2.14 Noise

2.14.1 Regulatory Setting

The National Environmental Policy Act (NEPA) of 1969 and the California Environmental Quality Act (CEQA) provide the broad basis for analyzing and abating highway traffic noise effects. The intent of these laws is to promote the general welfare and to foster a healthy environment. The requirements for noise analysis and consideration of noise abatement and/or mitigation, however, differ between NEPA and CEQA.

2.14.1.1 California Environmental Quality Act

CEQA requires a strictly baseline versus build analysis to assess whether a proposed project will have a noise impact. If a proposed project is determined to have a significant noise impact under CEQA, then CEQA dictates that mitigation measures must be incorporated into the project unless such measures are not feasible. The rest of this section will focus on the NEPA's 23 Code of Federal Regulations (CFR) 772 noise analysis; please see Appendix A of this document for further information on noise analysis under CEQA.

2.14.1.2 National Environmental Policy Act and 23 CFR 772

For highway transportation projects with the Federal Highway Association (FHWA) (and the California Department of Transportation [Caltrans], as assigned) involvement, the Federal-Aid Highway Act of 1970 and the associated implementing regulations (23 CFR 772) govern the analysis and abatement of traffic noise impacts. The regulations require that potential noise impacts in areas of frequent human use be identified during the planning and design of a highway project. The regulations contain noise abatement criteria (NAC) that are used to determine when a noise impact would occur. The NAC differ depending on the type of land use under analysis. For example, the NAC for residences (67 A-weighted decibels [dBA]) is lower than the NAC for commercial areas (72 dBA). Table 2.14-1 lists the noise abatement criteria for use in the NEPA 23 CFR 772 analysis.

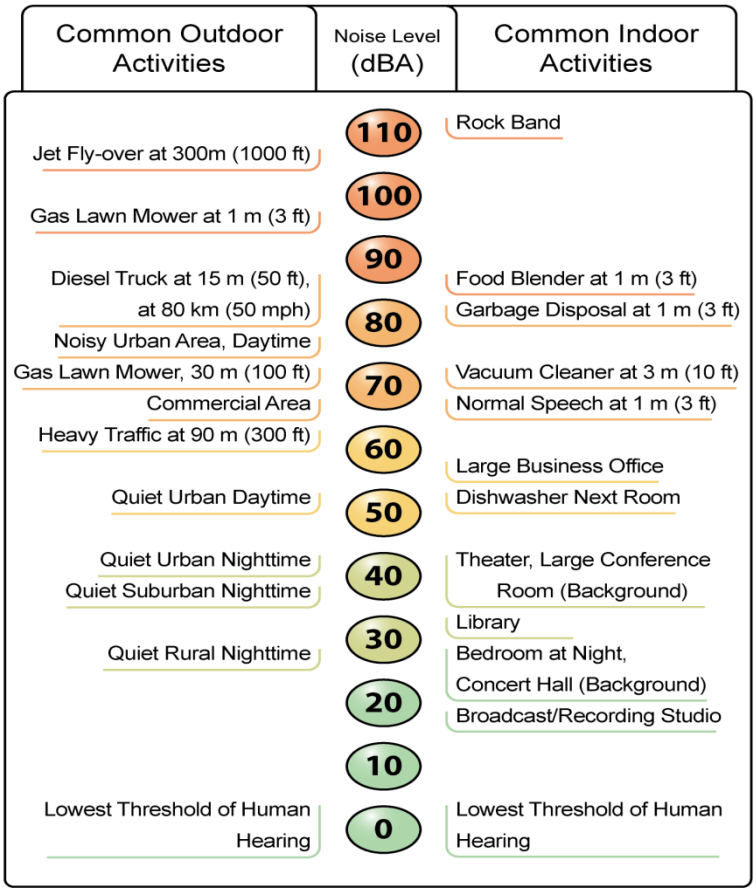
Table 2.14-2 lists the noise levels of common activities to enable readers to compare the actual and predicted highway noise levels discussed in this section with common activities.

Table 2.14-1 Noise Abatement Criteria

Activity Category	NAC, Hourly A-Weighted Noise Level, dBA $L_{eq}(h)$	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B[1]	67 (Exterior)	Residential.
C[1]	67 (Exterior)	Active sport areas, amphitheaters, auditoriums, campgrounds, cemeteries, day care centers, hospitals, libraries, medical facilities, parks, picnic areas, places of worship, playgrounds, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, recreation areas, Section 4(f) sites, schools, television studios, trails, and trail crossings.
D	52 (Interior)	Auditoriums, day care centers, hospitals, libraries, medical facilities, places of worship, public meeting rooms, public or nonprofit institutional structures, radio studios, recording studios, schools, and television studios.
E	72 (Exterior)	Hotels, motels, offices, restaurants/bars, and other developed lands, properties, or activities not included in A–D or F.
F	No NAC—reporting only	Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical, etc.), and warehousing.
G	No NAC—reporting only	Undeveloped lands that are not permitted.

Source: Standard Environmental Reference (California Department of Transportation, July 2010).
[1] Includes undeveloped lands permitted for this activity category.
dBA = A-weighted decibels
$L_{eq}(h)$ = one-hour A-weighted equivalent continuous noise level
NAC = Noise Abatement Criteria
NEPA = National Environmental Policy Act

Table 2.14-2 Noise Levels of Common Activities



Source: Standard Environmental Reference (California Department of Transportation, October 2012).
dBA = A-weighted decibels
ft = foot/feet
m = meter, meters
mph = miles per hour

In accordance with Caltrans Traffic Noise Analysis Protocol for New Highway Construction and Reconstruction Projects (May 2011), a noise impact occurs when the future noise level with the project results in a substantial increase in noise level (defined as a 12 dBA or more increase) or when the future noise level with the project approaches or exceeds the NAC. Approaching the NAC is defined as coming within 1 dBA of the NAC.

If it is determined that the project will have noise impacts, potential abatement measures must be considered. Noise abatement measures that are determined to be reasonable and feasible at the time of final design are incorporated into the project plans and

specifications. This document discusses noise abatement measures that would likely be incorporated into the project.

Caltrans Traffic Noise Analysis Protocol sets forth the criteria for determining when an abatement measure is reasonable and feasible. Feasibility of noise abatement is basically an engineering concern. A minimum 5 dBA reduction in the future noise level must be achieved for an abatement measure to be considered feasible. Other considerations include topography, access requirements, other noise sources, and safety considerations. In addition, a minimum 7 dBA reduction in future noise levels must be achieved at one or more benefited receptor for an abatement measure to be considered reasonable. The reasonableness determination is basically a cost-benefit analysis. Factors used in determining whether a proposed noise abatement measure is reasonable include residents' acceptance and the cost per benefited residence.

2.14.2 Affected Environment

This section is based on the April 2013 *Noise Study Report* (NSR) and the April 2013 *Noise Abatement Decision Report* (NADR) prepared for the proposed project. The NSR followed Caltrans Protocol. Traffic noise levels were evaluated in the NSR within the Study Area of the proposed project. This section summarizes the NSR results.

2.14.2.1 Surrounding Land Use and Receptors

A general reconnaissance of the Study Area was conducted to identify land uses. Receptors were identified in those areas where outdoor frequent human use would occur, such as single-family and multifamily residences, a church/school, two high schools, golf courses, a sports field, a park, and a trail. Other land uses within the Study Area include office, commercial, industrial, and utility uses. Existing land uses in the Study Area are described below in further detail.

- **Interstate 5 (I-5) Northbound, South of Avery Parkway:** Land uses in this area include a high school, an office, and commercial uses. Most uses in the Study Area are at grade with the existing I-5, while the office buildings and Capistrano Valley High School are located up to 65 feet (ft) higher than I-5. The tennis courts associated with the high school were evaluated under Activity Category C, which has an exterior NAC of 67 dBA equivalent continuous sound level (L_{eq}). Commercial and office uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Northbound between Avery Parkway and Crown Valley Parkway:** Land uses in this area include restaurants with and without outdoor eating areas, commercial

uses, and retail facilities. Uses in this area range from at grade with I-5 to approximately 100 ft higher than I-5. The restaurant outdoor eating areas were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. All other uses in this segment of the Study Area were classified under Activity Category F for reporting purposes.

- **I-5 Northbound between Crown Valley Parkway and Oso Parkway:** Land uses in this area include single-family residences, a golf course, a hotel with pool area, restaurants with and without outdoor eating areas, and commercial and office uses. Uses in the Study Area range from approximately 10 ft lower to 60 ft higher than I-5. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The golf course was evaluated under Activity Category C, which has an exterior NAC of 67 dBA L_{eq}. The restaurant outdoor eating areas and hotel swimming pool area were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. Restaurants with no outdoor eating areas and commercial and office uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Northbound between Oso Parkway and La Paz Road:** Land uses in this area include single-family residences, a golf course, and a high school. Uses in the Study Area range from approximately 5–50 ft higher than I-5. Currently, a 6 ft high wood fence at the property line shields single-family residences located along Chrisanta Drive, Verdura Circle, Esmeralda Circle, Turquesa Circle, and Montarez Circle from traffic noise on the I-5 freeway. Also, an existing 12 ft high masonry wall at the State right of way (ROW) shields the sports fields at Mission Viejo High School from traffic noise on the I-5. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The Mission Viejo Country Club Golf Course and Mission Viejo High School were evaluated under Activity Category C, which has an exterior NAC of 67 dBA L_{eq}.
- **I-5 Northbound between La Paz Road and Alicia Parkway:** Land uses in this area include single-family residences and commercial uses. Uses in this area range from approximately 5 ft lower to 45 ft higher than I-5. Currently, a 4–14 ft high existing combination masonry/Plexiglas wall at the property line shields single-family residences from traffic noise on I-5. Also, an existing 5–8 ft high masonry wall, which begins at the Alicia Parkway off-ramp diverge and continues north along the property line, shields single-family residences from traffic noise on the I-5 freeway. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. Commercial uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.

- **I-5 Northbound between Alicia Parkway and El Toro Road:** Land uses in this area include single- and multifamily residences, restaurants with and without outdoor eating areas, and commercial uses. Uses in the Study Area range from approximately 10 ft lower to 30 ft higher than I-5. Currently, an existing 18–20 ft high earthen berm shields multifamily residences from traffic noise on the I-5 freeway. An existing 8–16 ft high masonry wall at the edge of the shoulder and State ROW shields single-family residences located south of Los Alisos Boulevard. Also, an existing 12–14 ft high masonry wall at the State ROW shields single-family residences located between Los Alisos Boulevard and El Toro Road. Single- and multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The restaurant outdoor eating areas were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. Commercial uses and restaurants with no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Northbound, north of El Toro Road:** Land uses in this area include single-family residences, restaurants without outdoor eating areas, and commercial uses. Uses in the Study Area range from approximately 10 ft lower to 30 ft higher than I-5. Currently, an existing 16 ft high masonry wall at the State ROW shields single-family residences from traffic noise on the I-5 freeway. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. Commercial uses and restaurants that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Southbound, north of El Toro Road:** Land uses in this area include a multifamily style senior living community, a church/school, restaurants without outdoor eating areas, and commercial uses. Uses in the Study Area range from approximately 20 ft lower to 5 ft higher than I-5. Currently, an existing 14–16 ft high masonry wall at the State ROW shields St. George's Parish Episcopal Church and Academy from traffic noise on the I-5 freeway and southbound (SB) off-ramp. Also, an existing 7.5–10 ft high masonry wall at the property line shields multifamily residences from traffic noise on the I-5 freeway. Multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The playground associated with the church and school was evaluated under Activity Category C, which has an exterior NAC of 67 dBA L_{eq}. The church and classroom buildings were evaluated under Activity Category D, which has an interior NAC of 52 dBA L_{eq}. Commercial uses and restaurants that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.

- **I-5 Southbound between El Toro Road and Alicia Parkway:** Land uses in this area include single- and multifamily residences, a trail, restaurants with and without outdoor eating areas, and commercial and office uses. Uses in the Study Area range from approximately 20 ft lower to 25 ft higher than I-5. Currently, an existing 4.5–7.5 ft high wall at the property line shields residences located along Christina Court from traffic noise on the I-5 freeway. Also, an existing 9.3–14 ft high combination masonry/Plexiglas wall at the property line shields single-family residences located along Georgia Sue Circle, Sara Lane, Carol Lane, and Katie Avenue from traffic noise on the I-5 freeway. Single- and multifamily residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The restaurant outdoor eating areas were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. The trail was identified under Activity Category C, and noise levels were reported because there are no outdoor frequent human use areas. Restaurant, commercial, and office uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Southbound between Alicia Parkway and La Paz Road:** Land uses in this area include single-family residences, a hotel, and commercial and office uses. Uses in the Study Area range from approximately 20 ft below to 40 ft higher than I-5. Currently, an existing 12 ft high wall at the edge of shoulder and a 12.5–14.5 ft high wall at the State ROW shields single-family residences from traffic noise on the I-5 freeway. Also, an existing 5 ft high wood fence at the property line shields single-family residences from traffic noise on the I-5 freeway. Single-family residences were evaluated under Activity Category B, which has an exterior NAC of 67 dBA L_{eq}. The hotel swimming pool area was evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. Commercial and office uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Southbound between La Paz Road and Oso Parkway:** Land uses in this area include restaurants both with and without outdoor eating areas and commercial, retail, and office uses. Uses in the Study Area range from approximately 20–50 ft lower in elevation than I-5. Currently, there are no existing walls in this portion of the Study Area. The restaurant outdoor eating areas were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. Restaurants, commercial, and office uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Southbound between Oso Parkway and Crown Valley Parkway:** Land uses in this area include a water treatment facility and commercial/industrial uses. Uses in the

Study Area range from approximately 5–20 ft lower in elevation than I-5. Currently, there are no existing walls in this portion of the Study Area. The water treatment facility and commercial/industrial uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.

- **I-5 Southbound between Crown Valley Parkway and Avery Parkway:** Land uses in this area include commercial uses. Uses in the Study Area range from approximately 5–20 ft lower in elevation than I-5. Currently, there are no existing walls in this portion of the Study Area. Commercial uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.
- **I-5 Southbound, south of Avery Parkway:** Land uses in this area include a hotel, restaurants with and without outdoor eating areas, soccer fields, and commercial uses. Uses in the Study Area range from approximately 10–15 ft lower in elevation than I-5. Currently, there are no existing walls in this segment of the Study Area. The restaurant outdoor eating areas were evaluated under Activity Category E, which has an exterior NAC of 72 dBA L_{eq}. The soccer fields were evaluated under Activity Category C, which has an exterior NAC of 67 dBA L_{eq}. The hotel, restaurant, and commercial uses that have no outdoor frequent human use areas were classified under Activity Category F for reporting purposes.

2.14.2.2 Existing Noise Level Measurements

The existing noise environment in the Study Area is described below based on short- and long-term noise monitoring that was conducted at representative receptor locations.

Short-Term Monitoring

The primary source of noise in the Study Area is traffic on I-5. Short-term (15-minute) noise measurements were conducted to document existing noise levels at 62 representative receptor locations within the Study Area. Short-term noise level measurements were conducted using Larson Davis Models 820, 831, and 824 Type 1 sound level meters. Table 2.14-3 contains the results of the short-term noise level measurements and a description of the noise monitoring locations. These short-term noise measurements were used to calibrate the noise model and to predict the noise levels at all 357 modeled receptors in the Study Area. The short-term monitoring locations are shown in Figure 2.14-1.

Table 2.14-3 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description	Noise Source	Comments
ST-1	7/11/2012	9:48 a.m.	15 minutes	62.8	Saddleback Church at Rancho Capistrano – picnic benches south of soccer fields – 29251 Camino Capistrano, San Juan Capistrano. Southbound side of I-5.	Traffic on I-5	Sprinklers on soccer field during measurement.
ST-2	7/11/2012	10:38 a.m.	15 minutes	62.5	Saddleback Church at Rancho Capistrano – picnic benches east of soccer fields – 29251 Camino Capistrano, San Juan Capistrano. Southbound side of I-5.	Traffic on I-5	
ST-3	7/11/2012	10:38 a.m.	15 minutes	68.6	Mercedes Benz of Laguna Niguel – 1 Star Drive, Laguna Niguel. Southbound side of I-5.	Traffic on I-5, SR-73 and Camino Capistrano	No existing walls.
ST-4	7/11/2012	11:18 a.m.	15 minutes	69.8	Carl's Jr. parking lot – 28722 Camino Capistrano, Laguna Niguel. Southbound side of I-5.	Traffic on I-5 and Camino Capistrano	No existing walls.
ST-5	7/11/2012	9:48 a.m.	15 minutes	73.0	Office buildings - 29222 Rancho Viejo Drive, Laguna Niguel. Northbound side of I-5.	Traffic on I-5 and SR-73	One Metrolink train during pass-by scrubbed from data.
ST-6	7/11/2012	11:18 a.m.	15 minutes	75.9	In front of Zenko Sushi and Rolls Restaurant – 28892 Marguerite Parkway, Ste. 190. Northbound side of I-5.	Traffic on I-5 and Marguerite Parkway	
ST-7	7/11/2012	10:39 a.m.	15 minutes	73.2	At western property line of Capistrano Valley High School – 26301 Via Escolar, Mission Viejo. Northbound side of I-5.	Traffic on I-5 and SR-73	In line with edge of tennis courts.
ST-8	7/11/2012	11:58 a.m.	15 minutes	68.8	Allen Advantage Used Car Lot – 28332 Camino Capistrano, Laguna Niguel. Southbound side of I-5.	Traffic on I-5	No existing walls.
ST-9	7/11/2012	11:58 a.m.	15 minutes	65.9	Just north of office/commercial building – 28052 Camino Capistrano. Southbound side of I-5.	Traffic on I-5	45 ft west of existing 6.5 ft high wall. No wall at neighboring building property line.
ST-10	7/11/2012	11:58 a.m.	15 minutes	73.8	Western property line of commercial complex near Gracie Barra Jiu-Jitsu – 28641 Marguerite Parkway, Ste. C3, Mission Viejo. Northbound side of I-5.	Traffic on I-5, Avery Northbound On-ramp	

Table 2.14-3 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description	Noise Source	Comments
ST-11	7/11/2012	1:50 p.m.	15 minutes	58.7	Sunflower Montessori School, north of playground fence – 28251 Marguerite Parkway, Ste. L, Mission Viejo. Northbound side of I-5.	Traffic on I-5	27 ft north of playground area.
ST-12	711/2012	1:51 p.m.	15 minutes	73.4	The Shops at Mission Viejo. Southwest corner of parking lot – 27000 Crown Valley Parkway, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Parking lot rather quiet, low speeds.
ST-13	7/12/2012	9:09 a.m.	15 minutes	69.7	Laguna Niguel Collision Center – 27622 Camino Capistrano, Laguna Niguel. Southbound side of I-5.	Traffic on I-5	No existing walls.
ST-14	7/12/2012	9:09 a.m.	15 minutes	67.1	Near Suite 141 between two office buildings – 27324 Camino Capistrano, Laguna Niguel. Southbound side of I-5.	Traffic on I-5	No existing walls.
ST-15	7/12/2012	9:08 a.m.	15 minutes	56.5	Patio at vacant restaurant – 27567 Puerta Real, Mission Viejo. Northbound side of I-5.	Traffic on I-5	7 ft high combo masonry/Plexiglas barrier.
ST-16	7/12/2012	10:04 a.m.	15 minutes	74.8	Courtyard area between office buildings – 27155 Puerta Real, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Shielded by partial 15 ft high wall that is approximately 45 ft in length.
ST-17	7/12/2012	10:04 a.m.	15 minutes	54.1	Rear-yard of single-family home – 27002 Via Grande, Mission Viejo. Northbound side of I-5.	Traffic on I-5	7 ft high wood fences on sides of yard.
ST-18	7/12/2012	10:04 a.m.	15 minutes	67.8	Rear-yard of single-family home – 26951 Via Grande, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Partial 4 ft high berm at the edge of property line.
ST-19	7/12/2012	10:54 a.m.	15 minutes	70.0	The green of the fourth hole at the Mission Viejo Country Club Golf Course – 26200 Country Club Drive, Mission Viejo. Northbound side of I-5.	Traffic on I-5	I-5 slightly elevated.
ST-20	7/12/2012	10:54 a.m.	15 minutes	68.1	Swimming pool area of the Fairfield Inn Marriott – 26328 Oso Parkway, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Wrought iron fence, no wall.
ST-21	7/12/2012	2:13 p.m.	15 minutes	60.0	Parking lot of Krispy Kreme Doughnuts – 25802 El Paseo, Mission Viejo. Southbound side of I-5.	Traffic on I-5	
ST-22	7/12/2012	2:55 p.m.	15 minutes	62.9	Between Petco and Arizona Tile – 25592 and 25552 El Paseo, Mission Viejo. Southbound side of I-5.	Traffic on I-5	

Table 2.14-3 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description	Noise Source	Comments
ST-23	7/12/2012	3:28 p.m.	15 minutes	64.0	Between Toys R Us and a vacant commercial building – 25362 El Paseo, Mission Viejo. Southbound side of I-5.	Traffic on I-5	Buildings are 25 ft tall.
ST-24	7/17/2012	3:14 p.m.	15 minutes	63.3	Outdoor patio of Roman Cucina – 25214 Cabot Road, Laguna Hills. Southbound side of I-5.	Traffic on I-5	
ST-25	7/12/2012	2:13 p.m.	15 minutes	62.6	Rear-yard of single-family home – 26201 Via Oceano, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing property wall - 2.5 ft high. Golf hole located between homes and I-5.
ST-26	7/12/2012	11:44 a.m.	15 minutes	65.7	The fairway of the 17th hole at the Mission Viejo Country Club Golf Course – 26200 Country Club Drive, Mission Viejo. Northbound side of I-5.	Traffic on I-5	
ST-27	7/12/2012	11:44 a.m.	15 minutes	62.9	Rear-yard of single-family home – 26071 Via Remolina, Mission Viejo. Northbound side of I-5.	Traffic on I-5	No existing wall, wrought iron fence.
ST-28	7/12/2012	2:13 p.m.	15 minutes	61.0	Rear-yard of single-family home – 25891 Via Faro, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 5 ft high wall. No wall at neighboring homes.
ST-29	7/12/2012	2:13 p.m.	15 minutes	71.8	Rear-yard of the single-family home – 25751 Christiana Drive, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 5 ft, 8 inch high wood fence.
ST-30	7/12/2012	2:56 p.m.	15 minutes	68.8	Rear-yard of the single-family home – 26302 Verdura Circle, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 5 ft, 8 inch block wall.
ST-31	7/12/2012	2:55 p.m.	15 minutes	65.5	Rear-yard of the single-family home – 26302 Esmeralda, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 6 ft high property line wall. Existing 4 ft high sidewall.
ST-32	7/12/2012	3:29 p.m.	15 minutes	67.0	Rear-yard of single-family home – 26292 Turquesa Circle, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 6 ft high wood fence.
ST-33	7/12/2012	3:30 p.m.	15 minutes	73.7	Rear-yard of the single-family home – 26281 Montarez Circle, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing incomplete 5 ft high wood fence.

Table 2.14-3 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description	Noise Source	Comments
ST-34	7/17/2012	3:15 p.m.	15 minutes	68.5	Baseball field at Mission Viejo High School – 25025 Chrisanta Drive, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 12 ft high block wall.
ST-35	7/17/2102	9:17 a.m.	15 minutes	61.5	Rear-yard of the single-family home – 25122 La Suen Road, Laguna Hills. Northbound side of I-5.	Traffic on I-5 and some aircraft noise	Wood fence with large gaps.
ST-36	7/17/2012	9:16 a.m.	15 minutes	71.3	Rear-yard of the single-family home – 25032 La Suen Road, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Wood fence, not in good condition.
ST-37	7/17/2012	9:58 a.m.	15 minutes	62.4	Rear-yard of the single-family home – 24981 Presido Drive, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 6 ft high wood fence with tiny gaps.
ST-38	7/17/2012	9:57 a.m.	15 minutes	65.3	Rear-yard of single-family home - 24941 Express Drive, Laguna Hills. Southbound side of I-5.	Traffic on I-5	No wall at residence property line, 14 ft wall at ROW.
ST-39	7/17/2012	10:53 a.m.	15 minutes	62.4	Rear-yard of the single-family home – 24891 Wells Fargo, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 12 ft sound wall. Existing 5 ft sidewall. Existing 3.5 ft retaining wall.
ST-40	7/17/2012	10:52 a.m.	15 minutes	63.6	Rear-yard of the single-family home – 25432 Costeau, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 9 ft high sound wall.
ST-41	7/17/2012	9:17 a.m.	15 minutes	64.1	Rear-yard of the single-family home – 25822 Pericles Street, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 14 ft high combo masonry/ Plexiglas wall.
ST-42	7/17/2012	9:58 a.m.	15 minutes	62.3	Rear-yard of the single-family home – 25532 Maximus Street, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 14 ft high combo masonry/ Plexiglas wall.
ST-43	7/17/2012	10:53 a.m.	15 minutes	64.1	Rear-yard of the single-family home – 25422 Maximus Street, Mission Viejo. Northbound side of I-5.	Traffic on I-5	Existing 8 ft, 6 inch masonry wall on top of berm. Matches neighboring combo wall.
ST-44	7/17/2012	11:23 a.m.	15 minutes	63.9	Rear-yard of the single-family home – 25342 Maximus Street, Mission Viejo. Northbound side of I-5.	Traffic on I-5 and I-5 off-ramp at Alicia Parkway	Existing 5 ft high masonry wall.

