago Boulevard Off-ramp	140,877	8,453	6%	141,029	8,462	6%	9
Santiago Boulevard Off-ramp To Nohl Ranch Road On-ramp	125,994	7,560	6%	130,903	7,854	6%	295
Lincoln Avenue/Nohl Ranch Road On-ramp To SR 91 WB Off-ramp	136,815	8,209	6%	135,988	8,159	6%	(50)
SR-55 Southbound							
SR 91 EB On-ramp To Tustin Street Off-ramp	135,700	8,142	6%	136,047	8,163	6%	21
Tustin Street Off-ramp To Tustin Street On-ramp	123,111	7,387	6%	129,001	7,740	6%	353
Tustin Street On-ramp To Meats Avenue Off-ramp	132,964	7,978	6%	137,418	8,245	6%	267
Meats Avenue Off-ramp To Meats Avenue On-ramp	132,964	7,978	6%	121,744	7,305	6%	(673)
Meats Avenue On-ramp To Katella Avenue Off-ramp	132,964	7,978	6%	136,015	8,161	6%	183
Katella Avenue Off-ramp To Katella Avenue On-ramp	117,768	7,066	6%	122,616	7,357	6%	291
Katella Avenue On-ramp To Chapman Avenue Off-ramp	136,652	8,199	6%	138,907	8,334	6%	135

Source: Iteris, 2016.

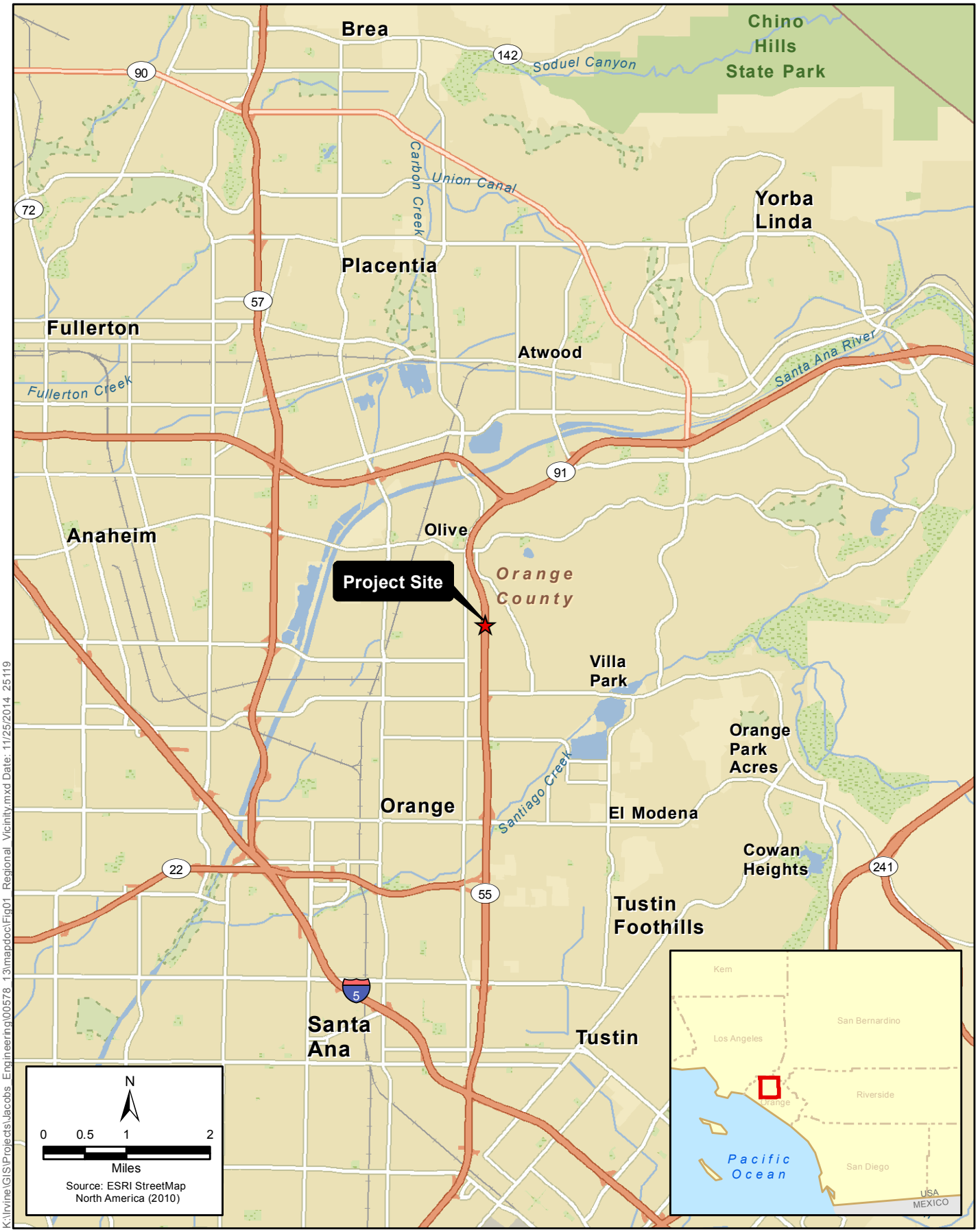

Figure 1
Regional Vicinity Map
State Route 55/Meats Avenue New Interchange

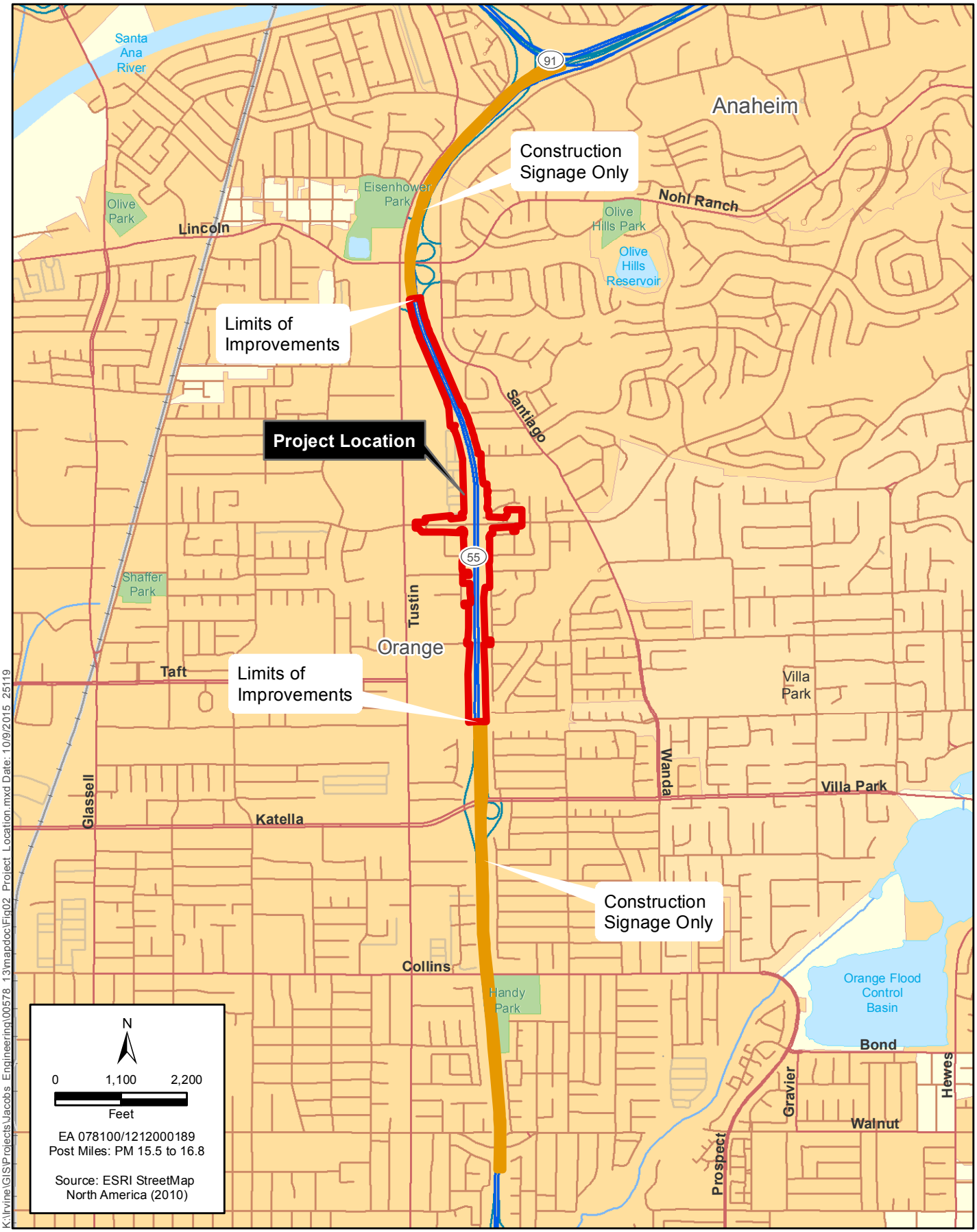

Figure 2
Project Location