Table 2.14-3 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description	Noise Source	Comments
ST-45	7/17/2012	1:32 p.m.	15 minutes	57.5	Back of Togo's Restaurant – 24751 E. Alicia Parkway, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Near a 4 ft high retaining wall.
ST-46	7/17/2012	1:30 p.m.	15 minutes	58.8	In middle of cul-de-sac approximately 30 ft from existing noise barrier – between 24976 and 24971 Sara Lane, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 14 ft high sound wall.
ST-47	7/17/2012	2:28 p.m.	15 minutes	61.5	On the sidewalk, approximately 30 ft from the existing noise barrier in front of the single-family home – 24921 Georgia Sue, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 14 ft high sound wall.
ST-48	7/17/2012	2:28 p.m.	15 minutes	63.7	Rear-yard of the single-family home – 24472 Christina Court, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 5.5 ft high sound wall.
ST-49	7/17/2012	1:33 p.m.	15 minutes	64.1	Adjacent to Unit 153 of Building J of the Sycamore Lane Apartments – 25162 Charlinda Drive, Lake Forest. Northbound side of I-5.	Traffic on I-5	4 ft high retaining wall plus large berm on top. Shields view of I-5.
ST-50	7/17/2012	1:33 p.m.	15 minutes	67.7	Rear-yard of the single-family home – 24862 Stem Avenue, Lake Forest. Northbound side of I-5.	Traffic on I-5	Existing 16 ft high masonry wall at property line.
ST-51	7/18/2012	9:22 a.m.	15 minutes	59.1	Prado at Laguna Hills Apartments – 24555 Los Alisos Boulevard, Laguna Hills. Southbound side of I-5	Traffic on Avenida De La Carlota. Faint traffic on I-5.	Solid 8.5 ft high carports with some open spaces. No walls.
ST-52	7/18/2012	9:49 a.m.	15 minutes	70.6	On the sidewalk near the El Torito Grill Restaurant – 24301 Avenida De La Carlota, Laguna Hills. Southbound side of I-5.	Traffic on I-5 and Avenida De La Carlota	Patio at restaurant surrounded by 7 ft high combo concrete/Plexiglas barrier.
ST-53	7/18/2012	10:10 a.m.	15 minutes	71.1	Back of Firestone Auto Center at Laguna Hills Mall – 24196 Laguna Hills Mall, Laguna Hills. Southbound side of I-5.	Traffic on I-5 and Avenida De La Carlota	No outdoor frequent human use areas. No walls.
ST-54	7/18/2012	10:09 a.m.	15 minutes	59.9	Rear-yard of the single-family home – 24541 Bridger Road, Laguna Hills. Northbound side of I-5.	Traffic on I-5	Existing 12 to 14 ft high sound wall at shoulder/State ROW.

Table 2.14-3 Short-Term Ambient Noise Monitoring Results

Monitor No.	Date	Start Time	Duration	dBA L_{eq}	Location Description	Noise Source	Comments
ST-55	7/18/2012	10:11 a.m.	15 minutes	60.8	Rear-yard of the single-family home – 24431 Bridger Road, Laguna Hills. Northbound side of I-5.	Traffic on I-5	One-story home with pitched roof. Rear-yard is shielded by residential structure.
ST-56	7/18/2012	11:10 a.m.	15 minutes	55.1	Between buildings 2075 and 2076 of the Laguna Woods Village. Southbound side of I-5.	Traffic on I-5 and Avenida De La Carlota	Existing 7.5 ft high masonry property wall
ST-57	7/18/2012	11:10 a.m.	15 minutes	57.8	Near the patio of Building 2150 in the Laguna Woods Village. Southbound side of I-5.	Traffic on I-5 and Avenida De La Carlota	Existing 8 ft block wall on top of 3 ft berm.
ST-58	7/18/2012	11:10 a.m.	15 minutes	64.3	Near the patio of Unit D, Building 2121, Laguna Woods Village. Southbound side of I-5.	Traffic on I-5 and Avenida De La Carlota	Existing 11 ft, 4 inch wall located at property line on top of a 2 ft high berm.
ST-59	7/18/2012	11:51 a.m.	15 minutes	68.3	Located at St. George's Parish Academy – 23802 Avenida De La Carlota, Laguna Hills. Southbound side of I-5.	Traffic on I-5	Existing 14 ft high block sound wall.
ST-60	7/18/2012	12:31 p.m.	15 minutes	73.9	Between two commercial buildings – 23811 Bridger Road, Laguna Hills. Northbound side of I-5.	Traffic on I-5	Existing 3 ft high retaining wall at property line.
ST-61	7/18/2012	12:31 p.m.	15 minutes	56.9	Rear-yard of the single-family home – 23981 Gowdy Avenue, Laguna Hills. Northbound side of I-5.	Traffic on I-5	Existing 16 ft high sound wall.
ST-62	7/18/2012	12:31 p.m.	15 minutes	62.8	Rear-yard of the single-family home – 23612 Duryea Drive, Lake Forest. Northbound side of I-5.	Traffic on I-5	Existing 7 ft high wood fence.

Source: LSA Associates, Inc., Noise Study Report, April 2013.
dBA = A-weighted decibels
ft = feet
I-5 = Interstate 5
L_{eq} = equivalent continuous sound level
ROW = right of way
SR-73 = State Route 73

LEGEND

- Project Limits
- Existing Right-of-Way
- Existing Walls
- Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

0 125 250
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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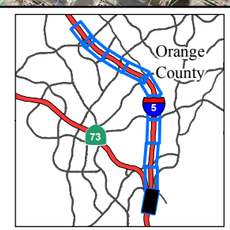

FIGURE 2.14-1
Sheet 1 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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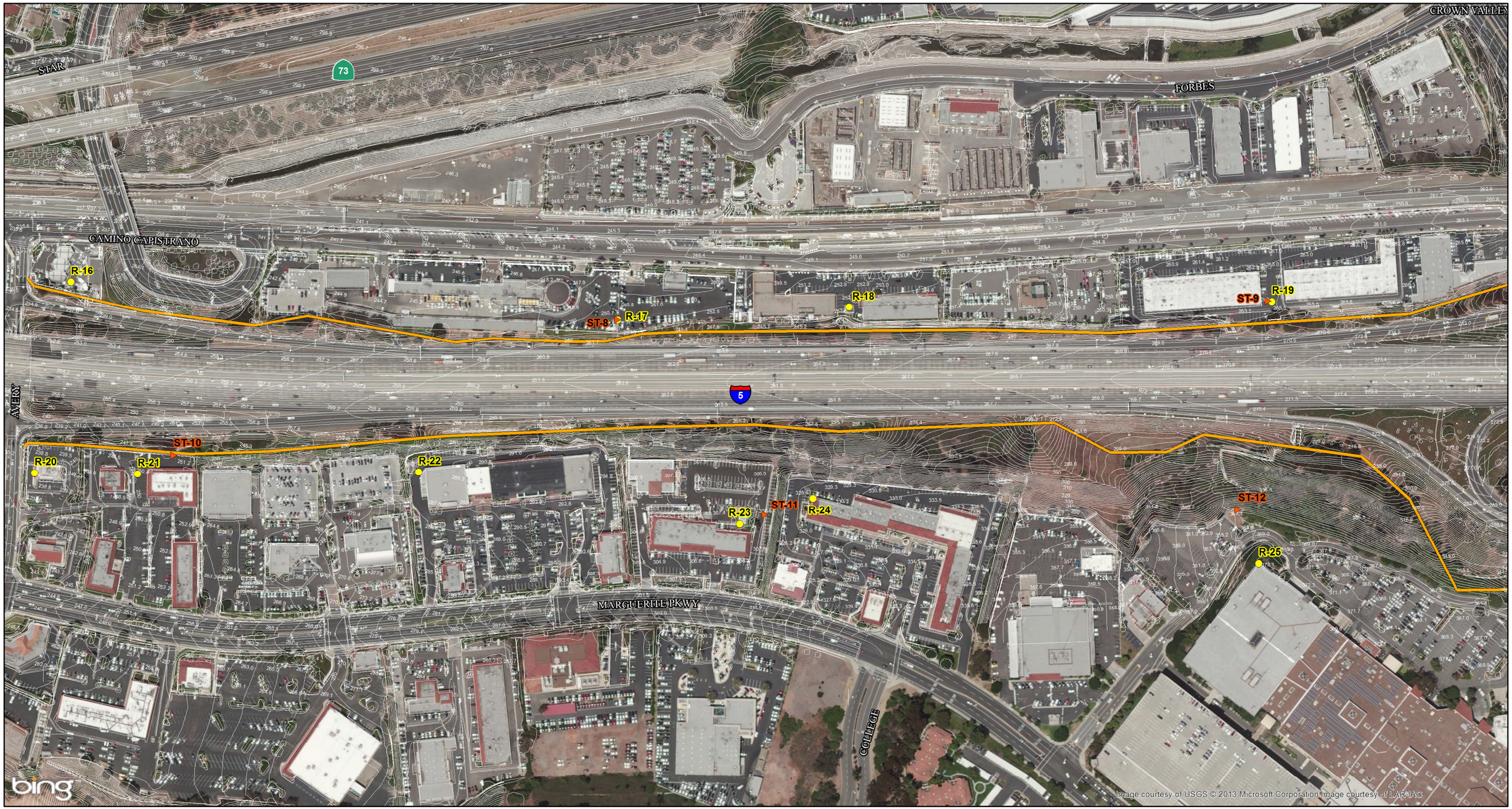

LEGEND

- Project Limits
- Existing Right-of-Way
- Existing Walls
- Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

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SOURCE: Bing Maps (c. 2009); Transystems (2012)

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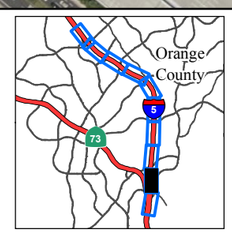

FIGURE 2.14-1
Sheet 2 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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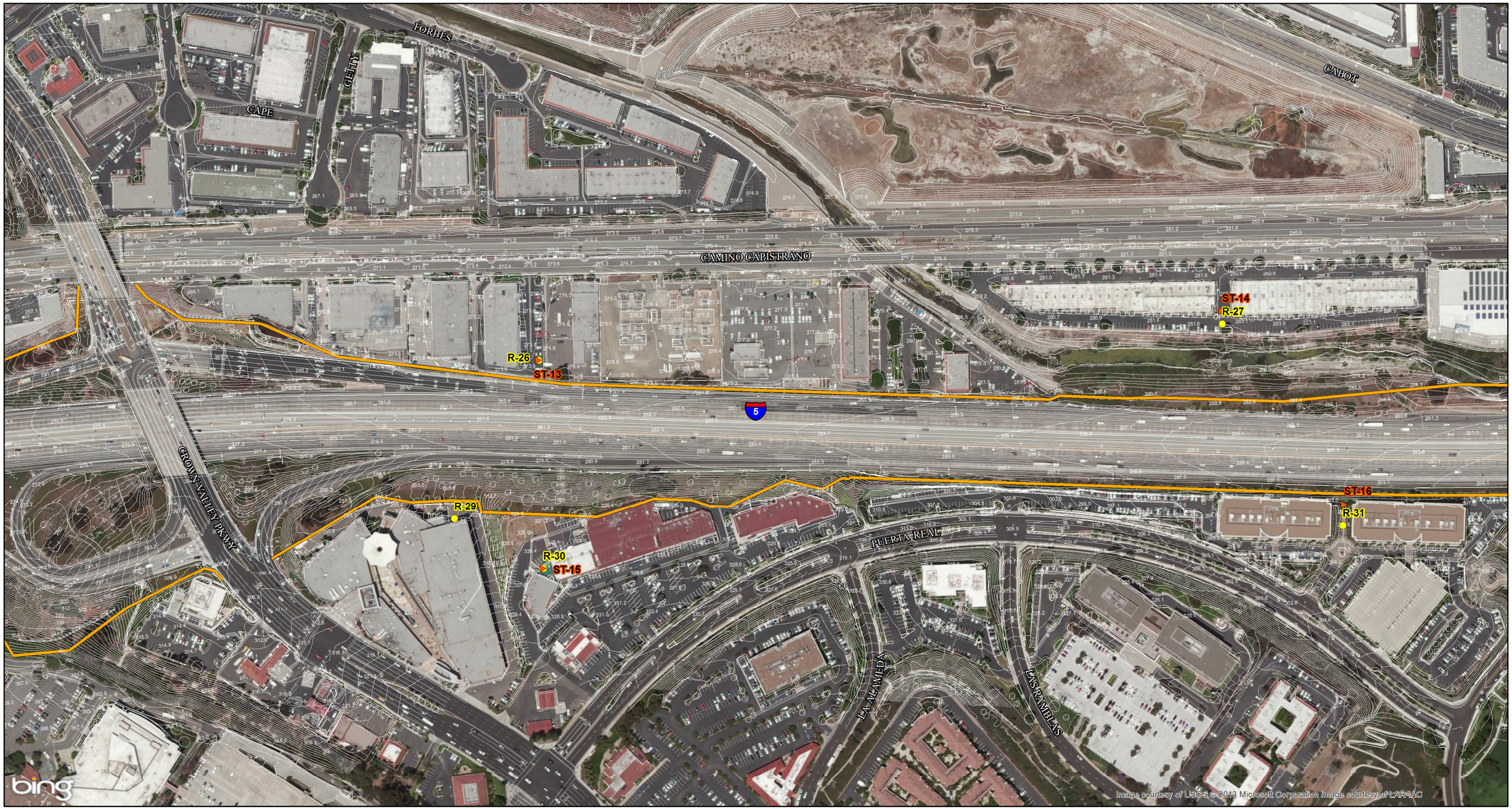

LEGEND

- Project Limits
- Existing Right-of-Way
- Existing Walls
- Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

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FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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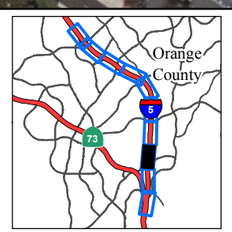

FIGURE 2.14-1
Sheet 3 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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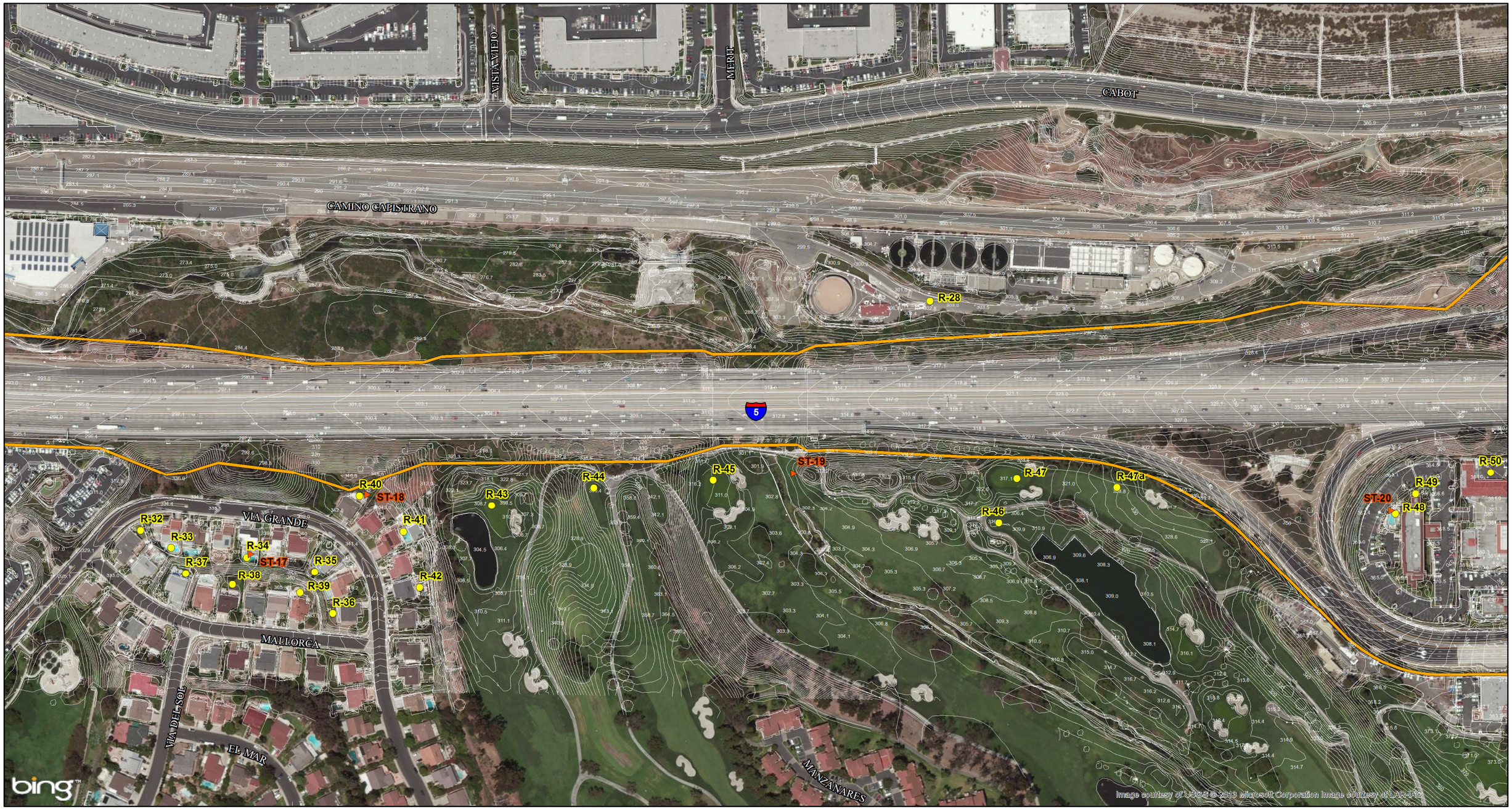

LEGEND

- Project Limits
- Existing Right-of-Way
- Existing Walls
- Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

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FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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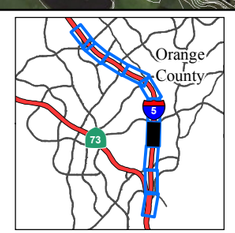

FIGURE 2.14-1
Sheet 4 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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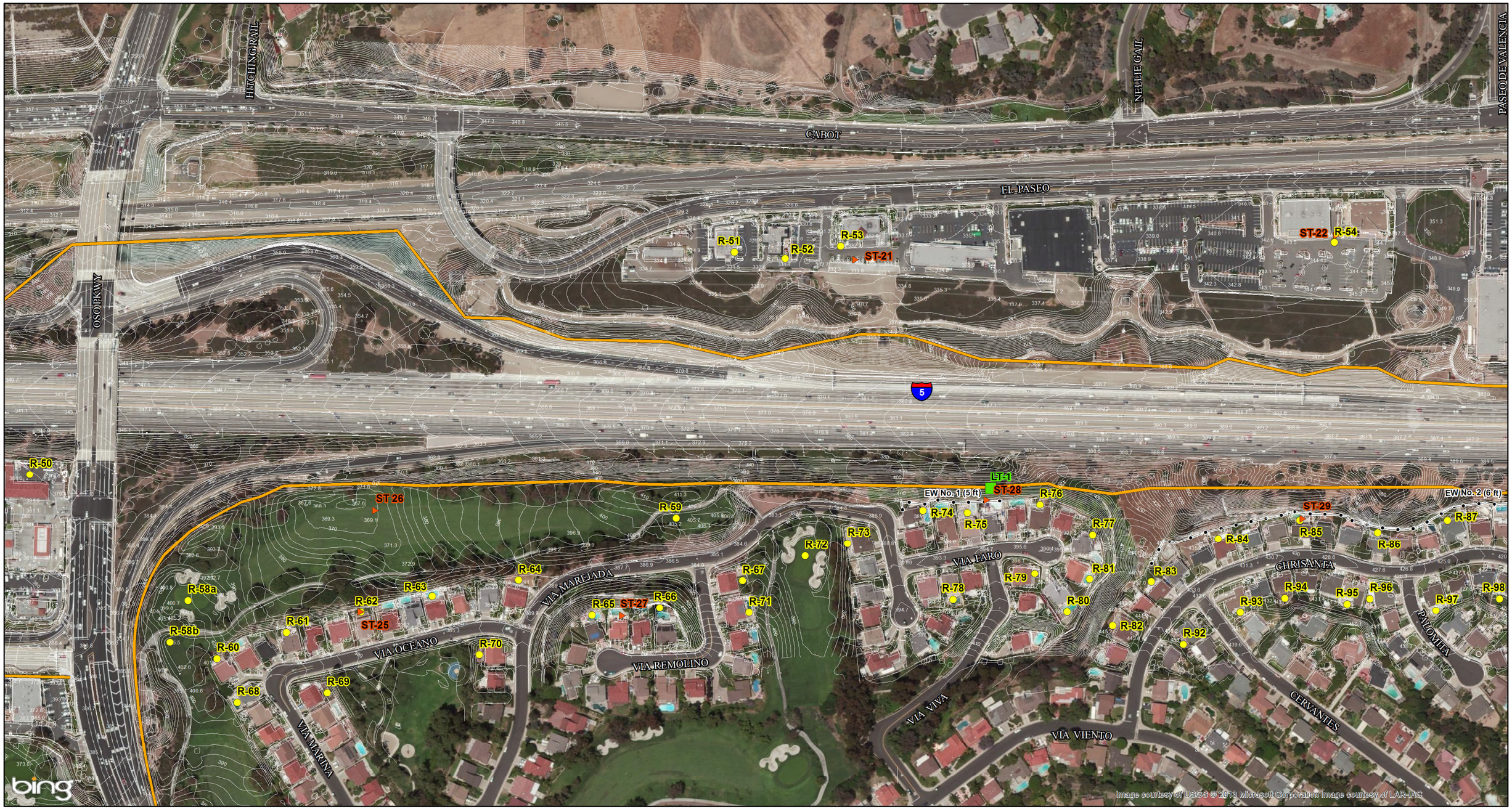

LEGEND

- Project Limits
- Existing Right-of-Way
- Existing Walls
- Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

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SOURCE: Bing Maps (c. 2009); Transystems (2012)

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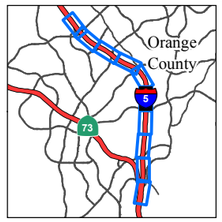

FIGURE 2.14-1
Sheet 5 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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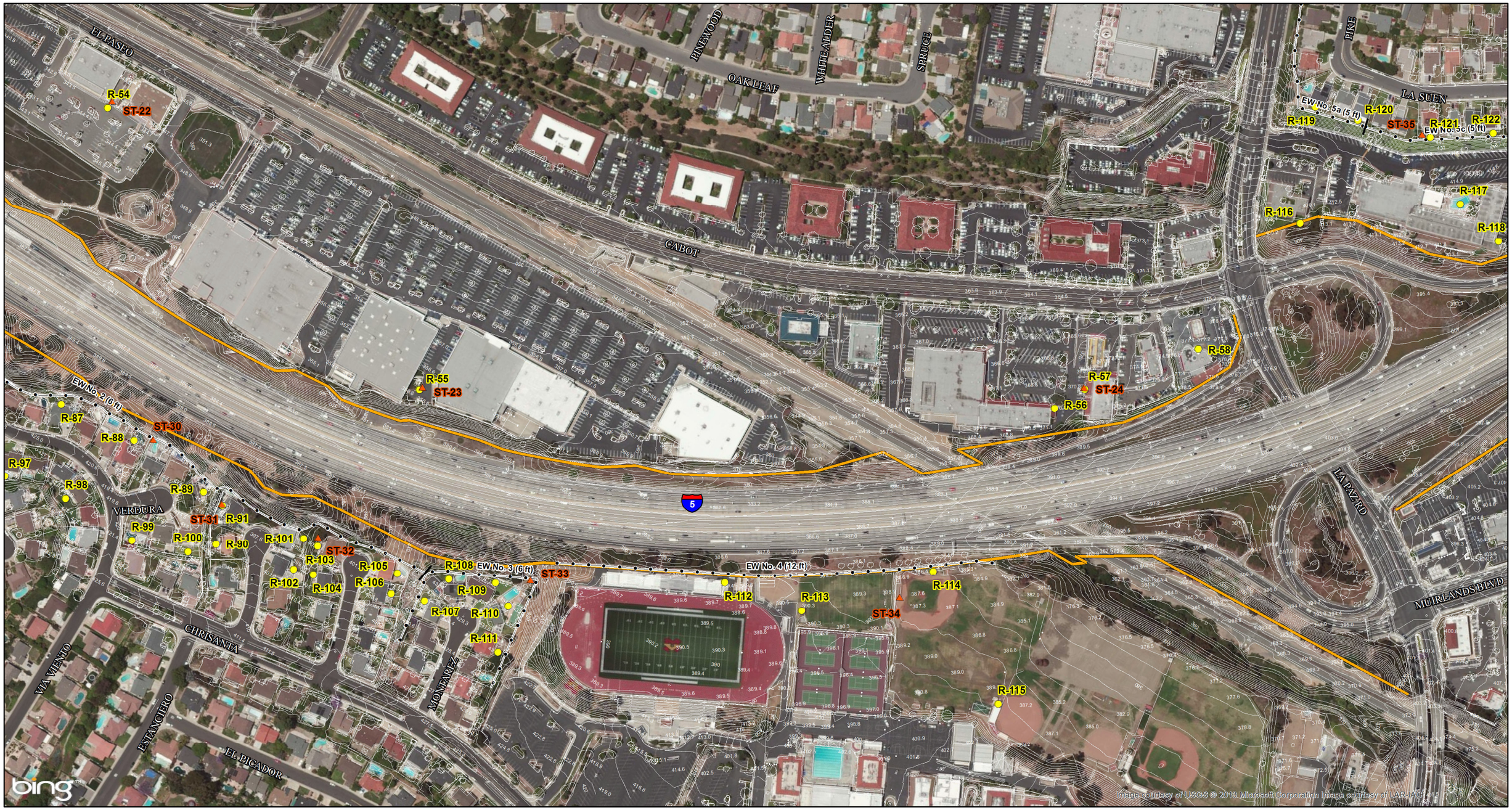