State Route 55/Meats Avenue New Interchange Project

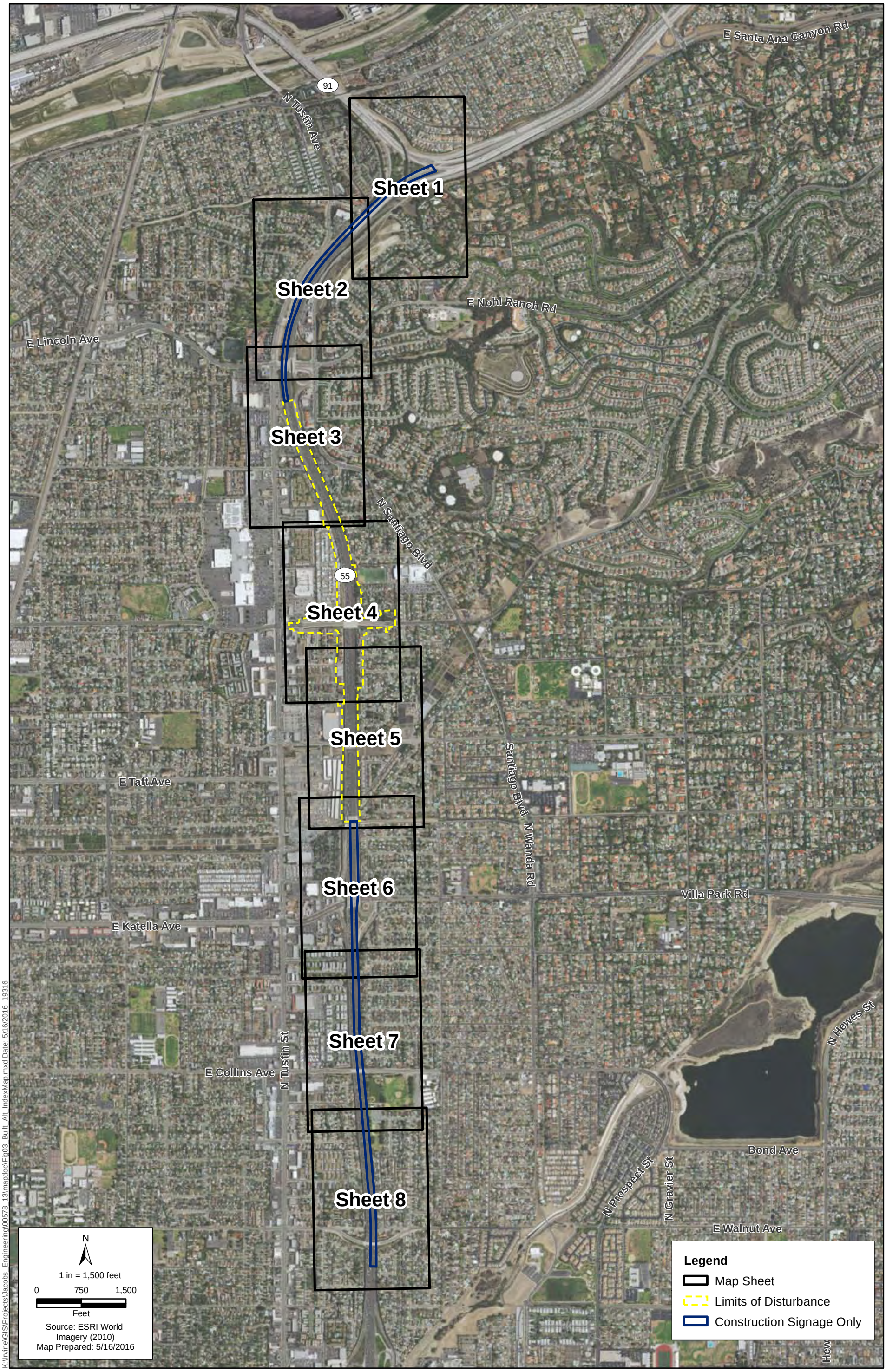

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Figure 3 - Index Map
Build Alternative Map
State Route 55/Meats Avenue New Interchange