LEGEND

- Project Limits
- Existing Right-of-Way
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- Short-Term Monitoring Locations
- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

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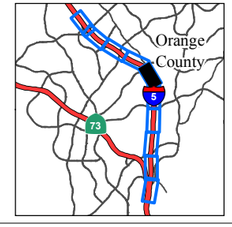

FIGURE 2.14-1
Sheet 6 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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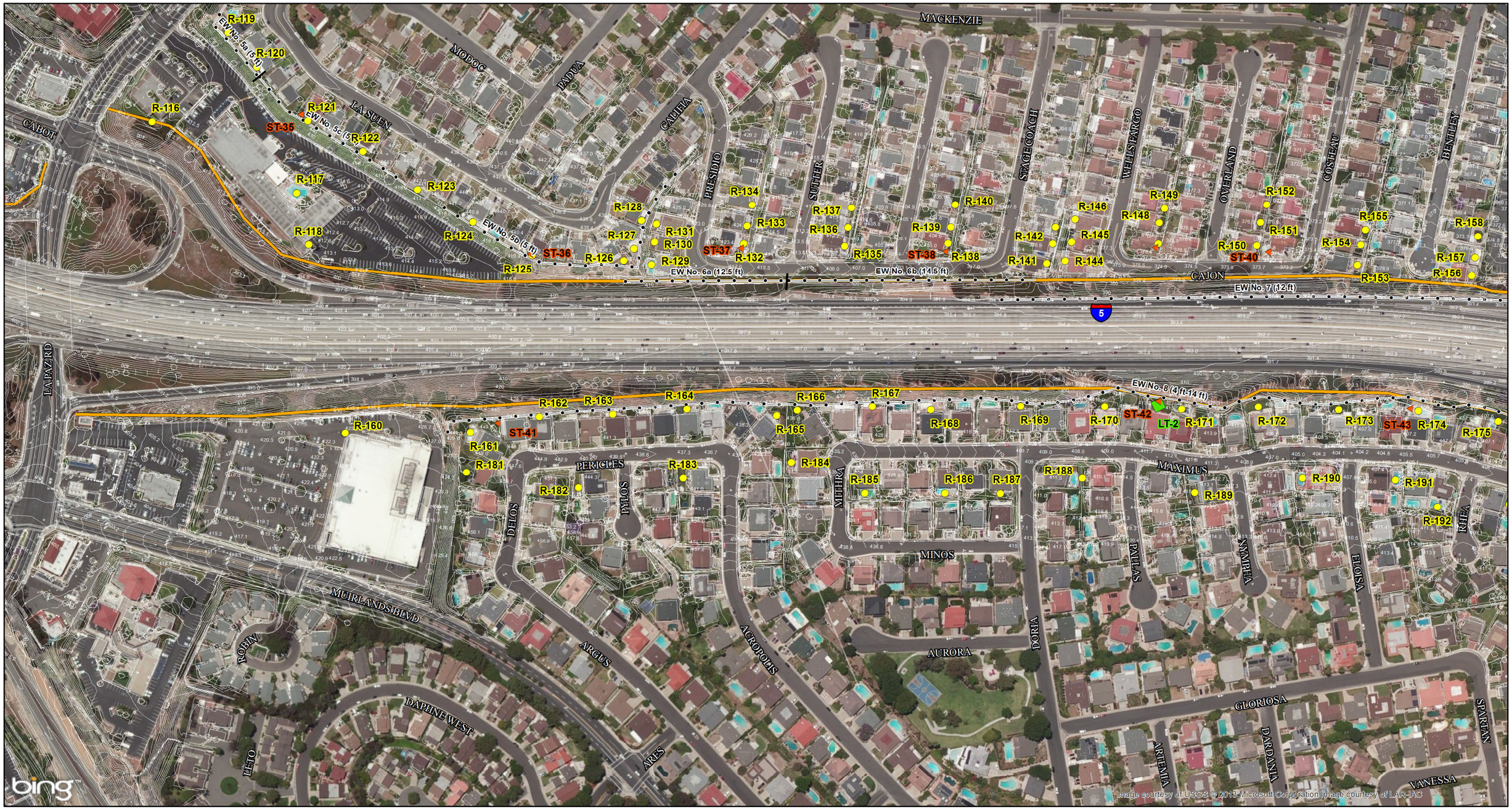

LEGEND

- Project Limits
- Existing Right-of-Way
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- Modeled Receptor Locations
- Long-Term 24-Hour Monitoring Locations

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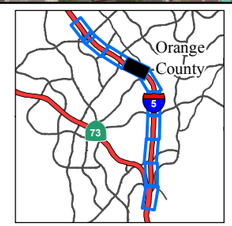

FIGURE 2.14-1
Sheet 7 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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LEGEND

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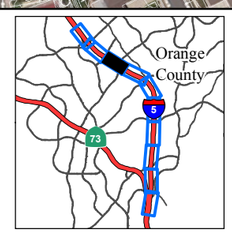

FIGURE 2.14-1
Sheet 8 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

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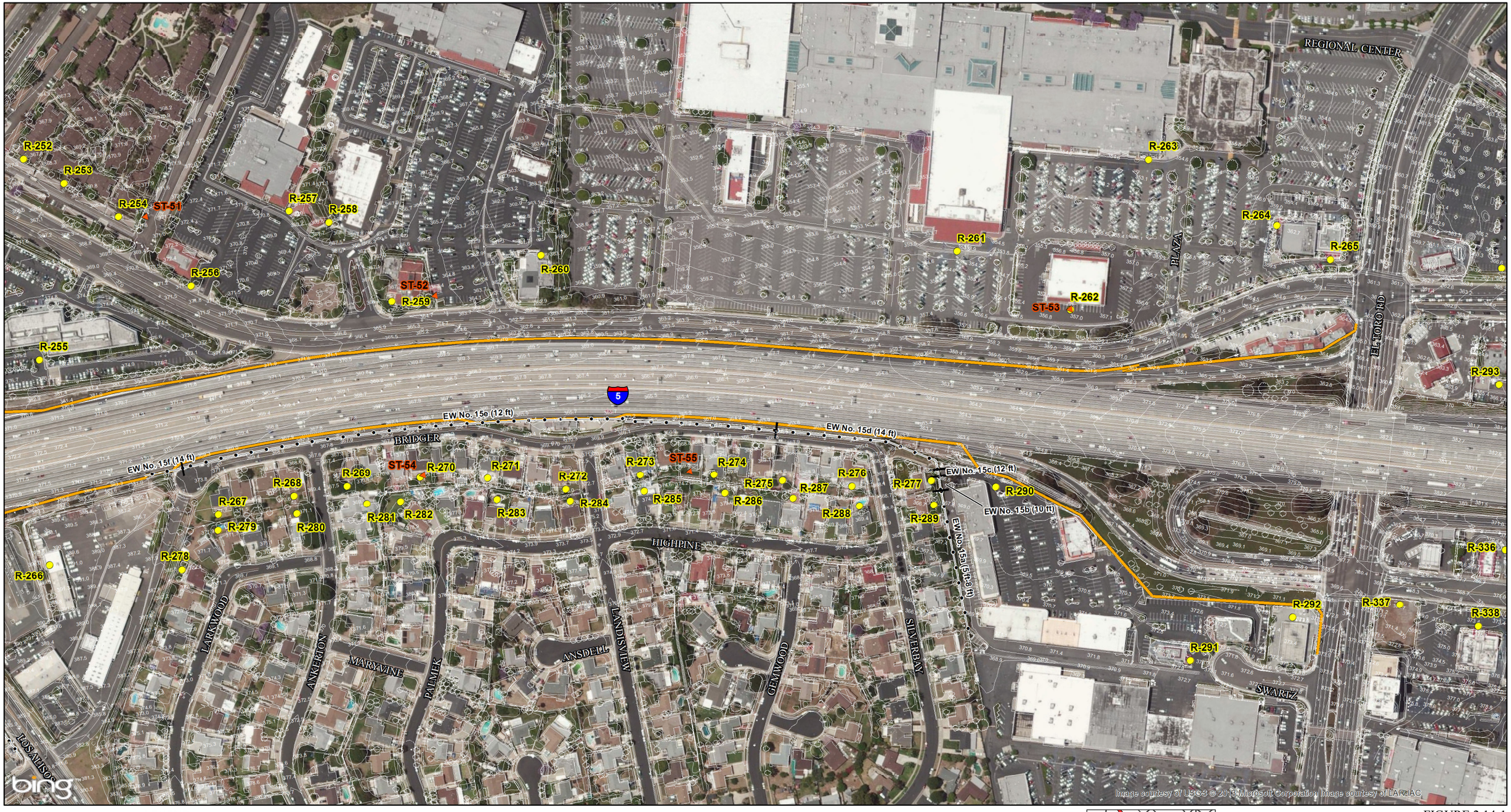

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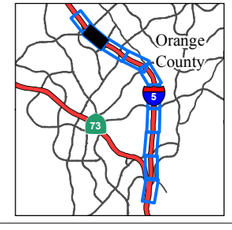

FIGURE 2.14-1
Sheet 9 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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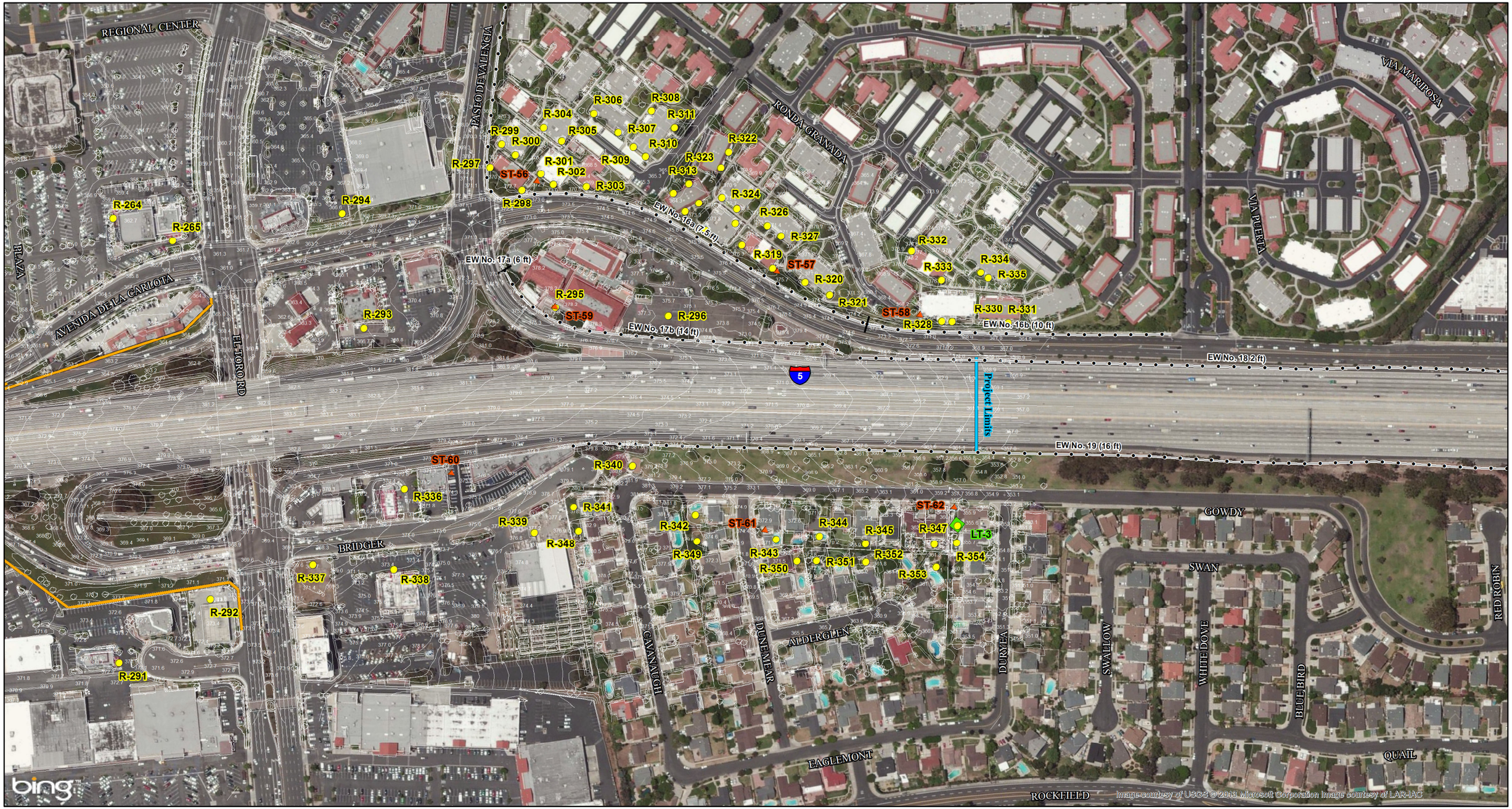

LEGEND

- Project Limits
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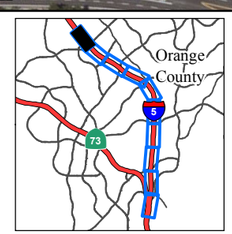

FIGURE 2.14-1
Sheet 10 of 10

I-5 Widening Project: SR-73 to El Toro Road

Monitoring and Modeled Receptor Locations

12-ORA-5 PM 12.4/18.9
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Long-Term Monitoring

The purpose of long-term monitoring is to gather sound level data over a 24-hour period to find the noisiest hour for traffic and describe sound levels throughout the day rather than absolute levels at a specific receptor location. Long-term ambient noise monitoring was conducted using a Larson Davis Model 820 Type 1 sound level meter (Serial No. 1584) at three different locations on three different days.

All long-term noise monitoring locations (LT-1, LT-2, and LT-3) are shown on Figure 2.14-1, and the monitoring results are summarized in Tables 2.14-4, 2.14-5, and 2.14-6.

Table 2.14-4 shows that traffic noise peaks on the first day during the 4:00 p.m. to 6:00 p.m. hour and 6:00 a.m. to 7:00 a.m. hour. Table 2.14-5 shows that traffic noise peaks on the second day during the 3:00 p.m. to 5:00 p.m. hour and the 8:00 a.m. to 10:00 a.m. hour. Table 2.14-6 shows that traffic noise peaks on the third day during the 2:00 p.m. to 3:00 p.m. hour and the 7:00 a.m. to 8:00 a.m. hour.

2.14.2.3 Existing Noise Levels

Traffic volume counts and vehicle speeds measured during the ambient noise monitoring were coded into Traffic Noise Model (TNM) 2.5 with existing roadway conditions to calibrate the modeling result. The results of the existing traffic noise modeling are shown in Table 2.14-7. Currently, of the 357 modeled receptor locations, 51 receptors approach or exceed the NAC. Figure 2.14.1 shows the locations of the modeled receptors.

2.14.3 Environmental Consequences

The proposed project is considered a Type 1 project because it would add through traffic lanes and auxiliary lanes on I-5 within the project area. A noise analysis is required for all Type 1 projects. Therefore, noise impacts of the Build Alternatives are analyzed below.

2.14.3.1 Temporary Impacts

No Build Alternative – Alternative 1

The No Build Alternative would not result in the construction of improvements within the Study Area and therefore would not result in temporary noise effects.

Build Alternatives – Alternative 2 (Preferred Alternative) and Alternative 3

Two types of short-term noise effects would occur during construction of the Build Alternatives. The first type would be from construction crew commutes and the transport of construction equipment and materials to the Study Area and would incrementally raise noise levels on access roads leading to the site. The pieces of heavy equipment for grading and construction activities would be moved on site, would remain for the

Table 2.14-4 Long-Term 24-Hour Traffic Noise Level Measurement Results at 25881 Via Faro, Mission Viejo (LT-1)

	Start Time	Date	Noise Level (dBA L_{eq})
1	10:00 AM	7/11/2012	79.0
2	11:00 AM	7/11/2012	78.8
3	12:00 PM	7/11/2012	78.6
4	1:00 PM	7/11/2012	78.6
5	2:00 PM	7/11/2012	76.9
6	3:00 PM	7/11/2012	78.7
7	4:00 PM	7/11/2012	79.0
8	5:00 PM	7/11/2012	79.0
9	6:00 PM	7/11/2012	78.7
10	7:00 PM	7/11/2012	78.6
11	8:00 PM	7/11/2012	78.1
12	9:00 PM	7/11/2012	77.7
13	10:00 PM	7/11/2012	76.8
14	11:00 PM	7/11/2012	75.6
15	12:00 AM	7/12/2012	73.5
16	1:00 AM	7/12/2012	72.2
17	2:00 AM	7/12/2012	71.4
18	3:00 AM	7/12/2012	71.0
19	4:00 AM	7/12/2012	73.8
20	5:00 AM	7/12/2012	77.4
21	6:00 AM	7/12/2012	**79.6**[1]
22	7:00 AM	7/12/2012	79.1
23	8:00 AM	7/12/2012	78.1
24	9:00 AM	7/12/2012	79.2

Source: LSA Associates, Inc., Noise Study Report (October 2012).
[1] Bold numbers represent peak traffic noise hour.
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

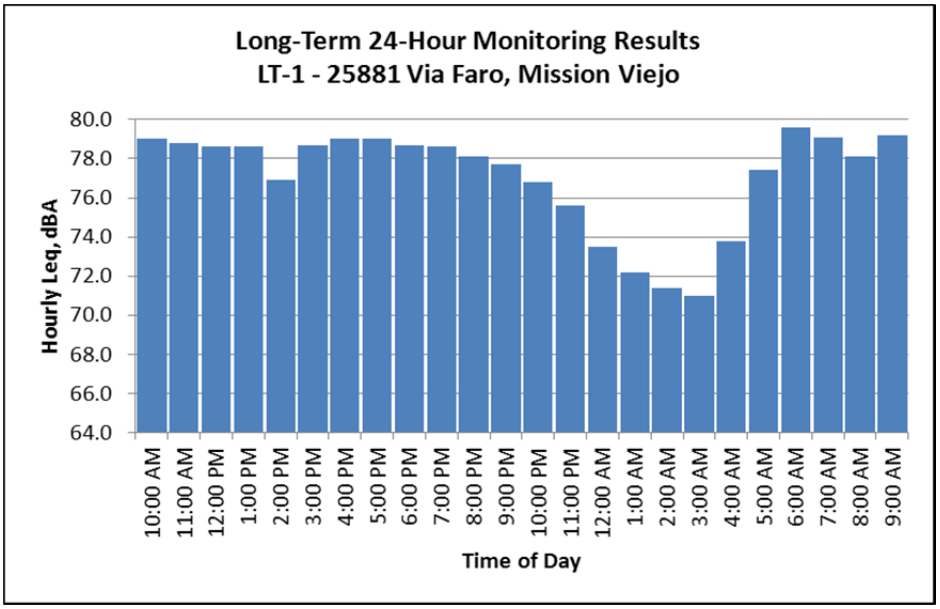

Table 2.14-5 Long-Term 24-Hour Traffic Noise Level Measurement Results at 25532 Maximus Street, Mission Viejo, California (LT-2)

	Start Time	Date	Noise Level (dBA L_{eq})
1	3:00 PM	7/16/2012	62.6
2	4:00 PM	7/16/2012	62.5
3	5:00 PM	7/16/2012	61.6
4	6:00 PM	7/16/2012	62.2
5	7:00 PM	7/16/2012	61.9
6	8:00 PM	7/16/2012	61.6
7	9:00 PM	7/16/2012	60.9
8	10:00 PM	7/16/2012	60.0
9	11:00 PM	7/16/2012	59.0
10	12:00 AM	7/17/2012	56.6
11	1:00 AM	7/17/2012	55.4
12	2:00 AM	7/17/2012	54.0
13	3:00 AM	7/17/2012	54.8
14	4:00 AM	7/17/2012	56.7
15	5:00 AM	7/17/2012	60.0
16	6:00 AM	7/17/2012	62.0
17	7:00 AM	7/17/2012	62.2
18	8:00 AM	7/17/2012	**62.5**[1]
19	9:00 AM	7/17/2012	**62.5**[1]
20	10:00 AM	7/17/2012	62.2
21	11:00 AM	7/17/2012	61.9
22	12:00 PM	7/17/2012	61.9
23	1:00 PM	7/17/2012	62.5
24	2:00 PM	7/17/2012	62.3

Source: LSA Associates, Inc., Noise Study Report, October 2012.
[1] Bold numbers represent peak traffic noise hour.
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

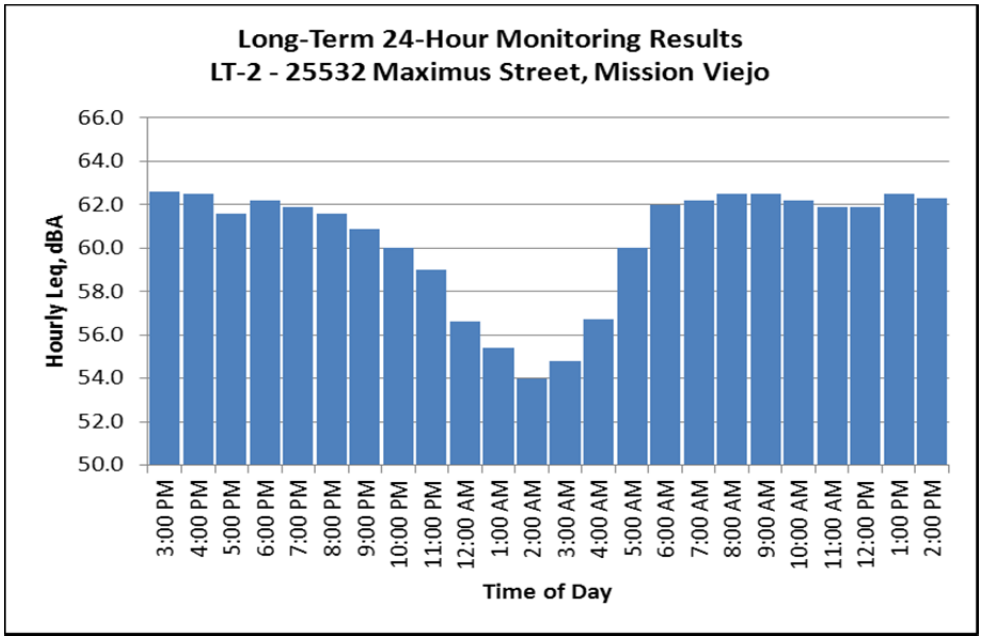

Table 2.14-6 Long-Term 24-Hour Traffic Noise Level Measurement Results at 23612 Duryea Drive, Lake Forest, California (LT-3)

	Start Time	Date	Noise Level (dBA L_{eq})
1	10:00 AM	7/18/2012	62.7
2	11:00 AM	7/18/2012	61.9
3	12:00 PM	7/18/2012	62.4
4	1:00 PM	7/18/2012	62.9
5	2:00 PM	7/18/2012	**65.3**[1]
6	3:00 PM	7/18/2012	62.7
7	4:00 PM	7/18/2012	63.0
8	5:00 PM	7/18/2012	62.2
9	6:00 PM	7/18/2012	62.5
10	7:00 PM	7/18/2012	62.4
11	8:00 PM	7/18/2012	61.7
12	9:00 PM	7/18/2012	61.0
13	10:00 PM	7/18/2012	60.2
14	11:00 PM	7/18/2012	59.1
15	12:00 AM	7/19/2012	56.6
16	1:00 AM	7/19/2012	55.2
17	2:00 AM	7/19/2012	53.9
18	3:00 AM	7/19/2012	53.7
19	4:00 AM	7/19/2012	56.1
20	5:00 AM	7/19/2012	60.5
21	6:00 AM	7/19/2012	61.8
22	7:00 AM	7/19/2012	62.2
23	8:00 AM	7/19/2012	61.2
24	9:00 AM	7/19/2012	61.2

Source: LSA Associates, Inc., Noise Study Report, October 2012.
[1] Bold numbers represent peak traffic noise hour.
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels