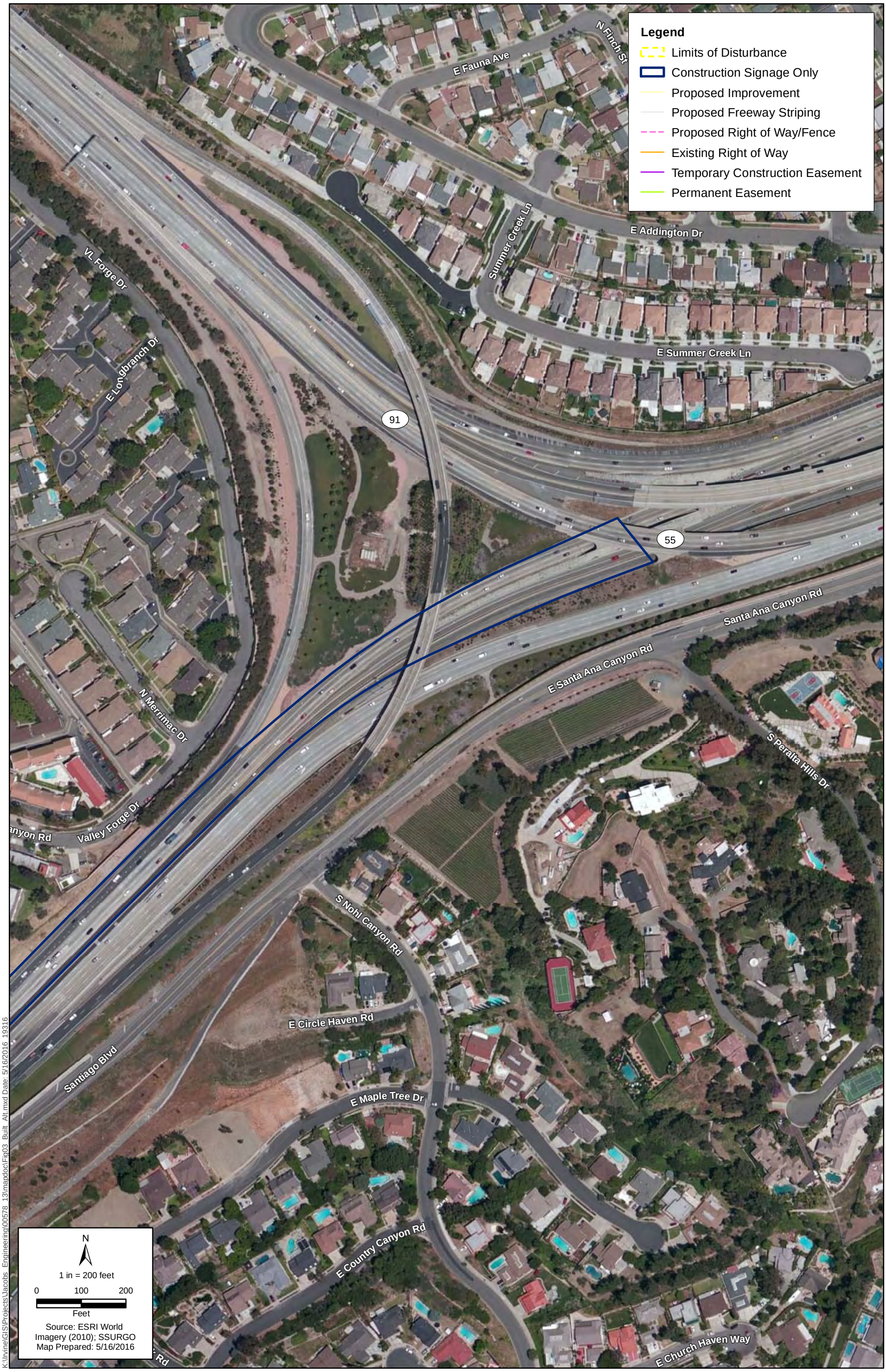

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Figure 3 - Sheet 1
Build Alternative Map
State Route 55/Meats Avenue New Interchange

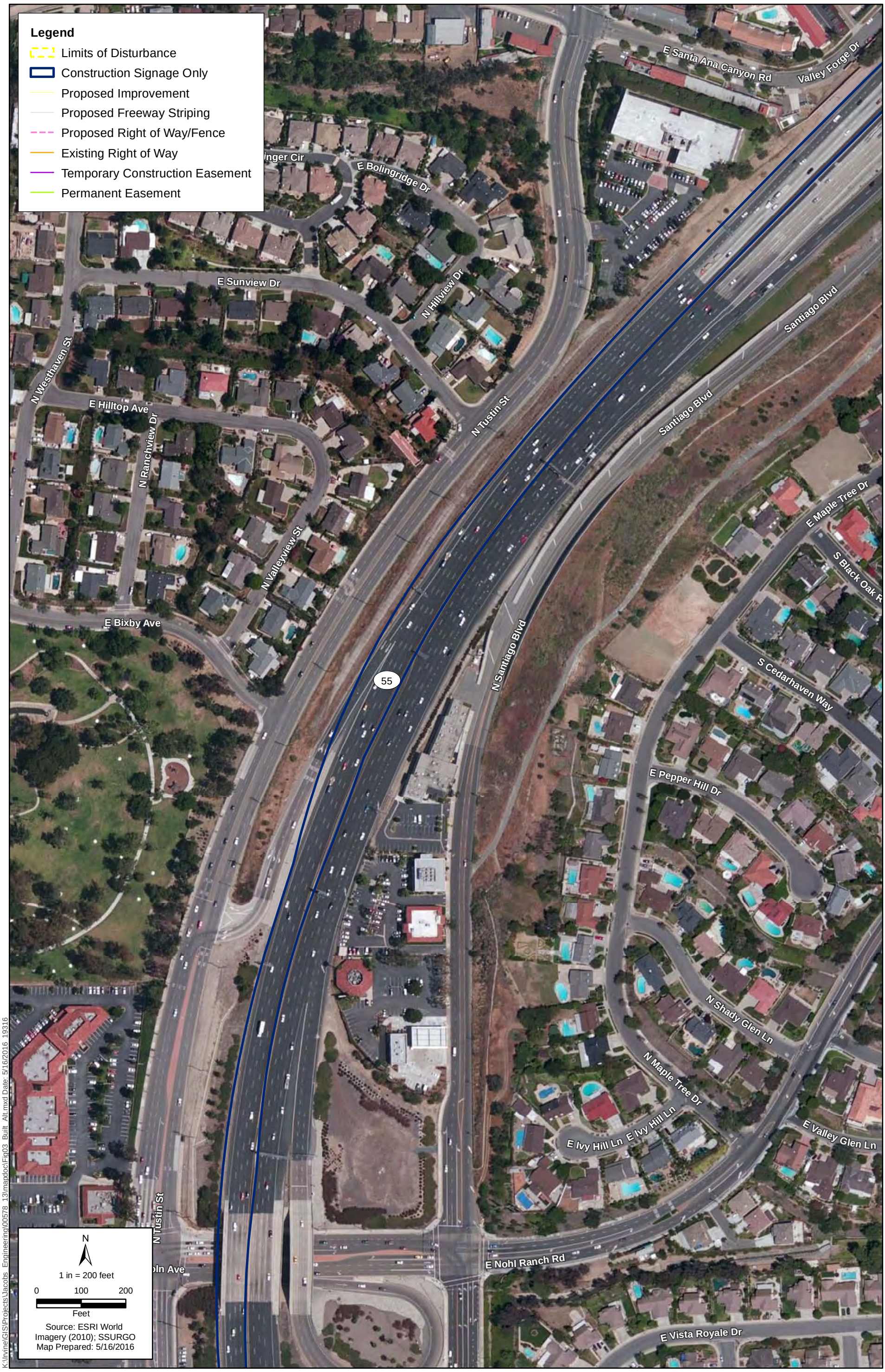

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Figure 3 - Sheet 2
Build Alternative Map
State Route 55/Meats Avenue New Interchange

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Figure 3 - Sheet 3
Build Alternative Map
State Route 55/Meats Avenue New Interchange

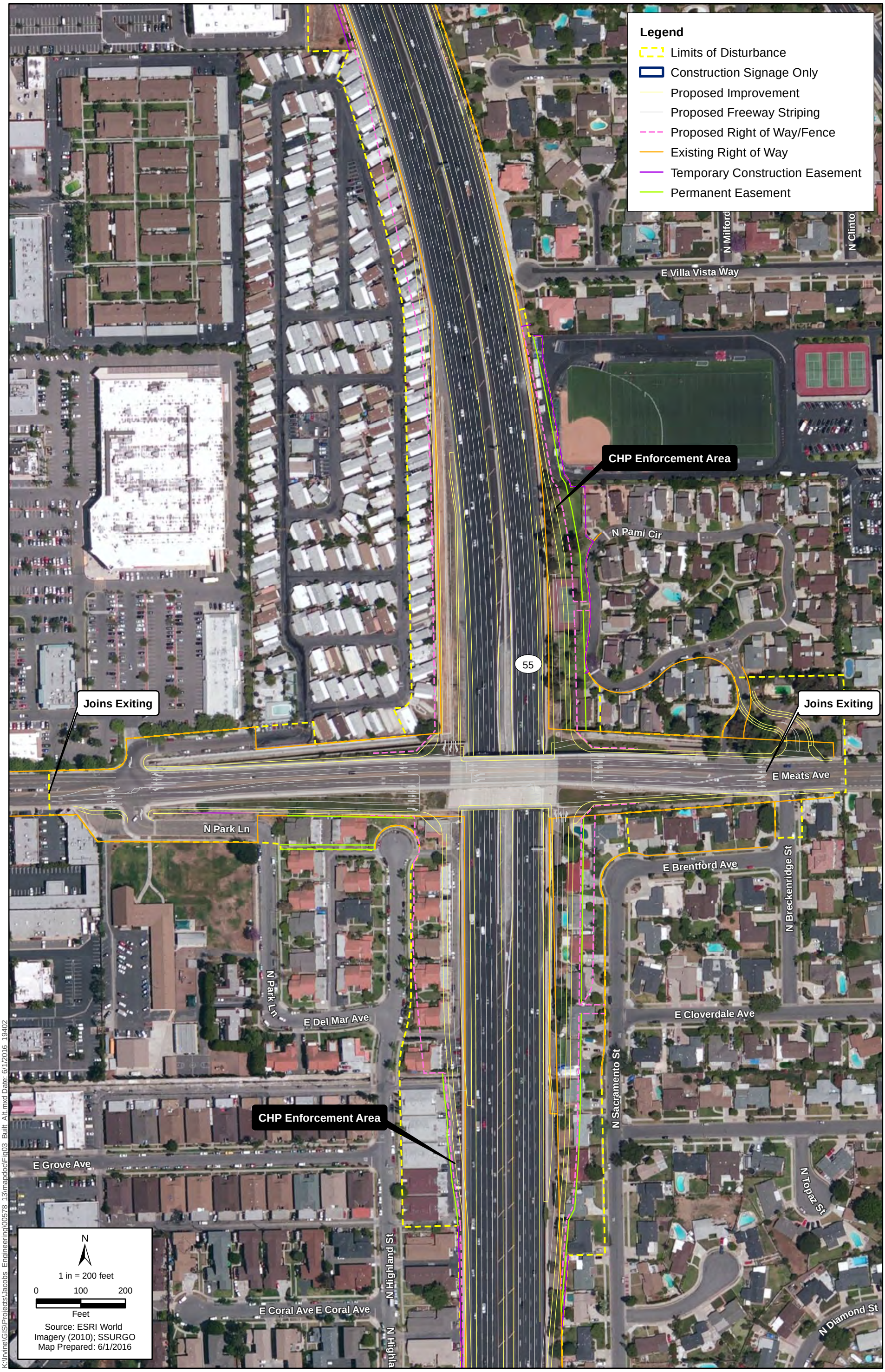

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Figure 3 - Sheet 4
Build Alternative Map
State Route 55/Meats Avenue New Interchange

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Figure 3 - Sheet 5
Build Alternative Map
State Route 55/Meats Avenue New Interchange