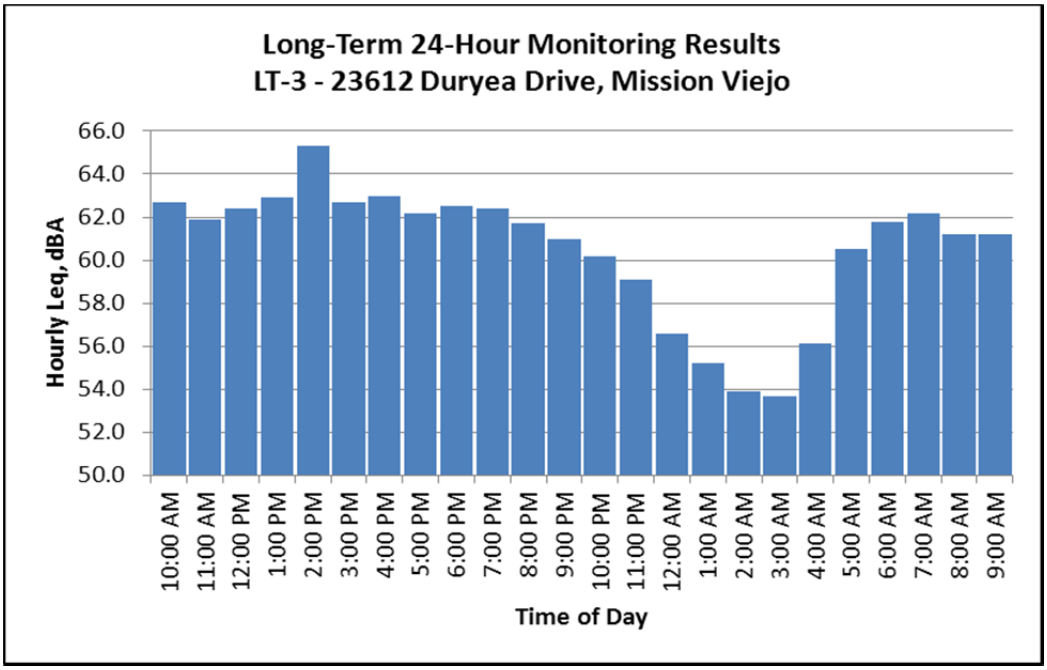

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-1	Camino Capistrano	Sports field	4[1]	C(67)	64.2
R-2	Camino Capistrano	Sports field	4[1]	C(67)	64.1
R-3	Camino Capistrano	Sports field	4[1]	C(67)	64.0
R-4	Camino Capistrano	Commercial	1	F[2]	70.3
R-5	Camino Capistrano	Commercial	1	F	70.9
R-6	Camino Capistrano	Restaurant	1	E(72)	**71.1**[3]
R-7	Camino Capistrano	Restaurant	1	E(72)[4]	70.5
R-8	Camino Capistrano	Restaurant	1	E(72)	70.3
R-9	Camino Capistrano	Commercial	1	F	72.8
R-10	Marguerite Parkway	Office	1	E(72)[4]	73.5
R-11	Marguerite Parkway	Commercial	1	F	75.7
R-12	Via Escolar	School	4[1]	C(67)	**72.6**
R-13	Via Escolar	School	3[1]	C(67)	**66.8**
R-14	Marguerite Parkway	Commercial	1	F	75.9
R-15	Marguerite Parkway	Commercial	1	F	75.1
R-16	Camino Capistrano	Commercial	1	F	72.4
R-17	Camino Capistrano	Commercial	1	F	70.5
R-18	Camino Capistrano	Commercial	1	F	68.5
R-19	Camino Capistrano	Commercial	1	F	67.6
R-20	Avery Parkway	Restaurant	1	E(72)	**74.6**
R-21	Marguerite Parkway	Commercial	1	F	73.8
R-22	Marguerite Parkway	Commercial	1	F	73.5
R-23	Marguerite Parkway	Playground/School	10[1]	C(67)/D(52)	61.1/36.1[5]
R-24	Marguerite Parkway	Commercial	1	F	68.6
R-25	Marguerite Parkway	Commercial	1	F	61.1
R-26	Camino Capistrano	Industrial/Commercial	1	F	70.6
R-27	Camino Capistrano	Industrial	1	F	69.7
R-28	Camino Capistrano	Industrial	1	F	69.6
R-29	Puerta Real	Commercial	1	F	71.1
R-30	Puerta Real	Restaurant	1	E(72)	59.3
R-31	Puerta Real	Office	1	E(72)	**72.2**
R-32	Via Grande	Residential	1	B(67)	61.0
R-33	Via Grande	Residential	2	B(67)	57.0
R-34	Via Grande	Residential	3	B(67)	54.9
R-35	Via Grande	Residential	3	B(67)	53.4
R-36	Via Grande	Residential	1	B(67)	50.7
R-37	Mallorca Lane	Residential	2	B(67)	61.0
R-38	Mallorca Lane	Residential	3	B(67)	60.9
R-39	Mallorca Lane	Residential	2	B(67)	59.7
R-40	Via Grande	Residential	2	B(67)	**68.1**
R-41	Via Grande	Residential	2	B(67)	**71.0**
R-42	Via Grande	Residential	1	B(67)	64.8
R-43	Hole 7 Green	Golf course	5[4]	C(67)	58.9
R-44	Hole 5 Green	Golf course	2[4]	C(67)	**71.9**
R-45	Hole 4 Green	Golf course	5[4]	C(67)	**72.4**
R-46	Hole 2 Green	Golf course	1[4]	C(67)	61.3
R-47	Hole 3 Green	Golf course	4[1]	C(67)	**66.5**
R-47a	Hole 3 Green	Golf course	4[1]	C(67)	**71.3**
R-48	Oso Parkway	Hotel	1	E(72)	67.7
R-49	Oso Parkway	Hotel	1	E(72)[4]/D(52)	69.6/39.6[6]
R-50	Oso Parkway	Commercial	1	F	72.0
R-51	El Paseo	Restaurant	1	E(72)	59.3

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-52	El Paseo	Restaurant	1	E(72)	59.4
R-53	El Paseo	Restaurant	1	E(72)	60.3
R-54	El Paseo	Commercial	1	F	64.2
R-55	El Paseo	Commercial	1	F	65.2
R-56	Cabot Road	Restaurant	1	E(72)	64.8
R-57	Cabot Road	Restaurant	1	E(72)	64.3
R-58	Cabot Road	Restaurant	1	E(72)	67.4
R-58a	Hole 17 Green	Golf course	4[1]	C(67)	65.9
R-58b	Hole 18 Tee Box	Golf course	4[1]	C(67)	**70.4**
R-59	Hole 17 Tee Box	Golf course	5[1]	C(67)	**67.3**
R-60	Via Oceano	Residential	2	B(67)	63.8
R-61	Via Oceano	Residential	3	B(67)	64.8
R-62	Via Oceano	Residential	3	B(67)	64.3
R-63	Via Oceano	Residential	3	B(67)	63.9
R-64	Via Oceano	Residential	2	B(67)	62.6
R-65	Via Marejada	Residential	3	B(67)	65.9
R-66	Via Marejada	Residential	2	B(67)	64.1
R-67	Via Remolino	Residential	1	B(67)	60.2
R-68	Via Oceano	Residential	2	B(67)	63.8
R-69	Via Oceano	Residential	2	B(67)	57.2
R-70	Via Marejada	Residential	2	B(67)	60.4
R-71	Via Remolino	Residential	2	B(67)	59.5
R-72	Hole 16 Tee Box	Golf course	3[1]	C(67)	56.6
R-73	Via Marejada	Residential	2	B(67)	57.9
R-74	Via Faro	Residential	2	B(67)	60.4
R-75	Via Faro	Residential	3	B(67)	62.1
R-76	Via Faro	Residential	3	B(67)	62.6
R-77	Via Faro	Residential	1	B(67)	58.1
R-78	Via Faro	Residential	3	B(67)	56.5
R-79	Via Faro	Residential	2	B(67)	58.8
R-80	Via Faro	Residential	1	B(67)	56.1
R-81	Via Faro	Residential	1	B(67)	57.2
R-82	Chrisanta Drive	Residential	2	B(67)	**67.3**
R-83	Chrisanta Drive	Residential	3	B(67)	64.0
R-84	Chrisanta Drive	Residential	3	B(67)	**67.5**
R-85	Chrisanta Drive	Residential	3	B(67)	**69.3**
R-86	Chrisanta Drive	Residential	3	B(67)	**68.9**
R-87	Chrisanta Drive	Residential	3	B(67)	64.2
R-88	Chrisanta Drive	Residential	3	B(67)	**67.7**
R-89	Verdura Circle	Residential	2	B(67)	**69.5**
R-90	Esmeralda Circle	Residential	1	B(67)	61.9
R-91	Esmeralda Circle	Residential	1	B(67)	**66.5**
R-92	Cervantes Lane	Residential	2	B(67)	59.6
R-93	Chrisanta Drive	Residential	1	B(67)	59.9
R-94	Chrisanta Drive	Residential	3	B(67)	59.5
R-95	Chrisanta Drive	Residential	2	B(67)	58.9
R-96	Chrisanta Drive	Residential	2	B(67)	60.8
R-97	Chrisanta Drive	Residential	2	B(67)	57.8
R-98	Chrisanta Drive	Residential	3	B(67)	55.4
R-99	Verdura Circle	Residential	1	B(67)	59.6
R-100	Verdura Circle	Residential	2	B(67)	65.2
R-101	Esmeralda Circle	Residential	1	B(67)	64.6
R-102	Esmeralda Circle	Residential	1	B(67)	60.7
R-103	Turquesa Circle	Residential	1	B(67)	**66.5**
R-104	Turquesa Circle	Residential	1	B(67)	62.5
R-105	Turquesa Circle	Residential	1	B(67)	61.5

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-106	Turquesa Circle	Residential	2	B(67)	57.3
R-107	Montarez Circle	Residential	1	B(67)	65.4
R-108	Montarez Circle	Residential	1	B(67)	**66.6**
R-109	Montarez Circle	Residential	1	B(67)	**68.1**
R-110	Montarez Circle	Residential	1	B(67)	65.4
R-111	Montarez Circle	Residential	1	B(67)	61.2
R-112	Chrisanta Drive	School	5[1]	C(67)	**67.7**
R-113	Chrisanta Drive	School	4[1]	C(67)	**67.9**
R-114	Chrisanta Drive	School	5[1]	C(67)	**67.2**
R-115	Chrisanta Drive	School	1[1]	C(67)	**66.2**
R-116	La Paz Road	Office	1	E(72)[4]	71.3
R-117	La Paz Road	Hotel	1	E(72)	56.1
R-118	La Paz Road	Hotel	1	E(72)[4]/D(52)	75.1/48.1[7]
R-119	La Suen Road	Residential	1	B(67)	61.8
R-120	La Suen Road	Residential	3	B(67)	60.9
R-121	La Suen Road	Residential	3	B(67)	59.3
R-122	La Suen Road	Residential	3	B(67)	62.9
R-123	La Suen Road	Residential	3	B(67)	**72.0**
R-124	La Suen Road	Residential	3	B(67)	**68.5**
R-125	La Suen Road	Residential	3	B(67)	**72.3**
R-126	La Suen Road	Residential	2	B(67)	**68.1**
R-127	La Suen Road	Residential	1	B(67)	64.7
R-128	La Suen Road	Residential	1	B(67)	60.2
R-129	Presidio Drive	Residential	1	B(67)	65.7
R-130	Presidio Drive	Residential	1	B(67)	57.4
R-131	Presidio Drive	Residential	1	B(67)	55.3
R-132	Presidio Drive	Residential	2	B(67)	63.1
R-133	Presidio Drive	Residential	2	B(67)	60.6
R-134	Presidio Drive	Residential	2	B(67)	59.2
R-135	Sutter Drive	Residential	2	B(67)	**66.0**
R-136	Sutter Drive	Residential	2	B(67)	63.6
R-137	Sutter Drive	Residential	2	B(67)	61.8
R-138	Express Drive	Residential	2	B(67)	64.8
R-139	Express Drive	Residential	2	B(67)	62.6
R-140	Express Drive	Residential	2	B(67)	62.5
R-141	Stagecoach Drive	Residential	1	B(67)	**67.6**
R-142	Stagecoach Drive	Residential	1	B(67)	**66.4**
R-143	Stagecoach Drive	Residential	1	B(67)	**66.4**
R-144	Wells Fargo Drive	Residential	1	B(67)	61.1
R-145	Wells Fargo Drive	Residential	1	B(67)	59.9
R-146	Wells Fargo Drive	Residential	1	B(67)	58.2
R-147	Wells Fargo Drive	Residential	2	B(67)	61.8
R-148	Wells Fargo Drive	Residential	2	B(67)	59.9
R-149	Wells Fargo Drive	Residential	2	B(67)	59.1
R-150	Overland Drive	Residential	2	B(67)	63.5
R-151	Overland Drive	Residential	2	B(67)	61.4
R-152	Overland Drive	Residential	2	B(67)	60.5
R-153	Costeau Street	Residential	2	B(67)	63.7
R-154	Costeau Street	Residential	2	B(67)	62.3
R-155	Costeau Street	Residential	2	B(67)	61.4
R-156	Bently	Residential	1	B(67)	63.6
R-157	Bently	Residential	1	B(67)	62.9
R-158	Bently	Residential	1	B(67)	62.4
R-159	Paseo De Alicia	Office	1	E(72)[4]	64.2
R-160	Muirlands Drive	Commercial	1	F	67.1
R-161	Pericles Street	Residential	1	B(67)	65.1

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-162	Pericles Street	Residential	3	B(67)	63.4
R-163	Pericles Street	Residential	3	B(67)	65.4
R-164	Pericles Street	Residential	3	B(67)	65.7
R-165	Pericles Street	Residential	2	B(67)	**66.9**
R-166	Maximus Street	Residential	1	B(67)	65.6
R-167	Maximus Street	Residential	2	B(67)	61.8
R-168	Maximus Street	Residential	3	B(67)	63.7
R-169	Maximus Street	Residential	3	B(67)	61.9
R-170	Maximus Street	Residential	3	B(67)	63.9
R-171	Maximus Street	Residential	3	B(67)	63.9
R-172	Maximus Street	Residential	3	B(67)	63.9
R-173	Maximus Street	Residential	3	B(67)	64.1
R-174	Maximus Street	Residential	3	B(67)	65.0
R-175	Maximus Street	Residential	3	B(67)	**68.4**
R-176	Maximus Street	Residential	3	B(67)	**68.2**
R-177	Maximus Street	Playground	2[1]	C(67)	64.9
R-178	Maximus Street	Residential	3	B(67)	**66.6**
R-179	Maximus Street	Residential	2	B(67)	62.9
R-180	Alicia Parkway	Commercial	1	F	69.0
R-181	Delos Avenue	Residential	2	B(67)	**68.5**
R-182	Rylos Way	Residential	2	B(67)	60.2
R-183	Acropolis Drive	Residential	2	B(67)	60.3
R-184	Maximus Street	Residential	2	B(67)	61.5
R-185	Maximus Street	Residential	2	B(67)	55.0
R-186	Maximus Street	Residential	2	B(67)	54.5
R-187	Maximus Street	Residential	2	B(67)	55.3
R-188	Pallas Way	Residential	2	B(67)	58.1
R-189	Nympha Drive	Residential	2	B(67)	57.4
R-190	Eloisa Drive	Residential	2	B(67)	59.8
R-191	Eloisa Drive	Residential	2	B(67)	60.6
R-192	Rhea Drive	Residential	2	B(67)	59.9
R-193	Rhea Drive	Residential	2	B(67)	62.1
R-194	Saturna Drive	Residential	2	B(67)	56.8
R-195	Saturna Drive	Residential	2	B(67)	60.1
R-196	Maximus Street	Residential	3	B(67)	56.8
R-197	Maximus Street	Residential	1	B(67)	60.7
R-198	Alicia Parkway	Commercial	1	F	66.5
R-199	Alicia Parkway	Commercial	1	F	58.0
R-200	Alicia Parkway	Commercial	1	F	67.8
R-201	Katie Avenue	Residential	2	B(67)	60.3
R-202	Katie Avenue	Residential	2	B(67)	60.3
R-203	Katie Avenue	Residential	2	B(67)	59.5
R-204	Carol Lane	Residential	2	B(67)	60.2
R-205	Carol Lane	Residential	2	B(67)	59.8
R-206	Carol Lane	Residential	2	B(67)	58.9
R-207	Sara Lane	Residential	2	B(67)	61.1
R-208	Sara Lane	Residential	2	B(67)	60.3
R-209	Sara Lane	Residential	2	B(67)	59.4
R-210	Georgia Sue	Residential	1	B(67)	62.0
R-211	Georgia Sue	Residential	1	B(67)	61.2
R-212	Georgia Sue	Residential	1	B(67)	60.4
R-213	Georgia Sue	Residential	1	B(67)	59.7
R-214	Georgia Sue	Residential	1	B(67)	57.7
R-215	Georgia Sue	Residential	1	B(67)	59.3
R-216	Aliso Creekway Bike Way	Trail	1	C(67)[4]	71.1
R-217	Christina Court	Residential	2	B(67)	65.3

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-218	Christina Court	Residential	1	B(67)	60.4
R-219	Christina Court	Residential	1	B(67)	61.1
R-220	Christina Court	Residential	1	B(67)	60.1
R-221	Christina Court	Residential	1	B(67)	59.5
R-222	Christina Court	Residential	1	B(67)	58.8
R-223	Christina Court	Residential	1	B(67)	55.2
R-224	Christina Court	Residential	1	B(67)	58.4
R-225	Alicia Parkway	Commercial	1	F	79.0
R-226	Charlinda Drive	Residential	2	B(67)	65.3
R-227	Charlinda Drive	Residential	2	B(67)	65.6
R-228	Charlinda Drive	Residential	2	B(67)	63.2
R-229	Charlinda Drive	Residential	2	B(67)	58.8
R-230	Charlinda Drive	Residential	2	B(67)	63.9
R-231	Charlinda Drive	Residential	2	B(67)	62.0
R-232	Charlinda Drive	Residential	2	B(67)	60.7
R-233	Charlinda Drive	Residential	2	B(67)	58.6
R-234	Charlinda Drive	Residential	2	B(67)	60.9
R-235	Charlinda Drive	Residential	2	B(67)	58.8
R-236	Charlinda Drive	Residential	2	B(67)	59.5
R-237	Charlinda Drive	Residential	2	B(67)	58.1
R-238	Charlinda Drive	Residential	2	B(67)	59.4
R-239	Charlinda Drive	Residential	2	B(67)	60.2
R-240	Stem Avenue	Residential	2	B(67)	**67.2**
R-241	Stem Avenue	Residential	3	B(67)	**69.3**
R-242	Stem Avenue	Residential	2	B(67)	**67.9**
R-243	Stem Avenue	Residential	1	B(67)	65.1
R-244	Fordview Street	Residential	1	B(67)	**69.8**
R-245	Fordview Street	Residential	2	B(67)	**69.3**
R-246	Stem Avenue	Residential	1	B(67)	64.7
R-247	Stem Avenue	Residential	2	B(67)	63.1
R-248	Stem Avenue	Residential	2	B(67)	61.0
R-249	Stem Avenue	Residential	2	B(67)	63.7
R-250	Fordview Street	Residential	1	B(67)	65.8
R-251	Fordview Street	Residential	1	B(67)	62.9
R-252	Avenida De La Carlota	Residential	4	B(67)	59.8
R-253	Avenida De La Carlota	Residential	4	B(67)	61.2
R-254	Avenida De La Carlota	Residential	4	B(67)	61.0
R-255	Avenida De La Carlota	Office	1	E(72)[4]	72.3
R-256	Avenida De La Carlota	Commercial	1	F	70.8
R-257	Avenida De La Carlota	Commercial	1	E(72)	65.2
R-258	Avenida De La Carlota	Commercial	1	E(72)	65.9
R-259	Avenida De La Carlota	Commercial	1	E(72)	65.2
R-260	Avenida De La Carlota	Commercial	1	E(72)	68.7
R-261	Avenida De La Carlota	Commercial	1	E(72)	68.2
R-262	Avenida De La Carlota	Commercial	1	F	72.6
R-263	Avenida De La Carlota	Commercial	1	E(72)	63.6
R-264	Avenida De La Carlota	Commercial	1	E(72)	65.3
R-265	Avenida De La Carlota	Commercial	1	E(72)	**71.9**
R-266	Bridger Road	Utility Facility	1	F	69.6
R-267	Bridger Road	Residential	2	B(67)	64.1
R-268	Bridger Road	Residential	2	B(67)	62.8
R-269	Bridger Road	Residential	2	B(67)	62.6
R-270	Bridger Road	Residential	3	B(67)	61.0
R-271	Bridger Road	Residential	3	B(67)	60.0
R-272	Bridger Road	Residential	2	B(67)	63.7
R-273	Bridger Road	Residential	3	B(67)	61.4

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-274	Bridger Road	Residential	3	B(67)	61.7
R-275	Bridger Road	Residential	3	B(67)	62.1
R-276	Bridger Road	Residential	2	B(67)	64.2
R-277	Silverbay Drive	Residential	1	B(67)	**67.0**
R-278	Larkwood Lane	Residential	1	B(67)	60.8
R-279	Larkwood Lane	Residential	3	B(67)	62.6
R-280	Larkwood Lane	Residential	2	B(67)	61.9
R-281	Ankerton Drive	Residential	2	B(67)	61.2
R-282	Highpine Road	Residential	2	B(67)	62.3
R-283	Highpine Road	Residential	3	B(67)	61.0
R-284	Highpine Road	Residential	2	B(67)	63.6
R-285	Highpine Road	Residential	3	B(67)	63.1
R-286	Highpine Road	Residential	3	B(67)	63.1
R-287	Highpine Road	Residential	3	B(67)	63.0
R-288	Highpine Road	Residential	2	B(67)	64.2
R-289	Silverbay Drive	Residential	2	B(67)	**66.5**
R-290	Swartz Drive	Commercial	1	F	78.3
R-291	Swartz Drive	Restaurant	1	E(72)	66.5
R-292	Swartz Drive	Commercial	1	F	70.3
R-293	Avenida De La Carlota	Commercial	1	F	74.8
R-294	Avenida De La Carlota	Commercial	1	F	68.2
R-295	Avenida De La Carlota	School	5[1]	C(67)/D(52)	**69.5/**44.5[5]
R-296	Avenida De La Carlota	School	5[1]	C(67)	**71.0**
R-297	El Toro Road	Residential	1	B(67)	57.2
R-298	El Toro Road	Residential	1	B(67)	58.5
R-299	El Toro Road	Residential	1	B(67)	54.6
R-300	El Toro Road	Residential	1	B(67)	58.1
R-301	El Toro Road	Residential	1	B(67)	54.7
R-302	El Toro Road	Residential	1	B(67)	56.8
R-303	El Toro Road	Residential	1	B(67)	56.2
R-304	El Toro Road	Residential	1	B(67)	52.1
R-305	El Toro Road	Residential	1	B(67)	52.8
R-306	El Toro Road	Residential	1	B(67)	50.6
R-307	El Toro Road	Residential	1	B(67)	51.4
R-308	El Toro Road	Residential	1	B(67)	51.0
R-309	El Toro Road	Residential	1	B(67)	51.0
R-310	El Toro Road	Residential	1	B(67)	51.5
R-311	El Toro Road	Residential	1	B(67)	50.4
R-312	El Toro Road	Residential	2	B(67)	54.5
R-313	El Toro Road	Residential	2	B(67)	54.3
R-314	El Toro Road	Residential	1	B(67)	57.7
R-315	El Toro Road	Residential	1	B(67)	56.2
R-316	El Toro Road	Residential	1	B(67)	60.1
R-317	El Toro Road	Residential	1	B(67)	56.9
R-318	El Toro Road	Residential	1	B(67)	58.0
R-319	El Toro Road	Residential	1	B(67)	59.3
R-320	El Toro Road	Residential	1	B(67)	60.8
R-321	El Toro Road	Residential	1	B(67)	60.5
R-322	El Toro Road	Residential	2	B(67)	54.0
R-323	El Toro Road	Residential	2	B(67)	54.2
R-324	El Toro Road	Residential	2	B(67)	55.5
R-325	El Toro Road	Residential	2	B(67)	55.3
R-326	El Toro Road	Residential	2	B(67)	56.9
R-327	El Toro Road	Residential	2	B(67)	57.3
R-328	El Toro Road	Residential	2	B(67)	65.6
R-329	El Toro Road	Residential	2	B(67)	63.5

Table 2.14-7 Existing Traffic Noise Levels

Receptor No.	Location	Type of Land Use	No. of Units Represented	Noise Abatement Criteria	Existing (dBA L_{eq})
R-330	El Toro Road	Residential	1	B(67)	65.5
R-331	El Toro Road	Residential	1	B(67)	65.2
R-332	El Toro Road	Residential	1	B(67)	57.8
R-333	El Toro Road	Residential	1	B(67)	59.4
R-334	El Toro Road	Residential	2	B(67)	58.4
R-335	El Toro Road	Residential	2	B(67)	59.3
R-336	Bridger Road	Commercial	1	F	73.7
R-337	Bridger Road	Commercial	1	F	70.4
R-338	Bridger Road	Commercial	1	F	68.6
R-339	Bridger Road	Commercial	1	F	64.6
R-340	Gowdy Avenue	Playground	1	C(67)	**67.8**
R-341	Cavanaugh Road	Residential	1[1]	B(67)	61.3
R-342	Dune Mear Road	Residential	2	B(67)	62.4
R-343	Gowdy Avenue	Residential	1	B(67)	57.8
R-344	Gowdy Avenue	Residential	2	B(67)	56.1
R-345	Gowdy Avenue	Residential	3	B(67)	56.0
R-346	Gowdy Avenue	Residential	2	B(67)	60.6
R-347	Duryea Drive	Residential	1	B(67)	63.1
R-348	Cavanaugh Road	Residential	2	B(67)	62.8
R-349	Dune Mear Road	Residential	2	B(67)	60.8
R-350	Dune Mear Road	Residential	1	B(67)	58.3
R-351	Alderglen Drive	Residential	1	B(67)	57.0
R-352	Alderglen Drive	Residential	2	B(67)	56.2
R-353	Alderglen Drive	Residential	3	B(67)	60.6
R-354	Duryea Drive	Residential	1	B(67)	61.8

Source: LSA Associates, Inc., Noise Study Report (April 2013).