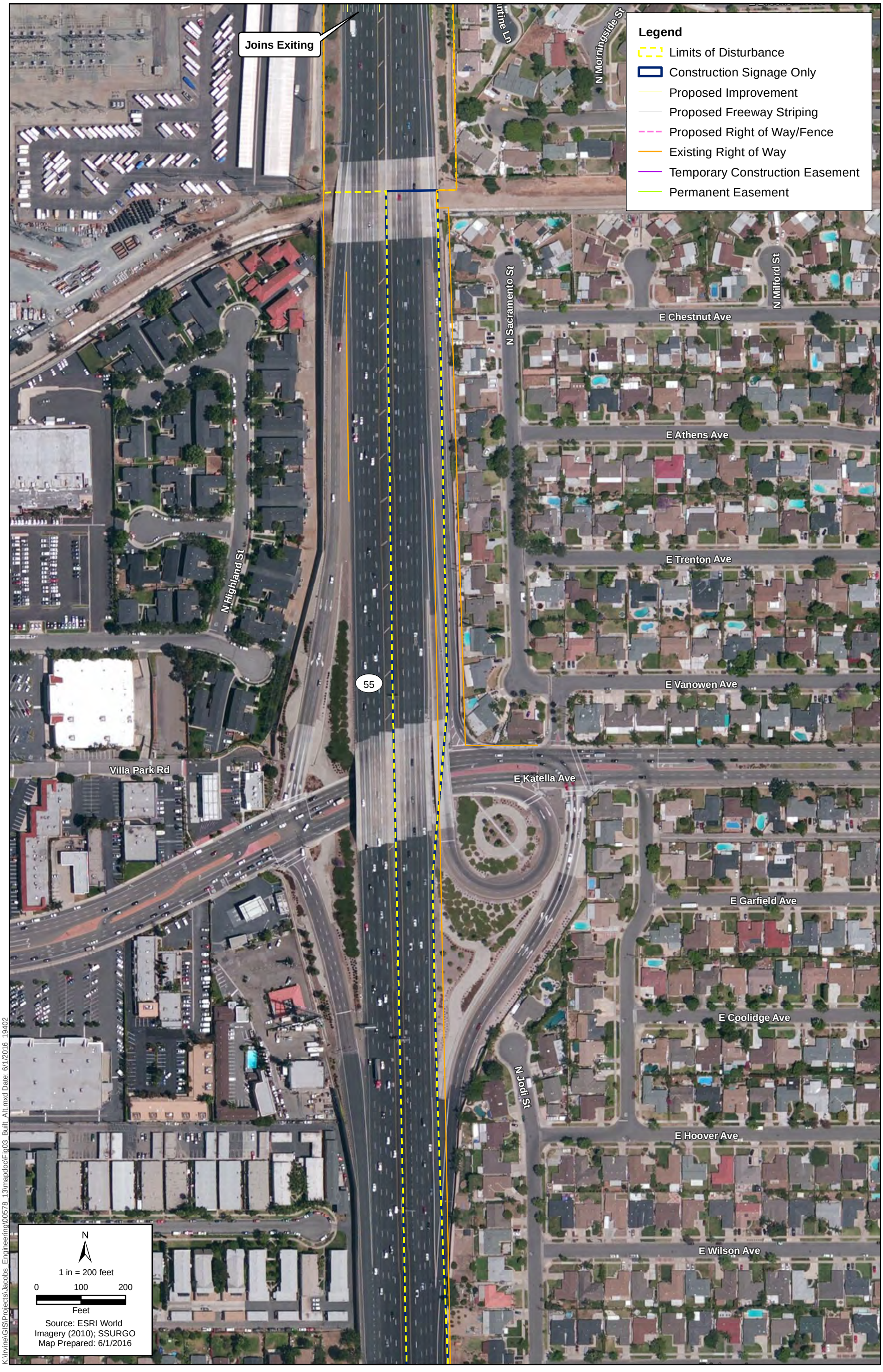

Figure 3 - Sheet 6
Build Alternative Map
State Route 55/Meats Avenue New Interchange

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Figure 3 - Sheet 7
Build Alternative Map
State Route 55/Meats Avenue New Interchange

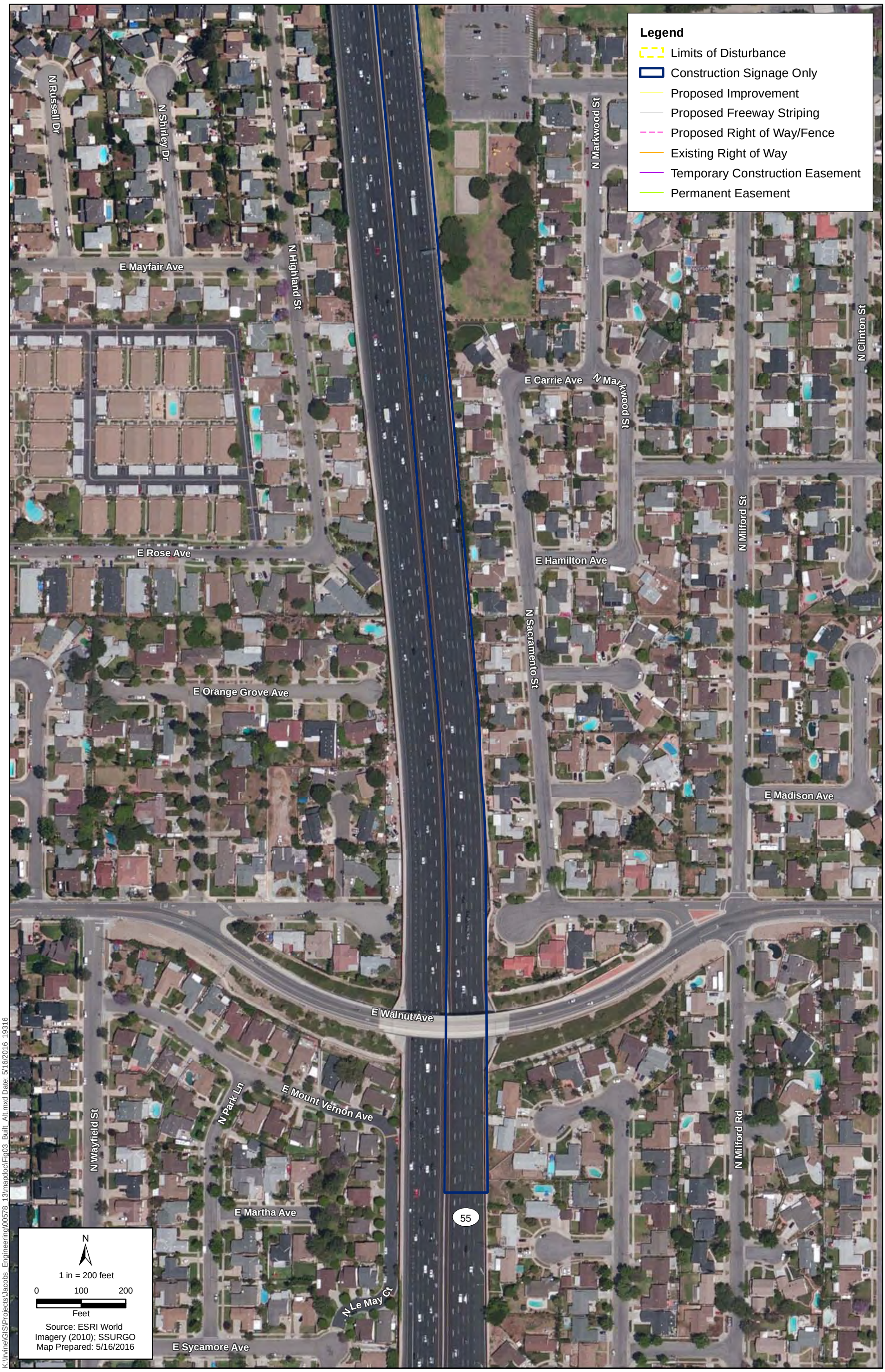

Figure 3 - Sheet 8
Build Alternative Map
State Route 55/Meats Avenue New Interchange

State Route 55/Meats Avenue New Interchange
City of Orange, California

Purpose and Need

Purpose

The purpose of the proposed project is to:

- provide improved connectivity to the regional transportation system from the local transportation network;
- help achieve the goals of existing local planning documents regarding access to the regional transportation system; and
- reduce congestion at the existing SR-55/Lincoln Avenue and SR-55/Katella Avenue Interchanges.

Need

- access to SR-55 within the City of Orange is limited to the interchanges located at Chapman Avenue, Katella Avenue, and Lincoln Avenue/Nohl Ranch Road;
- the City of Orange General Plan Circulation Element currently shows SR-55/Meats Avenue as a future interchange and identifies SR-55/Meats Avenue as a "critical intersection" within the City; and
- an unacceptable level of service (LOS), existing and/or projected, is present at three of the five intersections, along five of the nine ramps, and along both weave segments associated with the SR-55/Lincoln Avenue and SR-55/Katella Avenue Interchanges

Access to SR-55 within the City of Orange is limited to the interchanges located at Chapman Avenue, Katella Avenue, and Lincoln Avenue/Nohl Ranch Road. SR-55 serves as the primary north/south interregional backbone connection for the City, connecting residents and businesses with SR-91 to the north, and SR-22 and ultimately Interstate (I-) 5 and I-405 to the south. According to SCAG projections made in conjunction with the 2012-2035 (RTP, the project region is poised for a continued increase in population in the coming decades. Table 1 shows the existing and projected population for the County of Orange and for the City of Orange. As presented, the County and City populations are projected to increase at approximately the same rate; approximately 15 percent from 2008 to 2035. Although the City is primarily built-out, it is anticipated the majority of the future population increase will be accommodated through infill development; this would be particularly true in the vicinity of the proposed Meats Avenue Interchange since this area is already heavily developed. As the population in the City increases, the demand for access to the freeway system is anticipated to increase as well, thus necessitating the need for additional access points to SR-55 within the City.

Table 1. Regional and Local Population Projections

Geographic Area	2008	2020	2035	Percent Increase (2008 to 2035)
County of Orange	2,989,000	3,266,000	3,421,000	14%
City of Orange	135,500	141,500	156,300	15%

Source: SCAG 2012

The City of Orange General Plan (General Plan) Circulation Element currently shows SR-55/Meats Avenue as a future interchange. The General Plan identifies SR-55/Meats Avenue as a "critical intersection" within the City. Critical intersections are identified as locations where long term system capacity and efficiency can be increased to handle future anticipated traffic volumes and to enhance the overall system functionality and capacity. The identification of this interchange as a critical intersection demonstrates the importance of the interchange to the overall roadway network within the City and the need for this critical interchange to meet the goals of the City with regard to connectivity to the regional transportation system.

A Traffic Operations Analysis was conducted for the proposed project in March 2016. Table 2 shows the level of service (LOS)[1] and delay at the SR-55/Lincoln Avenue/Nohl Ranch Road[2] and SR-55/Katella Avenue Interchanges under Existing Year (2012), Opening Year (2020), and Design Year (2040) conditions, and Table 3 shows the volumes associated with the ramps at the SR-55/Lincoln Avenue and SR-55/Katella Avenue Interchanges under these same scenarios. Table 4 shows weaving sections upstream and downstream of the proposed Meats Interchange that would exist and are assessed for these scenarios.