[1] Frontage units of 100 ft were used to determine the number of benefited units/receptors for nonresidential land uses.

[2] There is no NAC for land uses associated with Activity Category F. The highest expected noise level is provided for reporting purposes.

[3] Numbers in bold represent noise levels that approach or exceed the Noise Abatement Criteria.

[4] There are no outdoor frequent human use areas associated under this activity category. Therefore, the highest expected noise level is provided for reporting purposes.

[5] Exterior/interior noise level. The interior noise level was determined using a 25 dB exterior to interior noise level reduction for the classroom building. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the classroom building is masonry with single glazed windows.

[6] Exterior/interior noise level. The interior noise level was determined using a 30 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry with windows that would perform between single and double glazed windows.

[7] Exterior/interior noise level. The interior noise level was determined using a 27 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined based on the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry and the windows would perform a little better than single glazed windows.

dB = decibels
dBA L_{eq} = equivalent continuous noise level measured in A-weighted decibels
FHWA = Federal Highway Administration
ft = feet
NAC = Noise Abatement Criteria

duration of each construction phase, and would not add to the daily traffic volumes in the Study Area. A high single-event noise exposure potential at a maximum level of 87 dBA L_{max} from trucks passing at 50 ft would exist. However, the projected construction traffic would be minimal when compared to existing traffic volumes on I-5 and other affected streets, and its associated long-term noise level change would not be perceptible.

The second type of short-term noise effect is related to noise generated during roadway construction. Construction is performed in discrete steps, of which each has its own mix of equipment and consequently its own noise characteristics. These various sequential phases would change the character of the noise generated and the noise levels along the alignment of the Build Alternatives as construction progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow construction-related noise ranges to be categorized by work phase. Table 2.14-8 lists typical construction equipment noise levels (L_{max}) recommended for noise impact assessments, based on a distance of 50 ft between the equipment and a noise receptor.

Table 2.14-8 Typical Construction Equipment Noise Levels

Type of Equipment	Range of Maximum Sound Levels (dBA L_{max} at 50 ft)	Suggested Maximum Sound Levels for Analysis (dBA L_{max} at 50 ft)
Pile drivers	81–96	93
Rock drills	83–99	96
Jackhammers	75–85	82
Pneumatic tools	78–88	85
Pumps	74–84	80
Scrapers	83–91	87
Haul trucks	83–94	88
Cranes	79–86	82
Portable generators	71–87	80
Rollers	75–82	80
Dozers	77–90	85
Tractors	77–82	80
Front-end loaders	77–90	86
Hydraulic backhoe	81–90	86
Hydraulic excavators	81–90	86
Graders	79–89	86
Air compressors	76–89	86
Trucks	81–87	86

Source: Noise Control for Buildings and Manufacturing Plants (Bolt, Beranek & Newman, 1987).
dBA = A-weighted decibels
ft = feet
L_{max} = maximum instantaneous sound level

Typical noise levels at 50 ft from an active construction area range up to 91 dBA L_{max} during the noisiest construction phases. The site preparation phase, which includes grading and paving, tends to generate the highest noise levels because the noisiest construction equipment is earthmoving equipment. Earthmoving equipment includes excavating machinery such as backfillers, bulldozers, and front loaders. Earthmoving and compacting equipment includes compactors, scrapers, and graders. Typical operating cycles for these types of construction equipment may involve 1 or 2 minutes of full power operation followed by 3 or 4 minutes at lower power settings.

Construction of the Build Alternatives is expected to require the use of earthmovers, bulldozers, water trucks, and pickup trucks. Noise associated with the use of construction equipment is estimated to be between 79 and 89 dBA L_{max} at a distance of 50 ft from the active construction area for the grading phase. As seen in Table 2.14-8, the maximum noise level generated by each earthmover is assumed to be approximately 86 dBA L_{max} at 50 ft from the earthmover in operation. Each bulldozer would generate approximately 85 dBA L_{max} at 50 ft. The maximum noise level generated by water trucks and pickup trucks is approximately 86 dBA L_{max} at 50 ft from these vehicles. Each doubling of the sound source with equal strength increases the noise level by 3 dBA. Each piece of construction equipment operates as an individual point source. The worst-case composite noise level at the nearest residence during this phase of construction would be 91 dBA L_{max} (at a distance of 50 ft from an active construction area).

2.14.3.2 Permanent Impacts

Potential long-term noise impacts associated with project operations are solely from traffic noise. Traffic noise was evaluated for the worst-case traffic condition. Using coordinates obtained from topographic maps, 357 receptor locations associated with existing single-family and multifamily residences, hotels, church/school, two high schools, golf courses, a sports field, a park, a trail, an office, and commercial, industrial, and utility uses were evaluated in the model.

No Build Alternative – Alternative 1

Potential long-term noise effects under the No Build Alternative would be solely from traffic noise. Future No Build noise levels are shown in Table 2.14-9. Of the 357 modeled receiver locations, 54 receivers would continue to approach or exceed the NAC under the future No Build condition.

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-1	Camino Capistrano	C(67)	64.2	64.8	64.5	0.3	64.6	0.4
R-2	Camino Capistrano	C(67)	64.1	64.7	64.4	0.3	64.5	0.4
R-3	Camino Capistrano	C(67)	64.0	64.6	64.4	0.4	64.4	0.4
R-4	Camino Capistrano	F[1]	70.3	70.9	70.8	0.5	70.8	0.5
R-5	Camino Capistrano	F	70.9	71.5	71.3	0.4	71.3	0.4
R-6	Camino Capistrano	E(72)	**71.1**[2]	**71.9**	**71.6**	0.5	**71.5**	0.4
R-7	Camino Capistrano	E(72)[3]	70.5	71.2	70.3	-0.2	70.3	-0.2
R-8	Camino Capistrano	E(72)	70.3	**71.8**	**71.5**	1.2	**71.2**	0.9
R-9	Camino Capistrano	F	72.8	73.6	--[4]	--	--	--
R-10	Marguerite Parkway	E(72)[3]	73.5	74.2	74.0	0.5	74.1	0.6
R-11	Marguerite Parkway	F	75.7	76.5	76.7	1.0	76.7	1.0
R-12	Via Escolar	C(67)	**72.6**	**73.2**	**73.4**	0.8	**73.4**	0.8
R-13	Via Escolar	C(67)	**66.8**	**67.5**	**67.4**	0.6	**67.3**	0.5
R-14	Marguerite Parkway	F	75.9	76.7	76.7	0.8	76.7	0.8
R-15	Marguerite Parkway	F	75.1	75.9	76.7	1.6	76.7	1.6
R-16	Camino Capistrano	F	72.4	73.1	72.5	0.1	72.7	0.3
R-17	Camino Capistrano	F	70.5	71.2	71.8	1.3	71.8	1.3
R-18	Camino Capistrano	F	68.5	69.1	70.7	2.2	70.7	2.2
R-19	Camino Capistrano	F	67.6	68.3	68.8	1.2	68.8	1.2
R-20	Avery Parkway	E(72)	**74.6**	**75.6**	**74.9**	0.3	**75.1**	0.5
R-21	Marguerite Parkway	F	73.8	74.4	75.2	1.4	75.2	1.4
R-22	Marguerite Parkway	F	73.5	74.1	74.0	0.5	74.1	0.6
R-23	Marguerite Parkway	C(67)/D(52)	61.1/36.1[5]	61.9/36.9[5]	61.8/36.8[5]	0.7	61.8/36.8[5]	0.7
R-24	Marguerite Parkway	F	68.6	69.2	69.8	1.2	69.8	1.2
R-25	Marguerite Parkway	F	61.1	61.7	62.1	1.0	62.1	1.0
R-26	Camino Capistrano	F	70.6	70.7	71.7	1.1	72.0	1.4
R-27	Camino Capistrano	F	69.7	69.9	71.5	1.8	71.4	1.7
R-28	Camino Capistrano	F	69.6	69.8	70.2	0.6	70.4	0.8
R-29	Puerta Real	F	71.1	71.4	72.2	1.1	72.2	1.1
R-30	Puerta Real	E(72)	59.3	59.8	60.4	1.1	60.4	1.1
R-31	Puerta Real	E(72)	**72.2**	**72.5**	**73.0**	0.8	**73.5**	1.3
R-32	Via Grande	B(67)	61.0	61.2	62.4	1.4	62.8	1.8

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-33	Via Grande	B(67)	57.0	57.2	58.2	1.2	58.6	1.6
R-34	Via Grande	B(67)	54.9	55.1	55.7	0.8	55.8	0.9
R-35	Via Grande	B(67)	53.4	53.7	54.4	1.0	54.4	1.0
R-36	Via Grande	B(67)	50.7	51.0	51.7	1.0	51.8	1.1
R-37	Mallorca Lane	B(67)	61.0	61.2	62.4	1.4	62.9	1.9
R-38	Mallorca Lane	B(67)	60.9	61.2	61.9	1.0	62.1	1.2
R-39	Mallorca Lane	B(67)	59.7	60.0	60.8	1.1	61.1	1.4
R-40	Via Grande	B(67)	**68.1**	**68.3**	**69.2**	1.1	**69.6**	1.5
R-41	Via Grande	B(67)	**71.0**	**71.2**	**72.3**	1.3	**72.6**	1.6
R-42	Via Grande	B(67)	64.8	65.0	**66.5**	1.7	**67.1**	2.3
R-43	Hole 7 Green	C(67)	58.9	59.2	60.0	1.1	60.3	1.4
R-44	Hole 5 Green	C(67)	**71.9**	**72.1**	**72.9**	1.0	**73.2**	1.3
R-45	Hole 4 Green	C(67)	**72.4**	**72.7**	**73.7**	1.3	**74.1**	1.7
R-46	Hole 2 Green	C(67)	61.3	61.5	62.1	0.8	62.8	1.5
R-47	Hole 3 Green	C(67)	**66.5**	**66.8**	**67.3**	0.8	**68.3**	1.8
R-47a	Hole 3 Green	C(67)	**71.3**	**71.6**	**72.5**	1.2	**72.7**	1.4
R-48	Oso Parkway	E(72)	67.7	68.0	68.8	1.1	69.2	1.5
R-49	Oso Parkway	E(72)[3]/D(52)	69.6/39.6[6]	69.8/39.8[6]	70.6/40.6[6]	1.0	71.0/41.0[6]	1.4
R-50	Oso Parkway	F	72.0	72.2	72.7	0.7	72.8	0.8
R-51	El Paseo	E(72)	59.3	59.3	60.2	0.9	60.8	1.5
R-52	El Paseo	E(72)	59.4	59.5	60.3	0.9	60.9	1.5
R-53	El Paseo	E(72)	60.3	60.4	60.9	0.6	61.2	0.9
R-54	El Paseo	F	64.2	64.2	64.9	0.7	64.9	0.7
R-55	El Paseo	F	65.2	65.2	65.6	0.4	66.1	0.9
R-56	Cabot Road	E(72)	64.8	64.9	64.1	-0.7	65.0	0.2
R-57	Cabot Road	E(72)	64.3	64.4	64.0	-0.3	64.8	0.5
R-58	Cabot Road	E(72)	67.4	67.7	67.2	-0.2	67.6	0.2
R-58a	Hole 17 Green	C(67)	65.9	**66.1**	**66.9**	1.0	**67.2**	1.3
R-58b	Hole 18 Tee Box	C(67)	**70.4**	**70.8**	**70.7**	0.3	**70.7**	0.3
R-59	Hole 17 Tee Box	C(67)	**67.3**	**67.4**	**68.9**	1.6	**69.5**	2.2
R-60	Via Oceano	B(67)	63.8	64.1	64.7	0.9	65.0	1.2
R-61	Via Oceano	B(67)	64.8	64.9	**66.6**	1.8	**67.2**	2.4
R-62	Via Oceano	B(67)	64.3	64.5	**66.0**	1.7	**66.9**	2.6

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-63	Via Oceano	B(67)	63.9	64.0	64.8	0.9	65.3	1.4
R-64	Via Oceano	B(67)	62.6	62.8	63.8	1.2	64.7	2.1
R-65	Via Marejada	B(67)	65.9	**66.0**	**67.3**	1.4	**67.9**	2.0
R-66	Via Marejada	B(67)	64.1	64.2	65.6	1.5	**66.4**	2.3
R-67	Via Remolino	B(67)	60.2	60.3	61.4	1.2	61.8	1.6
R-68	Via Oceano	B(67)	63.8	64.0	63.7	-0.1	63.7	-0.1
R-69	Via Oceano	B(67)	57.2	57.3	58.0	0.8	58.3	1.1
R-70	Via Marejada	B(67)	60.4	60.6	61.1	0.7	61.3	0.9
R-71	Via Remolino	B(67)	59.5	59.6	60.6	1.1	61.0	1.5
R-72	Hole 16 Tee Box	C(67)	56.6	56.6	57.7	1.1	58.1	1.5
R-73	Via Marejada	B(67)	57.9	58.0	59.1	1.2	59.5	1.6
R-74	Via Faro	B(67)	60.4	60.4	61.8	1.4	62.2	1.8
R-75	Via Faro	B(67)	62.1	62.1	63.2	1.1	63.5	1.4
R-76	Via Faro	B(67)	62.6	62.6	64.5	1.9	65.1	2.5
R-77	Via Faro	B(67)	58.1	58.2	59.4	1.3	59.7	1.6
R-78	Via Faro	B(67)	56.5	56.6	57.5	1.0	57.7	1.2
R-79	Via Faro	B(67)	58.8	58.8	59.9	1.1	60.2	1.4
R-80	Via Faro	B(67)	56.1	56.2	57.1	1.0	57.4	1.3
R-81	Via Faro	B(67)	57.2	57.3	58.3	1.1	58.6	1.4
R-82	Chrisanta Drive	B(67)	**67.3**	**67.3**	**68.5**	1.2	**69.2**	1.9
R-83	Chrisanta Drive	B(67)	64.0	64.0	65.2	1.2	65.7	1.7
R-84	Chrisanta Drive	B(67)	**67.5**	**67.5**	**69.1**	1.6	**69.6**	2.1
R-85	Chrisanta Drive	B(67)	**69.3**	**69.4**	**71.0**	1.7	**71.4**	2.1
R-86	Chrisanta Drive	B(67)	**68.9**	**68.9**	**70.7**	1.8	**71.1**	2.2
R-87	Chrisanta Drive	B(67)	64.2	64.2	65.7	1.5	**66.1**	1.9
R-88	Chrisanta Drive	B(67)	**67.7**	**67.7**	**69.1**	1.4	**69.4**	1.7
R-89	Verdura Circle	B(67)	**69.5**	**69.6**	**70.9**	1.4	**71.2**	1.7
R-90	Esmeralda Circle	B(67)	61.9	61.9	63.2	1.3	63.6	1.7
R-91	Esmeralda Circle	B(67)	**66.5**	**66.6**	**67.9**	1.4	**68.3**	1.8
R-92	Cervantes Lane	B(67)	59.6	59.7	60.7	1.1	61.1	1.5
R-93	Chrisanta Drive	B(67)	59.9	60.0	61.0	1.1	61.3	1.4
R-94	Chrisanta Drive	B(67)	59.5	59.5	60.5	1.0	60.7	1.2

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-95	Chrisanta Drive	B(67)	58.9	58.9	59.9	1.0	60.2	1.3
R-96	Chrisanta Drive	B(67)	60.8	60.8	62.0	1.2	62.2	1.4
R-97	Chrisanta Drive	B(67)	57.8	57.9	58.7	0.9	58.8	1.0
R-98	Chrisanta Drive	B(67)	55.4	55.5	56.5	1.1	56.7	1.3
R-99	Verdura Circle	B(67)	59.6	59.7	60.8	1.2	61.1	1.5
R-100	Verdura Circle	B(67)	65.2	65.2	**66.5**	1.3	**66.7**	1.5
R-101	Esmeralda Circle	B(67)	64.6	64.6	**66.0**	1.4	**66.4**	1.8
R-102	Esmeralda Circle	B(67)	60.7	60.7	62.1	1.4	62.5	1.8
R-103	Turquesa Circle	B(67)	**66.5**	**66.5**	**67.8**	1.3	**68.2**	1.7
R-104	Turquesa Circle	B(67)	62.5	62.5	63.8	1.3	64.3	1.8
R-105	Turquesa Circle	B(67)	61.5	61.5	63.0	1.5	63.3	1.8
R-106	Turquesa Circle	B(67)	57.3	57.3	58.6	1.3	59.0	1.7
R-107	Montarez Circle	B(67)	65.4	65.5	**66.7**	1.3	**67.0**	1.6
R-108	Montarez Circle	B(67)	**66.6**	**66.6**	**68.3**	1.7	**68.6**	2.0
R-109	Montarez Circle	B(67)	**68.1**	**68.1**	**69.9**	1.8	**70.1**	2.0
R-110	Montarez Circle	B(67)	65.4	65.5	**66.7**	1.3	**67.0**	1.6
R-111	Montarez Circle	B(67)	61.2	61.3	62.5	1.3	62.8	1.6
R-112	Chrisanta Drive	C(67)	**67.7**	**67.7**	**69.9**	2.2	**70.3**	2.6
R-113	Chrisanta Drive	C(67)	**67.9**	**67.9**	**69.6**	1.7	**69.9**	2.0
R-114	Chrisanta Drive	C(67)	**67.2**	**67.3**	**70.3**	3.1	**70.4**	3.2
R-115	Chrisanta Drive	C(67)	**66.2**	**66.2**	**67.6**	1.4	**68.3**	2.1
R-116	La Paz Road	E(72)[3]	71.3	71.7	71.6	0.3	72.2	0.9
R-117	La Paz Road	E(72)	56.1	56.3	56.7	0.6	57.3	1.2
R-118	La Paz Road	E(72)[3]/D(52)	75.1/48.1[7]	75.1/48.1[7]	74.9/47.9[7]	-0.2	76.1/49.1[7]	1.0
R-119	La Suen Road	B(67)	61.8	62.4	62.7	0.9	63.4	1.6
R-120	La Suen Road	B(67)	60.9	61.2	61.7	0.8	62.5	1.6
R-121	La Suen Road	B(67)	59.3	59.5	60.4	1.1	61.1	1.8
R-122	La Suen Road	B(67)	62.9	62.9	63.7	0.8	64.5	1.6
R-123	La Suen Road	B(67)	**72.0**	**72.0**	**72.6**	0.6	**73.4**	1.4
R-124	La Suen Road	B(67)	**68.5**	**68.5**	**69.0**	0.5	**69.8**	1.3
R-125	La Suen Road	B(67)	**72.3**	**72.3**	**71.6**	-0.7	**71.6**	-0.7
R-126	La Suen Road	B(67)	**68.1**	**68.2**	**68.8**	0.7	**69.4**	1.3

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-127	La Suen Road	B(67)	64.7	64.7	65.5	0.8	**66.2**	1.5
R-128	La Suen Road	B(67)	60.2	60.2	61.0	0.8	61.6	1.4
R-129	Presidio Drive	B(67)	65.7	65.7	**66.5**	0.8	**67.4**	1.7
R-130	Presidio Drive	B(67)	57.4	57.4	58.0	0.6	58.6	1.2
R-131	Presidio Drive	B(67)	55.3	55.3	56.0	0.7	56.6	1.3
R-132	Presidio Drive	B(67)	63.1	63.1	63.7	0.6	64.4	1.3
R-133	Presidio Drive	B(67)	60.6	60.6	61.4	0.8	62.0	1.4
R-134	Presidio Drive	B(67)	59.2	59.3	60.0	0.8	60.6	1.4
R-135	Sutter Drive	B(67)	**66.0**	**66.0**	**66.6**	0.6	**67.4**	1.4
R-136	Sutter Drive	B(67)	63.6	63.6	64.4	0.8	65.2	1.6
R-137	Sutter Drive	B(67)	61.8	61.8	62.5	0.7	63.5	1.7
R-138	Express Drive	B(67)	64.8	64.8	65.3	0.5	**66.3**	1.5
R-139	Express Drive	B(67)	62.6	62.6	63.2	0.6	64.1	1.5
R-140	Express Drive	B(67)	62.5	62.5	63.1	0.6	64.1	1.6
R-141	Stagecoach Drive	B(67)	**67.6**	**67.6**	**67.6**	0.0	**69.0**	1.4
R-142	Stagecoach Drive	B(67)	**66.4**	**66.5**	**66.3**	-0.1	**67.7**	1.3
R-143	Stagecoach Drive	B(67)	**66.4**	**66.4**	**66.8**	0.4	**67.9**	1.5
R-144	Wells Fargo Drive	B(67)	61.1	61.1	61.4	0.3	62.1	1.0
R-145	Wells Fargo Drive	B(67)	59.9	59.9	60.2	0.3	61.1	1.2
R-146	Wells Fargo Drive	B(67)	58.2	58.2	59.0	0.8	59.5	1.3
R-147	Wells Fargo Drive	B(67)	61.8	61.8	62.4	0.6	63.0	1.2
R-148	Wells Fargo Drive	B(67)	59.9	59.9	60.6	0.7	61.3	1.4
R-149	Wells Fargo Drive	B(67)	59.1	59.2	59.8	0.7	60.5	1.4
R-150	Overland Drive	B(67)	63.5	63.5	64.3	0.8	64.7	1.2
R-151	Overland Drive	B(67)	61.4	61.4	62.2	0.8	62.8	1.4
R-152	Overland Drive	B(67)	60.5	60.6	61.6	1.1	62.0	1.5
R-153	Costeau Street	B(67)	63.7	63.7	64.4	0.7	65.8	2.1
R-154	Costeau Street	B(67)	62.3	62.3	63.0	0.7	63.6	1.3
R-155	Costeau Street	B(67)	61.4	61.4	62.1	0.7	62.7	1.3
R-156	Bently	B(67)	63.6	63.6	64.4	0.8	64.9	1.3
R-157	Bently	B(67)	62.9	62.9	63.6	0.7	64.1	1.2
R-158	Bently	B(67)	62.4	62.5	63.0	0.6	63.6	1.2

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-159	Paseo De Alicia	E(72)[3]	64.2	64.3	65.0	0.8	65.7	1.5
R-160	Muirlands Drive	F	67.1	67.2	68.8	1.7	69.6	2.5
R-161	Pericles Street	B(67)	65.1	65.1	**66.3**	1.2	**66.8**	1.7
R-162	Pericles Street	B(67)	63.4	63.4	65.0	1.6	65.7	2.3
R-163	Pericles Street	B(67)	65.4	65.4	**66.7**	1.3	**67.4**	2.0
R-164	Pericles Street	B(67)	65.7	65.7	**66.9**	1.2	**67.6**	1.9
R-165	Pericles Street	B(67)	**66.9**	**66.9**	**67.8**	0.9	**68.4**	1.5
R-166	Maximus Street	B(67)	65.6	65.7	**66.6**	1.0	**67.3**	1.7
R-167	Maximus Street	B(67)	61.8	61.8	62.8	1.0	63.6	1.8
R-168	Maximus Street	B(67)	63.7	63.7	64.6	0.9	65.3	1.6
R-169	Maximus Street	B(67)	61.9	61.9	63.1	1.2	63.8	1.9
R-170	Maximus Street	B(67)	63.9	64.0	64.7	0.8	65.4	1.5
R-171	Maximus Street	B(67)	63.9	63.9	64.7	0.8	65.3	1.4
R-172	Maximus Street	B(67)	63.9	63.9	64.7	0.8	65.4	1.5
R-173	Maximus Street	B(67)	64.1	64.1	64.8	0.7	65.5	1.4
R-174	Maximus Street	B(67)	65.0	65.0	65.4	0.4	**66.0**	1.0
R-175	Maximus Street	B(67)	**68.4**	**68.5**	**68.7**	0.3	**69.3**	0.9
R-176	Maximus Street	B(67)	**68.2**	**68.2**	**68.4**	0.2	**68.8**	0.6
R-177	Maximus Street	C(67)	64.9	65.0	65.3	0.4	65.6	0.7
R-178	Maximus Street	B(67)	**66.6**	**66.6**	**66.9**	0.3	**67.1**	0.5
R-179	Maximus Street	B(67)	62.9	63.0	63.4	0.5	63.6	0.7
R-180	Alicia Parkway	F	69.0	69.1	69.8	0.8	69.9	0.9
R-181	Delos Avenue	B(67)	**68.5**	**68.5**	**68.6**	0.1	**69.2**	0.7
R-182	Rylos Way	B(67)	60.2	60.2	60.6	0.4	61.2	1.0
R-183	Acropolis Drive	B(67)	60.3	60.4	60.9	0.6	61.4	1.1
R-184	Maximus Street	B(67)	61.5	61.5	62.0	0.5	62.5	1.0
R-185	Maximus Street	B(67)	55.0	55.0	55.5	0.5	56.1	1.1
R-186	Maximus Street	B(67)	54.5	54.5	55.0	0.5	55.5	1.0
R-187	Maximus Street	B(67)	55.3	55.3	55.9	0.6	56.4	1.1
R-188	Pallas Way	B(67)	58.1	58.1	58.7	0.6	59.3	1.2
R-189	Nympha Drive	B(67)	57.4	57.5	58.0	0.6	58.5	1.1
R-190	Eloisa Drive	B(67)	59.8	59.8	60.3	0.5	60.9	1.1