Table 2. Level of Service and Delay (Existing, Opening, and Design Years)

	Level of Service and Delay[1] (Peak Hour)											
	Existing Year (2012)				**Opening Year (2020)**				**Design Year (2040)**			
	AM		PM		AM		PM		AM		PM	
Intersection	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS	Delay
SR-55 Southbound Off-Ramp/Tustin Street	C	21.5	B	11.5	B	19.8	B	11.2	D	35.1	B	12.8
SR-55 Southbound On-Ramp/Tustin Street	B	15.1	C	32.1	B	11.8	B	19.2	B	13.7	C	24.4
SR-55 Northbound Ramps/Santiago Boulevard	D	38.6	C	31.9	C	32.1	C	25.6	E	71.1	D	36.1
SR-55 Southbound Ramps/Katella Avenue	E	70.7	E	55.1	E	62.3	D	46.2	E	77.9	D	51.9
SR-55 Northbound Ramps/Katella Avenue	D	36.5	D	46.0	D	36.9	D	41.3	D	52.8	E	58.9

[1] Delay measured in seconds
Shaded entry indicates an unacceptable LOS and delay that exceeds 55 seconds.

[1] The ability of a highway to accommodate traffic is typically measured in terms of LOS. Traffic flow is classified by LOS; ranging from LOS A (free-flow traffic with low volumes and high speeds) to LOS F (traffic volume exceeds design capacity with forced flow and substantial delays). The LOS for signalized and unsignalized intersections is based on delay time per vehicle.

[2] Tustin Street and Santiago Boulevard are part of the SR-55/Lincoln Avenue/Nohl Ranch Road interchange.

Table 3. Peak Hour Ramp Level of Service (Existing, Opening, and Design Year)

	Level of Service (Peak Hour)					
	Existing Year (2012)		Opening Year (2020)		Design Year (2040)	
Ramp	AM	PM	AM	PM	AM	PM
Northbound State Route 55						
Lincoln Avenue/Nohl Ranch Road On-Ramp	D	D	D	E	E	F
Santiago Boulevard Off-Ramp	B	B	B	B	B	B
Katella Avenue Westbound On-Ramp	C	D	D	D	F	D
Katella Avenue Eastbound On-Ramp	C	C	C	D	D	D
Katella Avenue Off-Ramp	B	B	B	D	B	C
Southbound State Route 55						
Tustin Street Off-Ramp	F	F	F	F	F	F
Tustin Street On-Ramp	D	D	D	E	F	F
Katella Avenue Off-Ramp	B	B	B	B	B	B
Katella Avenue On-Ramp	C	D	C	D	C	E

Shaded entry indicates an unacceptable LOS

Table 4. Freeway Weave Segment (Existing Opening, and Design Year)

	Level of Service (Peak Hour)					
	Existing Year (2012)		Opening Year (2020)		Design Year (2040)	
Freeway Weave Segment	AM	PM	AM	PM	AM	PM
Northbound State Route 55						
Lincoln Avenue/Nohl Ranch Road On-Ramp to SR-91 Westbound Off-Ramp	D	D	D	E	E	F
Southbound State Route 55						
SR-91 Eastbound On-Ramp to Tustin Street Off-Ramp	F	F	F	F	F	F

As shown in Table 2, the SR-55 Southbound Ramps/Katella Avenue intersection currently operates at an unacceptable LOS (i.e., LOS E or F) during the AM and PM peak hours and is also projected to operate at an unacceptable LOS under the Opening Year (2020) and Design Year (2040) conditions during the AM peak hour. The SR-55 Northbound Ramps/Santiago Boulevard intersection is projected to operate at an unacceptable LOS during the AM peak hour in the Design Year (2040). These intersections would also experience a substantial delay (i.e., in excess of 55 seconds).

As shown in Table 3, the Katella Avenue Westbound On-Ramp from northbound SR-55 is projected to operate at an unacceptable LOS during the AM peak hour in the Design Year. The Lincoln Avenue/Nohl Ranch Road On-Ramp is projected to operate at an unacceptable LOS during the Opening Year PM peak hour, and the Design Year AM and PM peak hours. The Tustin Street Off-Ramp from southbound SR-55 currently operates at an unacceptable LOS for both AM and PM peak hours, is projected to operate at an unacceptable LOS during the Opening Year AM and PM peak hours, and is projected to operate at an unacceptable LOS during the Design Year AM and PM peak hour. The Tustin Street On-Ramp is projected to operate at an unacceptable LOS during the Opening Year PM peak hour and Design Year AM and PM peak hour. The Katella Avenue On-Ramp is projected to operate at an unacceptable LOS during the Design Year PM peak hour.

Table 4 indicates that the weave segment of northbound SR-55 from the Lincoln Avenue/Nohl Ranch Road On-Ramp to the SR-91 Westbound Off-Ramp is projected to operate at unacceptable LOS during the Opening Year PM and Design Year AM and PM peak hours. The southbound SR-55 weave segment of southbound SR-55 from the SR-91 Eastbound On-Ramp to Tustin Street Off-Ramp is projected to operate at unacceptable LOS for Existing, Opening, and Design Year for both AM and PM peak hours.