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-191	Eloisa Drive	B(67)	60.6	60.7	61.0	0.4	61.4	0.8
R-192	Rhea Drive	B(67)	59.9	60.0	60.3	0.4	60.6	0.7
R-193	Rhea Drive	B(67)	62.1	62.2	62.5	0.4	62.7	0.6
R-194	Saturna Drive	B(67)	56.8	56.9	57.2	0.4	57.5	0.7
R-195	Saturna Drive	B(67)	60.1	60.1	60.4	0.3	60.7	0.6
R-196	Maximus Street	B(67)	56.8	56.9	57.2	0.4	57.5	0.7
R-197	Maximus Street	B(67)	60.7	60.9	61.3	0.6	61.4	0.7
R-198	Alicia Parkway	F	66.5	68.2	68.1	1.6	68.2	1.7
R-199	Alicia Parkway	F	58.0	58.6	58.4	0.4	58.5	0.5
R-200	Alicia Parkway	F	67.8	67.9	68.6	0.8	68.7	0.9
R-201	Katie Avenue	B(67)	60.3	60.4	61.1	0.8	61.3	1.0
R-202	Katie Avenue	B(67)	60.3	60.4	61.2	0.9	61.4	1.1
R-203	Katie Avenue	B(67)	59.5	59.6	60.2	0.7	60.4	0.9
R-204	Carol Lane	B(67)	60.2	60.3	61.0	0.8	61.1	0.9
R-205	Carol Lane	B(67)	59.8	59.9	61.2	1.4	61.3	1.5
R-206	Carol Lane	B(67)	58.9	58.9	59.4	0.5	59.6	0.7
R-207	Sara Lane	B(67)	61.1	61.2	62.0	0.9	62.1	1.0
R-208	Sara Lane	B(67)	60.3	60.3	60.9	0.6	61.0	0.7
R-209	Sara Lane	B(67)	59.4	59.5	60.0	0.6	60.1	0.7
R-210	Georgia Sue	B(67)	62.0	62.0	63.0	1.0	63.1	1.1
R-211	Georgia Sue	B(67)	61.2	61.2	62.0	0.8	62.1	0.9
R-212	Georgia Sue	B(67)	60.4	60.5	61.2	0.8	61.3	0.9
R-213	Georgia Sue	B(67)	59.7	59.8	60.5	0.8	60.6	0.9
R-214	Georgia Sue	B(67)	57.7	57.7	58.4	0.7	58.5	0.8
R-215	Georgia Sue	B(67)	59.3	59.4	60.5	1.2	60.6	1.3
R-216	Aliso Creekway Bike Way	C(67)[3]	71.1	71.1	71.8	0.7	71.9	0.8
R-217	Christina Court	B(67)	65.3	65.3	**66.2**	0.9	**66.2**	0.9
R-218	Christina Court	B(67)	60.4	60.4	61.9	1.5	62.0	1.6
R-219	Christina Court	B(67)	61.1	61.2	62.8	1.7	62.8	1.7
R-220	Christina Court	B(67)	60.1	60.2	61.7	1.6	61.7	1.6
R-221	Christina Court	B(67)	59.5	59.5	60.8	1.3	60.8	1.3
R-222	Christina Court	B(67)	58.8	58.9	60.4	1.6	60.5	1.7

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-223	Christina Court	B(67)	55.2	55.3	56.5	1.3	56.6	1.4
R-224	Christina Court	B(67)	58.4	58.5	59.0	0.6	59.1	0.7
R-225	Alicia Parkway	F	79.0	79.1	79.4	0.4	79.7	0.7
R-226	Charlinda Drive	B(67)	65.3	65.4	65.9	0.6	**66.1**	0.8
R-227	Charlinda Drive	B(67)	65.6	65.6	**66.1**	0.5	**66.3**	0.7
R-228	Charlinda Drive	B(67)	63.2	63.3	63.8	0.6	64.0	0.8
R-229	Charlinda Drive	B(67)	58.8	58.8	59.2	0.4	59.4	0.6
R-230	Charlinda Drive	B(67)	63.9	63.9	64.4	0.5	64.5	0.6
R-231	Charlinda Drive	B(67)	62.0	62.0	62.5	0.5	62.6	0.6
R-232	Charlinda Drive	B(67)	60.7	60.8	61.2	0.5	61.3	0.6
R-233	Charlinda Drive	B(67)	58.6	58.7	59.2	0.6	59.4	0.8
R-234	Charlinda Drive	B(67)	60.9	60.9	61.3	0.4	61.5	0.6
R-235	Charlinda Drive	B(67)	58.8	58.8	59.3	0.5	59.5	0.7
R-236	Charlinda Drive	B(67)	59.5	59.6	59.9	0.4	60.1	0.6
R-237	Charlinda Drive	B(67)	58.1	58.2	58.6	0.5	58.7	0.6
R-238	Charlinda Drive	B(67)	59.4	59.5	60.0	0.6	60.1	0.7
R-239	Charlinda Drive	B(67)	60.2	60.3	60.7	0.5	60.9	0.7
R-240	Stem Avenue	B(67)	**67.2**	**67.3**	**67.4**	0.2	**67.6**	0.4
R-241	Stem Avenue	B(67)	**69.3**	**69.4**	**69.3**	0.0	**69.5**	0.2
R-242	Stem Avenue	B(67)	**67.9**	**67.9**	**68.0**	0.1	**68.2**	0.3
R-243	Stem Avenue	B(67)	65.1	65.1	65.5	0.4	65.6	0.5
R-244	Fordview Street	B(67)	**69.8**	**69.8**	**70.2**	0.4	**70.5**	0.7
R-245	Fordview Street	B(67)	**69.3**	**69.3**	**69.5**	0.2	**69.8**	0.5
R-246	Stem Avenue	B(67)	64.7	64.7	65.0	0.3	65.2	0.5
R-247	Stem Avenue	B(67)	63.1	63.1	63.3	0.2	63.5	0.4
R-248	Stem Avenue	B(67)	61.0	61.1	61.4	0.4	61.6	0.6
R-249	Stem Avenue	B(67)	63.7	63.7	63.8	0.1	64.1	0.4
R-250	Fordview Street	B(67)	65.8	65.8	**66.3**	0.5	**66.6**	0.8
R-251	Fordview Street	B(67)	62.9	63.0	63.5	0.6	63.7	0.8
R-252	Avenida De La Carlota	B(67)	59.8	60.0	60.1	0.3	60.2	0.4
R-253	Avenida De La Carlota	B(67)	61.2	61.5	61.3	0.1	61.4	0.2
R-254	Avenida De La Carlota	B(67)	61.0	61.1	61.1	0.1	61.2	0.2

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-255	Avenida De La Carlota	E(72)[3]	72.3	72.3	73.4	1.1	73.5	1.2
R-256	Avenida De La Carlota	F	70.8	71.1	71.4	0.6	71.5	0.7
R-257	Avenida De La Carlota	E(72)	65.2	65.2	66.2	1.0	66.3	1.1
R-258	Avenida De La Carlota	E(72)	65.9	65.9	67.0	1.1	67.1	1.2
R-259	Avenida De La Carlota	E(72)	65.2	65.3	66.5	1.3	66.6	1.4
R-260	Avenida De La Carlota	E(72)	68.7	68.8	70.2	1.5	70.3	1.6
R-261	Avenida De La Carlota	E(72)	68.2	68.1	69.2	1.0	69.3	1.1
R-262	Avenida De La Carlota	F	72.6	72.5	73.3	0.7	73.4	0.8
R-263	Avenida De La Carlota	E(72)	63.6	63.6	64.5	0.9	64.5	0.9
R-264	Avenida De La Carlota	E(72)	65.3	65.5	65.3	0.0	65.4	0.1
R-265	Avenida De La Carlota	E(72)	**71.9**	**72.3**	**72.3**	0.4	**72.4**	0.5
R-266	Bridger Road	F	69.6	69.6	70.3	0.7	70.4	0.8
R-267	Bridger Road	B(67)	64.1	64.1	64.5	0.4	64.7	0.6
R-268	Bridger Road	B(67)	62.8	62.9	63.2	0.4	63.4	0.6
R-269	Bridger Road	B(67)	62.6	62.6	62.9	0.3	63.0	0.4
R-270	Bridger Road	B(67)	61.0	61.0	61.4	0.4	61.5	0.5
R-271	Bridger Road	B(67)	60.0	60.0	60.5	0.5	60.6	0.6
R-272	Bridger Road	B(67)	63.7	63.7	64.1	0.4	64.2	0.5
R-273	Bridger Road	B(67)	61.4	61.4	61.8	0.4	61.9	0.5
R-274	Bridger Road	B(67)	61.7	61.7	62.1	0.4	62.3	0.6
R-275	Bridger Road	B(67)	62.1	62.1	62.4	0.3	62.6	0.5
R-276	Bridger Road	B(67)	64.2	64.1	64.3	0.1	64.5	0.3
R-277	Silverbay Drive	B(67)	**67.0**	**66.9**	**67.1**	0.1	**67.3**	0.3
R-278	Larkwood Lane	B(67)	60.8	60.8	61.0	0.2	61.2	0.4
R-279	Larkwood Lane	B(67)	62.6	62.6	62.9	0.3	63.1	0.5
R-280	Larkwood Lane	B(67)	61.9	61.9	62.3	0.4	62.5	0.6
R-281	Ankerton Drive	B(67)	61.2	61.3	61.6	0.4	61.7	0.5
R-282	Highpine Road	B(67)	62.3	62.4	62.8	0.5	63.0	0.7
R-283	Highpine Road	B(67)	61.0	61.0	61.5	0.5	61.7	0.7
R-284	Highpine Road	B(67)	63.6	63.6	64.0	0.4	64.2	0.6
R-285	Highpine Road	B(67)	63.1	63.0	63.4	0.3	63.6	0.5
R-286	Highpine Road	B(67)	63.1	63.0	63.4	0.3	63.6	0.5

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-287	Highpine Road	B(67)	63.0	62.9	63.2	0.2	63.4	0.4
R-288	Highpine Road	B(67)	64.2	64.1	64.8	0.6	64.9	0.7
R-289	Silverbay Drive	B(67)	**66.5**	**66.4**	**66.6**	0.1	**66.8**	0.3
R-290	Swartz Drive	F	78.3	78.3	78.5	0.2	78.7	0.4
R-291	Swartz Drive	E(72)	66.5	66.6	66.4	-0.1	66.7	0.2
R-292	Swartz Drive	F	70.3	70.7	70.9	0.6	71.1	0.8
R-293	Avenida De La Carlota	F	74.8	75.0	75.8	1.0	75.8	1.0
R-294	Avenida De La Carlota	F	68.2	68.3	68.5	0.3	68.5	0.3
R-295	Avenida De La Carlota	C(67)/D(52)	**69.5/**44.5[5]	**69.7/**44.7[5]	**70.0/**45.0[5]	0.5	**70.0/**45.0[5]	0.5
R-296	Avenida De La Carlota	C(67)	**71.0**	**71.1**	**71.2**	0.2	**71.2**	0.2
R-297	El Toro Road	B(67)	57.2	57.4	57.6	0.4	57.6	0.4
R-298	El Toro Road	B(67)	58.5	58.7	58.7	0.2	58.7	0.2
R-299	El Toro Road	B(67)	54.6	54.8	55.0	0.4	55.0	0.4
R-300	El Toro Road	B(67)	58.1	58.2	58.4	0.3	58.4	0.3
R-301	El Toro Road	B(67)	54.7	54.9	55.0	0.3	55.0	0.3
R-302	El Toro Road	B(67)	56.8	56.9	57.0	0.2	57.0	0.2
R-303	El Toro Road	B(67)	56.2	56.3	56.4	0.2	56.4	0.2
R-304	El Toro Road	B(67)	52.1	52.3	52.6	0.5	52.6	0.5
R-305	El Toro Road	B(67)	52.8	53.0	53.1	0.3	53.1	0.3
R-306	El Toro Road	B(67)	50.6	50.8	51.0	0.4	50.9	0.3
R-307	El Toro Road	B(67)	51.4	51.6	51.8	0.4	51.8	0.4
R-308	El Toro Road	B(67)	51.0	51.2	51.5	0.5	51.5	0.5
R-309	El Toro Road	B(67)	51.0	51.1	51.3	0.3	51.3	0.3
R-310	El Toro Road	B(67)	51.5	51.6	51.7	0.2	51.7	0.2
R-311	El Toro Road	B(67)	50.4	50.5	50.2	-0.2	50.2	-0.2
R-312	El Toro Road	B(67)	54.5	54.6	54.8	0.3	54.8	0.3
R-313	El Toro Road	B(67)	54.3	54.4	54.6	0.3	54.6	0.3
R-314	El Toro Road	B(67)	57.7	57.8	57.9	0.2	57.9	0.2
R-315	El Toro Road	B(67)	56.2	56.3	56.4	0.2	56.4	0.2
R-316	El Toro Road	B(67)	60.1	60.2	60.3	0.2	60.3	0.2
R-317	El Toro Road	B(67)	56.9	57.0	57.1	0.2	57.1	0.2
R-318	El Toro Road	B(67)	58.0	58.1	58.2	0.2	58.2	0.2

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-319	El Toro Road	B(67)	59.3	59.4	59.5	0.2	59.5	0.2
R-320	El Toro Road	B(67)	60.8	60.9	61.0	0.2	61.0	0.2
R-321	El Toro Road	B(67)	60.5	60.6	60.7	0.2	60.7	0.2
R-322	El Toro Road	B(67)	54.0	54.1	52.0	-2.0	52.0	-2.0
R-323	El Toro Road	B(67)	54.2	54.3	52.9	-1.3	52.9	-1.3
R-324	El Toro Road	B(67)	55.5	55.7	55.8	0.3	55.8	0.3
R-325	El Toro Road	B(67)	55.3	55.4	55.6	0.3	55.6	0.3
R-326	El Toro Road	B(67)	56.9	57.0	57.1	0.2	57.1	0.2
R-327	El Toro Road	B(67)	57.3	57.4	57.6	0.3	57.6	0.3
R-328	El Toro Road	B(67)	65.6	65.7	65.3	-0.3	65.3	-0.3
R-329	El Toro Road	B(67)	63.5	63.6	63.6	0.1	63.6	0.1
R-330	El Toro Road	B(67)	65.5	65.6	65.3	-0.2	65.3	-0.2
R-331	El Toro Road	B(67)	65.2	65.3	65.0	-0.2	65.0	-0.2
R-332	El Toro Road	B(67)	57.8	58.0	58.1	0.3	58.1	0.3
R-333	El Toro Road	B(67)	59.4	59.5	59.4	0.0	59.4	0.0
R-334	El Toro Road	B(67)	58.4	58.5	58.5	0.1	58.5	0.1
R-335	El Toro Road	B(67)	59.3	59.4	59.8	0.5	59.8	0.5
R-336	Bridger Road	F	73.7	73.9	73.9	0.2	73.8	0.1
R-337	Bridger Road	F	70.4	70.7	70.6	0.2	70.5	0.1
R-338	Bridger Road	F	68.6	68.8	68.9	0.3	68.9	0.3
R-339	Bridger Road	F	64.6	64.7	64.9	0.3	64.8	0.2
R-340	Gowdy Avenue	C(67)	**67.8**	**67.9**	**68.1**	0.3	**68.1**	0.3
R-341	Cavanaugh Road	B(67)	61.3	61.5	61.7	0.4	61.7	0.4
R-342	Dune Mear Road	B(67)	62.4	62.5	62.7	0.3	62.6	0.2
R-343	Gowdy Avenue	B(67)	57.8	58.0	58.1	0.3	58.1	0.3
R-344	Gowdy Avenue	B(67)	56.1	56.3	56.5	0.4	56.5	0.4
R-345	Gowdy Avenue	B(67)	56.0	56.1	56.3	0.3	56.3	0.3
R-346	Gowdy Avenue	B(67)	60.6	60.7	60.8	0.2	60.8	0.2
R-347	Duryea Drive	B(67)	63.1	63.2	63.3	0.2	63.3	0.2
R-348	Cavanaugh Road	B(67)	62.8	63.0	62.9	0.1	62.9	0.1
R-349	Dune Mear Road	B(67)	60.8	60.9	61.0	0.2	61.0	0.2
R-350	Dune Mear Road	B(67)	58.3	58.4	58.6	0.3	58.5	0.2

Table 2.14-9 Predicted Traffic Noise Levels, dBA L_{eq}

Receptor No.	Location	Noise Abatement Criteria	Existing	Future No Build	Alternative 2 (Preferred Alternative)	Change from Existing Noise Level	Alternative 3	Change from Existing Noise Level
R-351	Alderglen Drive	B(67)	57.0	57.1	57.3	0.3	57.3	0.3
R-352	Alderglen Drive	B(67)	56.2	56.4	56.5	0.3	56.5	0.3
R-353	Alderglen Drive	B(67)	60.6	60.7	60.8	0.2	60.8	0.2
R-354	Duryea Drive	B(67)	61.8	61.9	62.0	0.2	61.9	0.1

Source: LSA Associates, Inc., Noise Study Report (April 2013).

[1] There is no NAC for land uses associated with Activity Category F. The highest expected noise level is provided for reporting purposes.

[2] Numbers in **bold** represent noise levels that approach or exceed the NAC.

[3] There are no outdoor frequent human use areas associated under this activity category. Therefore, the highest expected noise level is provided for reporting purposes.

[4] Receptor R-9 would be fully acquired by the proposed project.

[5] Exterior/interior noise level. The interior noise level was determined using a 25 dB exterior to interior noise level reduction for the classroom building. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the classroom building is masonry with single glazed windows.

[6] Exterior/interior noise level. The interior noise level was determined using a 30 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry with windows that would perform between single and double glazed windows.

[7] Exterior/interior noise level. The interior noise level was determined using a 27 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined based on the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry and the windows would perform a little better than single glazed windows.

dB = decibels
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels
FHWA = Federal Highway Administration
NAC = Noise Abatement Criteria

Build Alternatives – Alternative 2 (Preferred Alternative) and Alternative 3

Future traffic noise levels for Alternatives 2 and 3 at all 357 receptor locations were determined with existing walls using the worst-case traffic operations (prior to speed degradation) or the future (2045) peak-hour traffic volumes obtained from the Traffic Report (June 2012). Table 2.14-9 shows the existing, future No Build, and Alternatives 2 and 3 traffic noise level results. The modeled future noise levels with the Build Alternatives were compared to the modeled existing noise levels to determine whether a substantial noise increase would occur. The modeled future noise levels for Alternatives 2 and 3 were also compared to the NAC under Activity Categories B, C, D, and E to determine whether a traffic noise effect would occur.

Traffic noise effects occur when either of the following occurs: (1) if the traffic noise level at a receptor location is predicted to "approach or exceed" the NAC, or (2) if the predicted traffic noise level is 12 dBA or more over its corresponding modeled existing noise level at the receptor locations analyzed. Implementation of the proposed project would result in potential short-term noise effects during construction and long-term noise effects from use of the completed project. Of the 357 modeled receptors, 69 and 75 modeled receptors would approach or exceed the NAC under Activity Categories B, C, or E for Alternatives 2 and 3, respectively.

No receptors would experience a substantial increase of 12 dBA or more over their corresponding modeled existing noise levels for either Alternative 2 or 3.

The following receptor locations would continue to be exposed to noise levels that approach or exceed the NAC under Activity Categories B, C, and E for both Alternatives 2 and 3 (except where noted) and noise barriers were considered as discussed under Noise Abatement Consideration.

- **Receptors R-6 and R-8:** These receptor locations represent existing fast-food restaurants along Camino Capistrano on the SB side of I-5, south of Avery Parkway. Currently, there are no existing walls that shield the outdoor eating areas at the restaurants. Noise barriers were not modeled at these locations because they were considered not feasible due to driveway access.
- **Receptors R-12 and R-13:** These receptor locations represent existing tennis courts associated with Capistrano Valley High School along Via Escolar on the NB side of I-5, south of Avery Parkway. Currently, there are no existing walls that shield the tennis courts. One noise barrier (Noise Barrier No. 676) was modeled along the property line to shield the tennis courts.

- **Receptor R-20:** This receptor location represents an existing fast-food restaurant along Avery Parkway on the NB side of I-5, just north of Avery Parkway. Currently, there are no existing walls that shield the outdoor eating area. Noise barriers were not modeled at this location because they were considered not feasible due to driveway access.
- **Receptor R-31:** This receptor location represents an existing sitting area associated with office buildings located along Puerta Real on the NB side of I-5 between Crown Valley Parkway and Oso Parkway. Currently, there is an 8.5 ft high permanent solid sign that shields the sitting area. One noise barrier (Noise Barrier No. 769) was modeled along the ROW line to shield the sitting area.
- **Receptors R-40 through R-42:** These receptor locations represent single-family residences located along Via Grande on the NB side of I-5 between Crown Valley Parkway and Oso Parkway. Currently, there are no existing walls that shield these residences. One noise barrier (Noise Barrier No. 4) was modeled along the property line and/or within the property at the top of slope to shield these residences.
- **Receptors R-44 and R-45:** These receptor locations represent either the tee box or green of Holes 3 through 5 and 7 at a golf course located on the NB side of I-5 between Crown Valley Parkway and Oso Parkway. Two noise barriers (Noise Barrier Nos. 10 and 13) were modeled along the State ROW and edge of shoulder, respectively, to shield the green and tee boxes at Holes 3 through 5 and 7.
- **Receptor R-47 and R-47a:** These receptor locations represent the green at Hole 2 at a golf course located on the NB side of I-5 between Crown Valley Parkway and Oso Parkway. Currently, there is an existing 10 ft high wall that shields R-47 at the second hole. Two noise barrier locations were evaluated separately to shield Receptors R-47 and R-47a and to compare the effectiveness of the barriers. The first noise barrier (Noise Barrier No. 19) was evaluated along the edge of shoulder, and the second noise barrier (Noise Barrier No. 19a) was evaluated along the private property line.
- **Receptors R-58a and R-58b:** These receptor locations represent the green of Hole 17 and the tee box of Hole 18 at a golf course located on the NB side of I-5, north of Oso Parkway. Currently, there are no existing walls that shield these receptors. One noise barrier (Noise Barrier No. 38) was modeled along the State ROW to shield both the green and tee box.
- **Receptor R-59:** This receptor location represents a tee box at a golf course located on the NB side of I-5, north of Oso Parkway. Currently, there are no existing walls that shield the tee box. One noise barrier (Noise Barrier No. 50) was modeled along the State ROW to shield the tee box.

- **Receptors R-61 through R-62:** These receptor locations represent single-family residences along Via Oceano on the NB side of I-5, north of Oso Parkway. Currently, there are no existing walls that shield these residences. One noise barrier (Noise Barrier No. 41) was modeled along the property line to shield these residences.
- **Receptors R-65 and R-66 (Alternative 3 only):** These receptor locations represent single-family residences along Via Remolino on the NB side of I-5, north of Oso Parkway. Currently, there are no existing walls that shield these residences. One noise barrier (Noise Barrier No. 49) was modeled along the property line to shield these residences.
- **Receptors R-82, R-84 through R-86, R-87 (Alternative 3 only), R-88, R-89, and R-100:** These receptor locations represent single-family residences along Chrisanta Drive on the NB side of I-5 between Oso Parkway and La Paz Road. Currently, there is an existing 6 ft high property wall that shields these residences. One noise barrier (Noise Barrier No. 63) was modeled along the property line to shield these residences.
- **Receptor R-91:** This receptor location represents a single-family residence located along Esmeralda Circle on the NB side of I-5 between Oso Parkway and La Paz Road. Currently, there is an existing 6 ft high property wall that shields this residence. One noise barrier (Noise Barrier No. 77) was modeled along the property line to shield this residence.
- **Receptors R-101 and R-103:** These receptor locations represent single-family residences located along Esmeralda Circle and Turquesa Circle on the NB side of I-5 between Oso Parkway and La Paz Road. Currently, there is an existing 6 ft high property wall that shields these residences. One noise barrier (Noise Barrier No. 79) was modeled along the property line to shield these residences.
- **Receptors R-107 through R-110:** These receptor locations represent single-family residences located along Montarez Circle on the NB side of I-5 between Oso Parkway and La Paz Road. Currently, there is an existing 6 ft high property wall that shields these residences. One noise barrier (Noise Barrier No. 83) was modeled along the property line to shield these residences.
- **Receptors R-112 through R-114:** These receptor locations represent the sports field associated with Mission Viejo High School, located along Chrisanta Drive on the NB side of I-5, south of La Paz Road. Currently, there is an existing 12 ft high property wall along the State ROW that shields the sports field. One noise barrier (Noise Barrier No. 86) was modeled along the State ROW to shield the sport field.
- **Receptor R-115:** This receptor location represents the sports field associated with Mission Viejo High School, located along Chrisanta Drive on the NB side of I-5,

south of La Paz Road. Noise barriers were determined not to be feasible because the receptor is located too far from any potential noise barrier location (State ROW or property line).

- **Receptors R-123 through R-126 and R-127(Alternative 3 only):** These receptor locations represent single-family residences along the SB side of I-5, north of La Paz Road. Currently, there are existing 5 ft high wood fences that shield these residences. One noise barrier (Noise Barrier No. 115) was modeled along the property line to shield these residences.
- **Receptors R-129, R-135, R-138 (Alternative 3 only), and R-141 through R-143:** These receptor locations represent single-family residences located along Presidio Drive, Sutter Drive, and Express Drive along the SB side of I-5, north of La Paz Road. Currently, there is an existing 12.5–14.5 ft high wall along the State ROW that shields these residences. One noise barrier (Noise Barrier No. 121) was modeled along the State ROW/property line to shield these residences.
- **Receptors R-161, R-163 through R-166, and R-181:** These receptor locations represent single-family residences located along Delos Avenue, Pericles Street, and Acropolis Drive on the NB side of I-5, north of La Paz Road. Currently, there is an existing 4–14 ft high combination masonry/Plexiglas wall along the property line that shields these residences. Also, an existing 5 to 8 ft high masonry wall begins at the Alicia Parkway off-ramp diverge and continues north along the property line that shields single-family residences. One noise barrier (Noise Barrier No. 117) was modeled along the property line to shield these residences.
- **Receptors R-174 (Alternative 3 only), R-175, R-176, and R-178:** These receptor locations represent single-family residences located along Maximus Street on the NB side of I-5, south of Alicia Parkway. Currently, there is an existing 6–14 ft high wall along the State ROW and property line that shields these residences. One noise barrier (Noise Barrier No. 141) was modeled along the State ROW and property line to shield these residences.
- **Receptor R-217:** This receptor location represents single-family residences located at the cul-de-sac of Christina Court on the SB side of I-5 between Alicia Parkway and Los Alisos Boulevard. Currently, an existing 5.5 ft high wall along the property line and a 6 ft high wall along the edge of shoulder on Los Alisos Boulevard shield these residences. One noise barrier (Noise Barrier No. 175) was modeled along the property line to shield these residences.
- **Receptor R-227:** This receptor location represents multifamily residences located along Charlinda Drive on the NB side of I-5 between Alicia Parkway and Los Alisos Boulevard. Currently, an existing 16 ft high wall along the State ROW shields these

residences. One noise barrier (Noise Barrier No. 162) was modeled along the State ROW to shield these residences.

- **Receptors R-240 through R-242, R-244, R-245, and R-250:** These receptor locations represent single-family residences located along Stem Avenue and Fordview Street on the NB side of I-5 between Alicia Parkway and Los Alisos Boulevard. Currently, there is an existing 8–16 ft high wall along the edge of shoulder and State ROW that shields these residences. One noise barrier (Noise Barrier No. 168) was modeled along the edge of shoulder and State ROW to shield these residences.
- **Receptor R-265:** This receptor location represents an existing outdoor eating area associated with a fast-food restaurant located on the southwestern corner of El Toro Road and Avenida De La Carlota. As there is pedestrian access onto the property from El Toro Road and Avenida De Le Carlota, it is not practical to abate traffic noise with noise barriers.
- **Receptors R-277 and R-289:** These receptor locations represent single-family residences located along Silverbay Drive on the NB side of I-5 between Los Alisos Boulevard and El Toro Road. Currently, there is an existing 14 ft high wall along the State ROW and a 5–14 ft high property wall that shields these residences. One noise barrier (Noise Barrier No. 205) was modeled along the State ROW and the property line to shield these residences.
- **Receptors R-295 and R-296:** These receptor locations represent the playground associated with St. George Episcopal Church and Academy along the SB side of I-5, north of El Toro Road. Currently, there is an existing 14 ft high wall along the State ROW that shields the playground. One noise barrier (Noise Barrier No. 227) was modeled along the State ROW to shield the playground.
- **Receptor R-340:** This receptor location represents a playground located along the NB side of I-5, north of El Toro Road. Currently, there is an existing 16 ft high wall along the State ROW that shields the playground. As the existing wall is already at the maximum height of 16 ft, noise barriers heights between 16 ft and 22 ft high would not be feasible. Therefore, noise barriers at this location were determined not feasible and were not evaluated.

Noise Abatement Consideration

Noise abatement measures such as sound barriers were considered to shield receptors along I-5 from SR-73 to El Toro Road, where receptors exist and would continue to be exposed to traffic noise levels approaching or exceeding the NAC. All properties requiring abatement consideration are within Categories B and C, which have a 67 dBA

L_{eq} NAC. The bold numbers in Table 2.14-9, provided earlier, show affected receptors locations that approach or exceed the NAC under future worst-case with project traffic conditions. At each location, six sound barrier heights were analyzed: 6, 8, 10, 12, 14, and 16 ft. Noise barriers with a height of 16 ft were not analyzed if the barrier would be located within 15 ft of the nearest travel lane (see Caltrans Highway Design Manual [HDM], May 2012). In addition, noise barriers were analyzed up to 20 ft high to determine if noise barriers would be capable of reducing noise levels by 5 dBA or more. The results of the noise barrier modeling for Alternative 2 and 3 are shown in Tables 2.14-10 and 2.14-11, respectively. The locations of the noise barriers for Alternatives 2 and 3 are shown in Figures 2.14.2 and 2.14.3, respectively.

The following noise barriers were analyzed to shield receptor locations that would be exposed to traffic noise levels approaching or exceeding NAC for both Alternatives 2 and 3 (except where noted):

- **Noise Barrier No. 676:** A 666 ft long barrier within the property line located on the NB side of I-5, south of Avery Parkway, was analyzed to shield Receptors R-12 through R-13.
- **Noise Barrier No. 769:** A 124 ft long barrier located along the State ROW on the NB side of I-5 between Crown Valley Parkway and Oso Parkway was analyzed to shield Receptor R-31.
- **Noise Barrier No. 4:** A 543 ft long barrier located along the property line and/or within the property on the NB side of I-5 between Crown Valley Parkway and Oso Parkway was analyzed to shield Receptors R-40 through R-42.
- **Noise Barrier No. 10:** A 189 ft long barrier located along State ROW on the NB side of I-5 between Crown Valley Parkway and Oso Parkway was analyzed to shield Receptor R-44.
- **Noise Barrier No. 13:** A 447 ft long barrier located at the edge of shoulder on the NB side of I-5 between Crown Valley Parkway and Oso Parkway was analyzed to shield Receptor R-45.
- **Noise Barrier No. 19:** A 785 ft long barrier, located along the edge of shoulder on the NB side of I-5 between Crown Valley Parkway and Oso Parkway, was analyzed to shield Receptors R-47 and R-47a.
- **Noise Barrier No. 19a:** A 768 ft long barrier, located along the private property line on the NB side of I-5 between Crown Valley Parkway and Oso Parkway, was analyzed to shield Receptors R-47 and R-47a.

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Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
		R-1	64.2	64.8	64.5	--[3]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-2	64.1	64.7	64.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-3	64.0	64.6	64.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-4	70.3	70.9	70.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-5	70.9	71.5	71.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-6	**71.1**[4]	**71.9**	**71.6**	NF[5]	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-7	70.5	71.2	70.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-8	70.3	**71.8**	**71.5**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-9	72.8	73.6	--[6]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-10	73.5	74.2	74.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-11	75.7	76.5	76.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
676 (PL)		R-12	**72.6**	**73.2**	**73.4**	65.5[7]	7.9	64.0	9.4	62.7	10.7	61.6	11.8	60.8	12.6	59.9	13.5	--	--	--	--
		R-13	**66.8**	**67.5**	**67.4**	62.8	4.6	61.9	5.5	61.2	6.2	60.5	6.9	59.9	7.5	59.4	8.0	--	--	--	--
		R-14	75.9	76.7	76.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-15	75.1	75.9	76.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-16	72.4	73.1	72.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-17	70.5	71.2	71.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-18	68.5	69.1	70.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-19	67.6	68.3	68.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-20	**74.6**	**75.6**	**74.9**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-21	73.8	74.4	75.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-22	73.5	74.1	74.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-23	61.1/36.1[8]	61.9/36.9[8]	61.8/36.8[8]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-24	68.6	69.2	69.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-25	61.1	61.7	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-25	61.1	61.7	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-26	70.6	70.7	71.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-27	69.7	69.9	71.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-28	69.6	69.8	70.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-29	71.1	71.4	72.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-30	59.3	59.8	60.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
769 (ROW)		R-31	**72.2**	**72.5**	**73.0**	**71.4**	1.6	**69.9**	3.1	**68.7**	4.3	**66.5**	6.5	66.2	6.8	65.2	7.8	--	--	--	--
		R-32	61.0	61.2	62.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-33	57.0	57.2	58.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-34	54.9	55.1	55.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-35	53.4	53.7	54.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-36	50.7	51.0	51.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-37	61.0	61.2	62.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-38	60.9	61.2	61.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-39	59.7	60.0	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4 (PL)		R-40	**68.1**	**68.3**	**69.2**	64.2	5.0	63.8	5.4	63.2	6.0	62.5	6.7	62.0	7.2	61.2	8.0	--	--	--	--
		R-41	**71.0**	**71.2**	**72.3**	63.9	8.4	62.5	9.8	61.5	10.8	60.9	11.4	60.2	12.1	59.8	12.5	--	--	--	--
		R-42	64.8	65.0	**66.5**	60.4	6.1	59.0	7.5	58.1	8.4	57.4	9.1	56.8	9.7	56.4	10.1	--	--	--	--
		R-43	58.9	59.2	60.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10 (ROW)		R-44	**71.9**	**72.1**	**72.9**	**72.0**	0.9	**71.7**	1.2	**71.5**	1.4	**71.4**	1.5	**71.4**	1.5	**71.3**	1.6	--	--	--	--
13 (EOS)		R-45	**72.4**	**72.7**	**73.7**	**68.6**	5.1	**67.5**	6.2	**66.4**	7.3	65.4	8.3	64.8	8.9	NP[9]	NP	--	--	--	--
19 (EOS)		R-46	61.3	61.5	62.1	61.1	1.0	60.4	1.7	59.7	2.4	59.1	3.0	58.9	3.2	58.9	3.2	--	--	--	--
		R-47	**66.5**	**66.8**	**67.3**	64.3	3.0	63.1	4.2	61.9	5.4	60.9	6.4	60.2	7.1	59.7	7.6	--	--	--	--
		R-47a	**71.3**	**71.6**	**72.5**	**68.8**	3.7	**67.0**	5.5	65.5	7.0	64.4	8.1	63.6	8.9	63.0	9.5	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
19a (PL)		R-46	61.3	61.5	62.1	61.2	0.9	60.7	1.4	60.1	2.0	59.7	2.4	59.3	2.8	59.0	3.1	--	--	--	--
		R-47	66.5	66.8	**67.3**	64.2	3.1	63.6	3.7	62.5	4.8	61.7	5.6	61.5	5.8	60.8	6.5	--	--	--	--
		R-47a	71.3	71.6	**72.5**	67.5	5.0	65.7	6.8	64.3	8.2	63.3	9.2	62.4	10.1	61.8	10.7	--	--	--	--
		R-48	67.7	68.0	68.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-49	69.6/39.6[10]	69.8/39.8[10]	70.6/40.6[10]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-50	72.0	72.2	72.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-51	59.3	59.3	60.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-52	59.4	59.5	60.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-53	60.3	60.4	60.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-54	64.2	64.2	64.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-55	65.2	65.2	65.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-56	64.8	64.9	64.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-57	64.3	64.4	64.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-58	67.4	67.7	67.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
38 (ROW)		R-58a	65.9	**66.1**	**66.9**	**66.5**	0.4	**66.0**	0.9	65.9	1.0	65.6	1.3	65.4	1.5	65.1	1.8	64.9	2.0	64.8	2.1
		R-58b	**70.4**	**70.8**	**70.7**	**69.8**	0.9	**68.6**	2.1	**67.0**	3.7	**66.0**	4.7	65.3	5.4	64.8	5.9	64.5	6.2	64.2	6.5[11]
50 (ROW)		R-59	**67.3**	**67.4**	**68.9**	**66.9**	2.0	**66.6**	2.3	**66.4**	2.5	**66.1**	2.8	65.9	3.0	65.8	3.1	--	--	--	--
		R-60	63.8	64.1	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
41 (PL)		R-61	64.8	64.9	**66.6**	63.5	3.1	61.5	5.1	60.4	6.2	59.1	7.5	58.5	8.1	58.0	8.6	--	--	--	--
		R-62	64.3	64.5	**66.0**	61.4	4.6	59.7	6.3	58.3	7.7	57.5	8.5	57.1	8.9	56.7	9.3	--	--	--	--
		R-63	63.9	64.0	64.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-64	62.6	62.8	63.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
49 (PL)		R-65	65.9	**66.0**	**67.3**	60.7	6.6	58.5	8.8	56.6	10.7	55.6	11.7	55.1	12.2	54.9	12.4				
		R-66	64.1	64.2	65.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-67	60.2	60.3	61.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-68	63.8	64.0	63.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
41 (PL)		R-69	57.2	57.3	58.0	57.4	0.6	57.4	0.6	57.3	0.7	57.2	0.8	57.1	0.9	57.0	1.0				
		R-70	60.4	60.6	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-71	59.5	59.6	60.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-72	56.6	56.6	57.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-73	57.9	58.0	59.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	1	R-74	60.4	60.4	61.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-75	62.1	62.1	63.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-76	62.6	62.6	64.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-77	58.1	58.2	59.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	1	R-78	56.5	56.6	57.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-79	58.8	58.8	59.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-80	56.1	56.2	57.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-81	57.2	57.3	58.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63 (PL)		R-82	**67.3**	**67.3**	**68.5**	63.3	5.2	62.5	6.0	61.6	6.9	60.9	7.6	59.9	8.6	59.5	9.0	--	--	--	--
		R-83	64.0	64.0	65.2	63.1	2.1	63.4	1.8	63.0	2.2	62.5	2.7	61.9	3.3	61.5	3.7	--	--	--	--
		R-84	**67.5**	**67.5**	**69.1**	--[12]		**67.9**	1.2	**66.9**	2.2	65.9	3.2	65.1	4.0	64.4	4.7	--	--	--	--
		R-85	**69.3**	**69.4**	**71.0**	--		**69.3**	1.7	**68.0**	3.0	**66.8**	4.2	65.8	5.2	64.8	6.2	--	--	--	--
		R-86	**68.9**	**68.9**	**70.7**	--		**68.6**	2.1	**67.2**	3.5	65.6	5.1	64.9	5.8	64.1	6.6	--	--	--	--
		R-87	64.2	64.2	65.7	--		64.2	1.5	63.1	2.6	62.2	3.5	61.2	4.5	60.5	5.2	--	--	--	--
		R-88	**67.7**	**67.7**	**69.1**	--		**67.4**	1.7	65.7	3.4	64.1	5.0	63.1	6.0	62.1	7.0	--	--	--	--
		R-89	**69.5**	**69.6**	**70.9**	**67.1**	3.8	65.2	5.7	63.7	7.2	62.5	8.4	61.7	9.2	60.6	10.3	--	--	--	--
77 (PL)		R-90	61.9	61.9	63.2	--	--	62.5	0.7	62.3	0.9	62.2	1.0	62.0	1.2	61.9	1.3	--	--	--	--
		R-91	**66.5**	**66.6**	**67.9**	--	--	**66.6**	1.3	65.9	2.0	65.2	2.7	64.7	3.2	64.4	3.5	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
63 (PL)		R-92	59.6	59.7	60.7	60.6	0.1	60.5	0.2	60.2	0.5	59.9	0.8	59.6	1.1	59.3	1.4	--	--	--	--
		R-93	59.9	60.0	61.0	--	--	60.8	0.2	60.5	0.5	59.8	1.2	59.5	1.5	59.1	1.9	--	--	--	--
	2	R-94	59.5	59.5	60.5	--	--	59.7	0.8	59.4	1.1	59.3	1.2	59.2	1.3	58.6	1.9	--	--	--	--
		R-95	58.9	58.9	59.9	--	--	59.2	0.7	58.8	1.1	58.5	1.4	58.2	1.7	57.9	2.0	--	--	--	--
		R-96	60.8	60.8	62.0	--	--	60.9	1.1	60.4	1.6	60.4	1.6	60.4	1.6	60.5	1.5	--	--	--	--
		R-97	57.8	57.9	58.7	--	--	56.5	2.2	56.2	2.5	55.8	2.9	55.3	3.4	54.9	3.8	--	--	--	--
		R-98	55.4	55.5	56.5	--	--	54.5	2.0	54.1	2.4	53.8	2.7	53.4	3.1	53.1	3.4	--	--	--	--
		R-99	59.6	59.7	60.8	57.2	3.6	56.6	4.2	56.5	4.3	56.6	4.2	56.5	4.3	56.2	4.6	--	--	--	--
		R-100	65.2	65.2	**66.5**	58.2	8.3	57.9	8.6	57.2	9.3	56.6	9.9	56.2	10.3	55.7	10.8	--	--	--	--
79 (PL)		R-101	64.6	64.6	**66.0**	--	--	64.1	1.9	62.8	3.2	61.7	4.3	60.8	5.2	60.1	5.9	59.3	6.7	--	--
		R-102	60.7	60.7	62.1	--	--	61.1	1.0	60.5	1.6	60.0	2.1	59.7	2.4	59.5	2.6	59.3	2.8	--	--
		R-103	**66.5**	**66.5**	**67.8**	--	--	65.2	2.6	63.8	4.0	62.7	5.1	61.7	6.1	61.0	6.8	60.1	7.7	--	--
		R-104	62.5	62.5	63.8	--	--	62.6	1.2	61.9	1.9	61.4	2.4	61.1	2.7	60.9	2.9	60.7	3.1	--	--
		R-105	61.5	61.5	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-106	57.3	57.3	58.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
83 (PL)		R-107	65.4	65.5	**66.7**	--	--	64.9	1.8	63.5	3.2	62.5	4.2	61.8	4.9	61.5	5.2	61.2	5.5	--	--
		R-108	**66.6**	**66.6**	**68.3**	--	--	**66.7**	1.6	65.6	2.7	64.4	3.9	63.5	4.8	62.5	5.8	61.9	6.4	--	--
	3	R-109	**68.1**	**68.1**	**69.9**	--	--	**68.1**	1.8	**66.6**	3.3	65.4	4.5	64.3	5.6	63.2	6.7	62.7	7.2	--	--
		R-110	65.4	65.5	**66.7**	--	--	65.7	1.0	64.9	1.8	64.1	2.6	63.4	3.3	62.8	3.9	62.2	4.5	--	--
		R-111	61.2	61.3	62.5	--	--	62.4	0.1	62.3	0.2	62.2	0.3	62.1	0.4	61.9	0.6	61.9	0.6	--	--
86 (ROW)		R-112	**67.7**	**67.7**	**69.9**	--	--	--	--	--	--	--	--	**68.6**	1.3	**67.8**	2.1	--	--	--	--
	4	R-113	**67.9**	**67.9**	**69.6**	--	--	--	--	--	--	--	--	**69.0**	0.6	**68.3**	1.3	--	--	--	--
		R-114	**67.2**	**67.3**	**70.3**	--	--	--	--	--	--	--	--	**69.1**	1.2	**68.3**	2.0	--	--	--	--
		R-115	**66.2**	**66.2**	**67.6**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-116	71.3	71.7	71.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-117	56.1	56.3	56.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-118	75.1/48.1[13]	75.1/48.1[13]	74.9/47.9[13]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5a	R-119	61.8	62.4	62.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-120	60.9	61.2	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5b	R-121	59.3	59.5	60.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-122	62.9	62.9	63.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
115 (PL)	5c	R-123	**72.0**	**72.0**	**72.6**	63.7	8.9	61.0	11.6	59.4	13.2	58.0	14.6	56.8	15.8	56.2	16.4	--	--	--	--
		R-124	**68.5**	**68.5**	**69.0**	**66.7**	2.3	63.8	5.2	62.5	6.5	61.0	8.0	60.0	9.0	59.4	9.6	--	--	--	--
		R-125	**72.3**	**72.3**	**71.6**	**69.6**	2.0	**67.2**	4.4	65.1	6.5	64.1	7.5	62.7	8.9	61.9	9.7	--	--	--	--
		R-126	**68.1**	**68.2**	**68.8**	**67.6**	1.2	**66.2**	2.6	64.9	3.9	64.0	4.8	62.8	6.0	62.1	6.7	--	--	--	--
		R-127	64.7	64.7	65.5	64.8	0.7	64.1	1.4	63.4	2.1	62.6	2.9	62.0	3.5	61.4	4.1	--	--	--	--
		R-128	60.2	60.2	61.0	60.3	0.7	59.4	1.6	58.7	2.3	58.3	2.7	57.8	3.2	57.4	3.6	--	--	--	--
121 (ROW & PL)	6a	R-129	65.7	65.7	**66.5**	63.8	2.7	63.8	2.7	63.8	2.7	63.8	2.7	63.6	2.9	63.2	3.3	--	--	--	--
		R-130	57.4	57.4	58.0	57.8	0.2	57.8	0.2	57.8	0.2	57.8	0.2	57.6	0.4	57.1	0.9	--	--	--	--
		R-131	55.3	55.3	56.0	55.8	0.2	55.8	0.2	55.8	0.2	55.8	0.2	55.7	0.3	55.3	0.7	--	--	--	--
		R-132	63.1	63.1	63.7	63.6	0.1	63.6	0.1	63.6	0.1	63.6	0.1	63.3	0.4	62.6	1.1	--	--	--	--
		R-133	60.6	60.6	61.4	61.3	0.1	61.3	0.1	61.3	0.1	61.3	0.1	61.0	0.4	60.3	1.1	--	--	--	--
		R-134	59.2	59.3	60.0	59.9	0.1	59.9	0.1	59.9	0.1	59.9	0.1	59.7	0.3	59.1	0.9	--	--	--	--
	6b	R-135	**66.0**	**66.0**	**66.6**	**66.6**	0.0	**66.6**	0.0	**66.6**	0.0	**66.6**	0.0	**66.6**	0.0	65.8	0.8	--	--	--	--
		R-136	63.6	63.6	64.4	64.3	0.1	64.3	0.1	64.3	0.1	64.3	0.1	64.3	0.1	63.3	1.1	--	--	--	--
		R-137	61.8	61.8	62.5	62.5	0.0	62.5	0.0	62.5	0.0	62.5	0.0	62.4	0.1	61.6	0.9	--	--	--	--
		R-138	64.8	64.8	65.3	65.3	0.0	65.3	0.0	64.9	0.4	64.6	0.7	64.6	0.7	64.0	1.3	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
121 (ROW & PL)	6b	R-139	62.6	62.6	63.2	63.1	0.1	63.1	0.1	62.9	0.3	62.7	0.5	62.7	0.5	62.1	1.1	--	--	--	--
		R-140	62.5	62.5	63.1	63.1	0.0	63.1	0.0	63.1	0.0	62.3	0.8	62.1	1.0	61.3	1.8	--	--	--	--
	6b/7	R-141	**67.6**	**67.6**	**67.6**	65.6	2.0	64.2	3.4	63.3	4.3	62.6	5.0	62.5	5.1	61.5	6.1	--	--	--	--
		R-142	**66.4**	**66.5**	**66.3**	63.5	2.8	62.6	3.7	61.7	4.6	61.0	5.3	60.9	5.4	60.1	6.2	--	--	--	--
		R-143	**66.4**	**66.4**	**66.8**	64.6	2.2	63.4	3.4	62.6	4.2	61.7	5.1	61.4	5.4	59.4	7.4	--	--	--	--
	7	R-144	61.1	61.1	61.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-145	59.9	59.9	60.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-146	58.2	58.2	59.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-147	61.8	61.8	62.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-148	59.9	59.9	60.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-149	59.1	59.2	59.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-150	63.5	63.5	64.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-151	61.4	61.4	62.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-152	60.5	60.6	61.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-153	63.7	63.7	64.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-154	62.3	62.3	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-155	61.4	61.4	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-156	63.6	63.6	64.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-157	62.9	62.9	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-158	62.4	62.5	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-159	64.2	64.3	65.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-160	67.1	67.2	68.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
117 (PL)	8	R-161	65.1	65.1	**66.3**	65.8	0.5	65.8	0.5	65.2	1.1	65.0	1.3	64.8	1.5	64.7	1.6	--	--	--	--
		R-162	63.4	63.4	65.0	--	--	--	--	--	--	--	--	--	--	64.4	0.6	--	--	--	--
		R-163	65.4	65.4	**66.7**	--	--	--	--	--	--	--	--	--	--	65.7	1.0	--	--	--	--
		R-164	65.7	65.7	**66.9**	--	--	--	--	--	--	--	--	--	--	65.9	1.0	--	--	--	--
		R-165	**66.9**	**66.9**	**67.8**	--	--	--	--	--	--	--	--	--	--	67.1	0.7	--	--	--	--
		R-166	65.6	65.7	**66.6**	--	--	--	--	--	--	--	--	--	--	66.1	0.5	--	--	--	--
		R-167	61.8	61.8	62.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-168	63.7	63.7	64.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-169	61.9	61.9	63.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	8	R-170	63.9	64.0	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-171	63.9	63.9	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-172	63.9	63.9	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-173	64.1	64.1	64.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
141 (ROW &PL)		R-174	65.0	65.0	65.4	65.4	0.0	65.4	0.0	65.2	0.2	64.3	1.1	63.4	2.0	64.0	1.4	--	--	--	--
		R-175	**68.4**	**68.5**	**68.7**	**68.7**	0.0	**68.7**	0.0	**67.7**	1.0	**66.7**	2.0	65.5	3.2	64.8	3.9	--	--	--	--
		R-176	**68.2**	**68.2**	**68.4**	**68.4**	0.0	**68.4**	0.0	**67.4**	1.0	**66.2**	2.2	65.2	3.2	64.3	4.1	--	--	--	--
		R-177	64.9	65.0	65.3	65.3	0.0	65.3	0.0	64.2	1.1	63.1	2.2	62.0	3.3	61.3	4.0	--	--	--	--
		R-178	**66.6**	**66.6**	**66.9**	65.7	1.2	64.1	2.8	62.6	4.3	61.3	5.6	60.3	6.6	59.6	7.3	--	--	--	--
		R-179	62.9	63.0	63.4	61.7	1.7	60.6	2.8	59.8	3.6	58.6	4.8	57.8	5.6	57.2	6.2	--	--	--	--
		R-180	69.0	69.1	69.8													--	--	--	--
117 (PL)		R-181	**68.5**	**68.5**	**68.6**	62.7	5.9	61.9	6.7	61.3	7.3	60.8	7.8	60.6	8.0	60.0	8.6	--	--	--	--
		R-182	60.2	60.2	60.6	--	--	--	--	--	--	--	--	--	--	59.7	0.9	--	--	--	--
		R-183	60.3	60.4	60.9	--	--	--	--	--	--	--	--	--	--	60.5	0.4	--	--	--	--
		R-184	61.5	61.5	62.0	--	--	--	--	--	--	--	--	--	--	61.7	0.3	--	--	--	--
		R-185	55.0	55.0	55.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-186	54.5	54.5	55.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	8	R-187	55.3	55.3	55.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-188	58.1	58.1	58.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-189	57.4	57.5	58.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-190	59.8	59.8	60.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
141 (ROW & PL)		R-191	60.6	60.7	61.0	60.9	0.1	60.9	0.1	60.8	0.2	60.6	0.4	60.2	0.8	60.1	0.9	--	--	--	--
		R-192	59.9	60.0	60.3	59.6	0.7	59.5	0.8	59.9	0.4	59.3	1.0	58.9	1.4	58.6	1.7	--	--	--	--
		R-193	62.1	62.2	62.5	62.1	0.4	61.8	0.7	61.8	0.7	61.6	0.9	61.1	1.4	60.6	1.9	--	--	--	--
		R-194	56.8	56.9	57.2	57.1	0.1	57.1	0.1	56.8	0.4	56.6	0.6	56.2	1.0	55.9	1.3	--	--	--	--
		R-195	60.1	60.1	60.4	60.2	0.2	60.0	0.4	59.8	0.6	59.3	1.1	58.7	1.7	58.1	2.3	--	--	--	--
		R-196	56.8	56.9	57.2	56.6	0.6	56.3	0.9	56.5	0.7	56.0	1.2	55.6	1.6	55.2	2.0	--	--	--	--
		R-197	60.7	60.9	61.3	60.5	0.8	60.1	1.2	59.9	1.4	59.6	1.7	59.4	1.9	59.2	2.1	--	--	--	--
		R-198	66.5	68.2	68.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-199	58.0	58.6	58.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-200	67.8	67.9	68.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9a	R-201	60.3	60.4	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-202	60.3	60.4	61.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-203	59.5	59.6	60.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-204	60.2	60.3	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-205	59.8	59.9	61.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-206	58.9	58.9	59.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9a	R-207	61.1	61.2	62.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-208	60.3	60.3	60.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-209	59.4	59.5	60.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9c	R-210	62.0	62.0	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-211	61.2	61.2	62.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-212	60.4	60.5	61.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-213	59.7	59.8	60.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-214	57.7	57.7	58.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9d	R-215	59.3	59.4	60.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-216	71.1	71.1	71.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
175 (PL)	11	R-217	65.3	65.3	66.2	65.6	0.6	63.9	2.3	62.6	3.6	61.5	4.7	60.7	5.5	60.1	6.1	59.4	6.8	58.9	7.3
	10a	R-218	60.4	60.4	61.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10b	R-219	61.1	61.2	62.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10c	R-220	60.1	60.2	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-221	59.5	59.5	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10d	R-222	58.8	58.9	60.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-223	55.2	55.3	56.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12	R-224	58.4	58.5	59.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-225	79.0	79.1	79.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
162 (ROW)		R-226	65.3	65.4	65.9	63.6	2.3	63.4	2.5	63.1	2.8	62.8	3.1	62.5	3.4	62.2	3.7	--	--	--	--
		R-227	65.6	65.6	**66.1**	63.7	2.4	63.5	2.6	63.2	2.9	62.9	3.2	62.6	3.5	62.2	3.9	--	--	--	--
		R-228	63.2	63.3	63.8	61.5	2.3	61.1	2.7	60.7	3.1	60.3	3.5	59.9	3.9	59.5	4.3	--	--	--	--
		R-229	58.8	58.8	59.2	57.2	2.0	56.8	2.4	56.6	2.6	56.3	2.9	56.1	3.1	55.9	3.3	--	--	--	--
		R-230	63.9	63.9	64.4	62.0	2.4	61.7	2.7	61.5	2.9	61.3	3.1	61.1	3.3	60.9	3.5	--	--	--	--
		R-231	62.0	62.0	62.5	60.5	2.0	60.2	2.3	60.2	2.3	60.0	2.5	59.8	2.7	59.7	2.8	--	--	--	--
		R-232	60.7	60.8	61.2	59.3	1.9	58.8	2.4	58.4	2.8	58.0	3.2	57.7	3.5	57.4	3.8	--	--	--	--
		R-233	58.6	58.7	59.2	58.0	1.2	57.6	1.6	57.4	1.8	57.4	1.8	57.2	2.0	57.1	2.1	--	--	--	--
		R-234	60.9	60.9	61.3	60.0	1.3	59.9	1.4	60.1	1.2	60.1	1.2	60.0	1.3	60.0	1.3	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
162 (ROW)		R-235	58.8	58.8	59.3	58.4	0.9	58.2	1.1	58.5	0.8	58.5	0.8	58.4	0.9	58.4	0.9	--	--	--	--
		R-236	59.5	59.6	59.9	58.5	1.4	58.2	1.7	58.0	1.9	57.8	2.1	57.6	2.3	57.5	2.4	--	--	--	--
		R-237	58.1	58.2	58.6	56.9	1.7	56.8	1.8	56.7	1.9	56.5	2.1	56.5	2.1	56.4	2.2	--	--	--	--
		R-238	59.4	59.5	60.0	58.4	1.6	58.8	1.2	59.1	0.9	59.0	1.0	58.8	1.2	58.7	1.3	--	--	--	--
		R-239	60.2	60.3	60.7	59.0	1.7	59.3	1.4	59.3	1.4	59.5	1.2	59.2	1.5	59.0	1.7	--	--	--	--
168 (EOS & ROW)	13	R-240	**67.2**	**67.3**	**67.4**	--	--	--	--	**67.4**	0.0	**67.4**	0.0	**67.3**	0.1	**67.4**	0.0	--	--	--	--
		R-241	**69.3**	**69.4**	**69.3**	--	--	--	--	**69.3**	0.0	**69.3**	0.0	**69.2**	0.1	**69.3**	0.0	--	--	--	--
		R-242	**67.9**	**67.9**	**68.0**	--	--	--	--	**68.0**	0.0	**68.0**	0.0	**67.8**	0.2	**68.0**	0.0	--	--	--	--
		R-243	65.1	65.1	65.5	--	--	--	--	65.1	0.4	63.8	1.7	64.8	0.7	64.8	0.7	--	--	--	--
		R-244	**69.8**	**69.8**	**70.2**	--	--	--	--	**69.6**	0.6	**69.7**	0.5	**69.7**	0.5	**69.4**	0.8	--	--	--	--
	13/14	R-245	**69.3**	**69.3**	**69.5**	--	--	--	--	**67.2**	2.3	**66.8**	2.7	**66.4**	3.1	**66.1**	3.4	--	--	--	--
	13	R-246	64.7	64.7	65.0	--	--	--	--	65.0	0.0	65.0	0.0	65.0	0.0	65.0	0.0	--	--	--	--
		R-247	63.1	63.1	63.3	--	--	--	--	63.3	0.0	63.3	0.0	63.3	0.0	63.3	0.0	--	--	--	--
		R-248	61.0	61.1	61.4	--	--	--	--	61.4	0.0	61.4	0.0	61.4	0.0	61.4	0.0	--	--	--	--
		R-249	63.7	63.7	63.8	--	--	--	--	63.7	0.1	63.7	0.1	63.8	0.0	63.8	0.0	--	--	--	--
		R-250	65.8	65.8	**66.3**	--	--	--	--	**66.1**	0.2	**66.0**	0.3	**66.0**	0.3	**66.0**	0.3	--	--	--	--
	14	R-251	62.9	63.0	63.5	--	--	--	--	61.3	2.2	60.9	2.6	60.3	3.2	59.8	3.7	--	--	--	--
		R-252	59.8	60.0	60.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-253	61.2	61.5	61.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-254	61.0	61.1	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-255	72.3	72.3	73.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-256	70.8	71.1	71.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-257	65.2	65.2	66.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-258	65.9	65.9	67.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-259	65.2	65.3	66.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-260	68.7	68.8	70.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-261	68.2	68.1	69.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-262	72.6	72.5	73.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-263	63.6	63.6	64.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-264	65.3	65.5	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-265	**71.9**	**72.3**	**72.3**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-266	69.6	69.6	70.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15c	R-267	64.1	64.1	64.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15e	R-268	62.8	62.9	63.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-269	62.6	62.6	62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-270	61.0	61.0	61.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15e	R-271	60.0	60.0	60.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-272	63.7	63.7	64.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-273	61.4	61.4	61.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-274	61.7	61.7	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15d/15e	R-275	62.1	62.1	62.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
205 (ROW & PL)	15d	R-276	64.2	64.1	64.3	--	--	--	--	--	--	--	--	--	--	63.4	0.9	--	--	--	--
	15c/15d	R-277	**67.0**	**66.9**	**67.1**	--	--	**67.1**	0.0	**67.1**	0.0	**66.9**	0.2	**66.6**	0.5	65.6	1.5	--	--	--	--
	15f	R-278	60.8	60.8	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15e	R-279	62.6	62.6	62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-280	61.9	61.9	62.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-281	61.2	61.3	61.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-282	62.3	62.4	62.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	15e	R-283	61.0	61.0	61.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-284	63.6	63.6	64.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-285	63.1	63.0	63.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-286	63.1	63.0	63.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15d/15e	R-287	63.0	62.9	63.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
205 (ROW & PL)	15d	R-288	64.2	64.1	64.8	--	--	--	--	--	--	--	--	--	--	63.9	0.9	--	--	--	--
	15a	R-289	**66.5**	**66.4**	**66.6**	--	--	**66.5**	0.1	**66.1**	0.5	65.6	1.0	65.3	1.3	64.6	2.0	--	--	--	--
		R-290	78.3	78.3	78.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-291	66.5	66.6	66.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-292	70.3	70.7	70.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-293	74.8	75.0	75.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-294	68.2	68.3	68.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
227 (ROW)	17b	R-295	**69.5**/44.5[8]	**69.7**/44.7[8]	**70.0**/45.0[8]	--	--	--	--	--	--	--	--	--	--	**68.9**	1.1	--	--	--	--
		R-296	**71.0**	**71.1**	**71.2**	--	--	--	--	--	--	--	--	--	--	**71.2**	0.0	--	--	--	--
	16a	R-297	57.2	57.4	57.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-298	58.5	58.7	58.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-299	54.6	54.8	55.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-300	58.1	58.2	58.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-301	54.7	54.9	55.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-302	56.8	56.9	57.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-303	56.2	56.3	56.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-304	52.1	52.3	52.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-305	52.8	53.0	53.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-306	50.6	50.8	51.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-307	51.4	51.6	51.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-308	51.0	51.2	51.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-309	51.0	51.1	51.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-310	51.5	51.6	51.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-311	50.4	50.5	50.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-312	54.5	54.6	54.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-313	54.3	54.4	54.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-314	57.7	57.8	57.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-315	56.2	56.3	56.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-316	60.1	60.2	60.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-317	56.9	57.0	57.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-318	58.0	58.1	58.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-319	59.3	59.4	59.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-320	60.8	60.9	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-321	60.5	60.6	60.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-322	54.0	54.1	52.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-323	54.2	54.3	52.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-324	55.5	55.7	55.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-325	55.3	55.4	55.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-326	56.9	57.0	57.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-327	57.3	57.4	57.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	16b	R-328	65.6	65.7	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-329	63.5	63.6	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-330	65.5	65.6	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.14-10 Predicted Noise Levels and Insertion Loss for Alternative 2 (Preferred Alternative) (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 2 (Preferred Alternative)	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
		R-331	65.2	65.3	65.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-332	57.8	58.0	58.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	16b	R-333	59.4	59.5	59.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-334	58.4	58.5	58.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-335	59.3	59.4	59.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-336	73.7	73.9	73.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-337	70.4	70.7	70.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-338	68.6	68.8	68.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-339	64.6	64.7	64.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-340	**67.8**	**67.9**	**68.1**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-341	61.3	61.5	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-342	62.4	62.5	62.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-343	57.8	58.0	58.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-344	56.1	56.3	56.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-345	56.0	56.1	56.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-346	60.6	60.7	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	19	R-347	63.1	63.2	63.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-348	62.8	63.0	62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-349	60.8	60.9	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-350	58.3	58.4	58.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-351	57.0	57.1	57.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-352	56.2	56.4	56.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-353	60.6	60.7	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-354	61.8	61.9	62.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Source: LSA Associates, Inc., Noise Study Report (April 2013).

[1] I.L.: Insertion Loss.
[2] Feasible barriers were evaluated at 18 ft and 20 ft high to see if the barrier would provide at least a 7 dBA noise reduction at one or more benefited receptor (if needed).
[3] No barrier was analyzed at this location because the modeled Receptor would not approach or exceed the NAC.
[4] Numbers in **bold** represent noise levels that approach or exceed the NAC.
[5] NF = Not Feasible. It is not feasible to attenuate traffic noise levels with noise barriers due to driveway or pedestrian access to the property.
[6] Receptor R-9 under would be fully acquired by the proposed project.
[7] Underlined noise levels have been attenuated by at least 5 dBA (i.e., feasible barrier height).
[8] Exterior/interior noise level. The interior noise level was determined using a 25 dB exterior to interior noise level reduction for the classroom building. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the classroom building is masonry with single glazed windows.
[9] NP = Not Permitted. Sound barriers within 15 ft of the nearest travel lane are not permitted to exceed 14 ft in height.
[10] Exterior/interior noise level. The interior noise level was determined using a 30 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry with windows that would perform between single and double glazed windows.
[11] Noise barriers higher than 20 ft were not evaluated because they would not provide at least a 7 dBA noise reduction at one or more benefited receptor.
[12] Shaded area represents wall heights not evaluated because they are the same as or shorter than the existing wall height.
[13] Exterior/interior noise level. The interior noise level was determined using a 27 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined based on the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry and the windows would perform a little better than single glazed windows.

dB = decibels
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels
EOS = Edge of Shoulder
FHWA = Federal Highway Administration
ft = feet
H = height
NAC = Noise Abatement Criteria
NF = Not Feasible
NP = Not Permitted
PL = Property Line
ROW = right of way

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
		R-1	64.2	64.8	64.6	--[3]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-2	64.1	64.7	64.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-3	64.0	64.6	64.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-4	70.3	70.9	70.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-5	70.9	71.5	71.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-6	**71.1**[4]	**71.9**	**71.5**	NF[5]	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-7	70.5	71.2	70.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-8	70.3	**71.8**	**71.2**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-9	72.8	73.6	--[6]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-10	73.5	74.2	74.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-11	75.7	76.5	76.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
676 (PL)		R-12	**72.6**	**73.2**	**73.2**	65.5[7]	7.7	64.0	9.2	62.7	10.5	61.6	11.6	60.8	12.4	59.9	13.3	--	--	--	--
		R-13	**66.8**	**67.5**	**67.3**	62.7	4.6	61.9	5.4	61.2	6.1	60.5	6.8	59.9	7.4	59.4	7.9	--	--	--	--
		R-14	75.9	76.7	76.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-15	75.1	75.9	76.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-16	72.4	73.1	72.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-17	70.5	71.2	71.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-18	68.5	69.1	70.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-19	67.6	68.3	68.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-20	**74.6**	**75.6**	**75.1**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-21	73.8	74.4	75.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-22	73.5	74.1	74.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-23	61.1/36.1[8]	61.9/36.9	61.8/36.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-24	68.6	69.2	69.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-25	61.1	61.7	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-26	70.6	70.7	72.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-27	69.7	69.9	71.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-28	69.6	69.8	70.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-29	71.1	71.4	72.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-30	59.3	59.8	60.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
769 (ROW)		R-31	**72.2**	**72.5**	**73.5**	**71.5**	2.0	**70.0**	3.5	**68.7**	4.8	**66.7**	6.8	66.3	7.2	65.2	8.3	--	--	--	--
		R-32	61.0	61.2	62.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-33	57.0	57.2	58.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-34	54.9	55.1	55.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-35	53.4	53.7	54.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-36	50.7	51.0	51.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-37	61.0	61.2	62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-38	60.9	61.2	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-39	59.7	60.0	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
4 (PL)		R-40	**68.1**	**68.3**	**69.6**	64.5	5.1	64.0	5.6	63.3	6.3	62.7	6.9	62.2	7.4	61.3	8.3	--	--	--	--
		R-41	**71.0**	**71.2**	**72.6**	64.3	8.3	62.9	9.7	61.8	10.8	61.2	11.4	60.4	12.2	60.1	12.5	--	--	--	--
		R-42	64.8	65.0	**67.1**	60.8	6.3	59.3	7.8	58.5	8.6	57.7	9.4	57.1	10.0	56.6	10.5	--	--	--	--
		R-43	58.9	59.2	60.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
10 (ROW)		R-44	**71.9**	**72.1**	**73.2**	**72.3**	0.9	**72.0**	1.2	**71.8**	1.4	**71.8**	1.4	**71.7**	1.5	**71.7**	1.5	--	--	--	--
13 (EOS)		R-45	**72.4**	**72.7**	**74.1**	**68.8**	5.3	**67.6**	6.5	**66.3**	7.8	65.2	8.9	64.7	9.4	NP[9]	NP	--	--	--	--
19 (EOS)		R-46	61.3	61.5	62.8	61.3	1.5	60.6	2.2	59.9	2.9	59.2	3.6	59.1	3.7	59.0	3.8	--	--	--	--
		R-47	**66.5**	**66.8**	**68.3**	64.6	3.7	63.5	4.8	62.2	6.1	61.2	7.1	60.4	7.9	59.9	8.4	--	--	--	--
19a (PL)		R-47a	**71.3**	**71.6**	**72.7**	**69.1**	3.6	**67.2**	5.5	65.8	6.9	64.7	8.0	63.9	8.8	63.2	9.5	--	--	--	--

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
19a (PL)		R-46	61.3	61.5	62.8	61.5	1.3	60.9	1.9	60.3	2.5	59.9	2.9	59.5	3.3	59.1	3.7	--	--	--	--
		R-47	**66.5**	**66.8**	**68.3**	64.8	3.5	64.0	4.3	62.8	5.5	62.0	6.3	61.8	6.5	61.1	7.2	--	--	--	--
		R-47a	**71.3**	**71.6**	**72.7**	68.0	4.7	66.1	6.6	64.7	8.0	63.5	9.2	62.7	10.0	62.1	10.6	--	--	--	--
		R-48	67.7	68.0	69.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-49	69.6/39.6[10]	69.8/39.8[10]	71.0/41.0[10]	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-50	72.0	72.2	72.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-51	59.3	59.3	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-52	59.4	59.5	60.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-53	60.3	60.4	61.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-54	64.2	64.2	64.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-55	65.2	65.2	66.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-56	64.8	64.9	65.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-57	64.3	64.4	64.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-58	67.4	67.7	67.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
38 (ROW)		R-58a	65.9	**66.1**	**67.2**	**66.9**	0.3	**66.3**	0.9	**66.3**	0.9	**66.0**	1.2	65.8	1.4	65.6	1.6	65.4	1.8	65.3	1.9
		R-58b	**70.4**	**70.8**	**70.7**	**69.9**	0.8	**68.7**	2.0	**67.2**	3.5	**66.2**	4.5	65.5	5.2	65.1	5.6	64.8	5.9	64.5	6.2[11]
50(ROW)		R-59	**67.3**	**67.4**	**69.5**	**67.5**	2.0	**67.2**	2.3	**66.9**	2.6	**66.7**	2.8	**66.5**	3.0	**66.4**	3.1	--	--	--	--
		R-60	63.8	64.1	65.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
41 (PL)		R-61	64.8	64.9	**67.2**	63.9	3.3	61.9	5.3	60.7	6.5	59.4	7.8	58.8	8.4	58.2	9.0	--	--	--	--
		R-62	64.3	64.5	**66.9**	61.9	5.0	60.1	6.8	58.6	8.3	57.8	9.1	57.4	9.5	57.0	9.9	--	--	--	--
		R-63	63.9	64.0	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-64	62.6	62.8	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
49 (PL)		R-65	65.9	**66.0**	**67.9**	61.0	6.9	58.7	9.2	56.5	11.4	55.4	12.5	54.9	13.0	54.6	13.3	--	--	--	--
		R-66	64.1	64.2	**66.4**	60.8	5.6	58.8	7.6	56.8	9.6	55.7	10.7	54.6	11.8	53.8	12.6	--	--	--	--
		R-67	60.2	60.3	61.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-68	63.8	64.0	63.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
41 (PL)		R-69	57.2	57.3	58.3	57.6	0.7	57.6	0.7	57.5	0.8	57.4	0.9	57.3	1.0	57.2	1.1	--	--	--	--
		R-70	60.4	60.6	61.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-71	59.5	59.6	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-72	56.6	56.6	58.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-73	57.9	58.0	59.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	1	R-74	60.4	60.4	62.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-75	62.1	62.1	63.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-76	62.6	62.6	65.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-77	58.1	58.2	59.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	1	R-78	56.5	56.6	57.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-79	58.8	58.8	60.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-80	56.1	56.2	57.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-81	57.2	57.3	58.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
63 (PL)		R-82	**67.3**	**67.3**	**69.2**	63.7	5.5	62.9	6.3	62.0	7.2	61.3	7.9	60.3	8.9	59.8	9.4	--	--	--	--
	2	R-83	64.0	64.0	65.7	63.4	2.3	63.8	1.9	63.3	2.4	62.8	2.9	62.2	3.5	61.8	3.9	--	--	--	--
		R-84	**67.5**	**67.5**	**69.6**	--[12]	--	**68.3**	1.3	**67.3**	2.3	**66.3**	3.3	65.4	4.2	64.7	4.9	--	--	--	--
		R-85	**69.3**	**69.4**	**71.4**	--	--	**69.6**	1.8	**68.4**	3.0	**67.1**	4.3	**66.1**	5.3	65.0	6.4	--	--	--	--
		R-86	**68.9**	**68.9**	**71.1**	--	--	**69.0**	2.1	**67.5**	3.6	65.9	5.2	65.2	5.9	64.4	6.7	--	--	--	--
		R-87	64.2	64.2	**66.1**	--	--	64.5	1.6	63.4	2.7	62.4	3.7	61.4	4.7	60.8	5.3	--	--	--	--
		R-88	**67.7**	**67.7**	**69.4**	--	--	**67.7**	1.7	**66.0**	3.4	64.3	5.1	63.3	6.1	62.3	7.1	--	--	--	--
		R-89	**69.5**	**69.6**	**71.2**	**67.4**	3.8	65.4	5.8	63.9	7.3	62.8	8.4	61.9	9.3	60.9	10.3	--	--	--	--
77 (PL)		R-90	61.9	61.9	63.6	--	--	62.9	0.7	62.7	0.9	62.5	1.1	62.3	1.3	62.2	1.4	--	--	--	--
		R-91	**66.5**	**66.6**	**68.3**	--	--	**66.9**	1.4	**66.2**	2.1	65.5	2.8	65.0	3.3	64.6	3.7	--	--	--	--

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
63 (PL)	2	R-92	59.6	59.7	61.1	60.9	0.2	60.8	0.3	60.5	0.6	60.1	1.0	59.9	1.2	59.5	1.6	--	--	--	--
		R-93	59.9	60.0	61.3	--	--	61.1	0.2	60.7	0.6	60.0	1.3	59.8	1.5	59.4	1.9	--	--	--	--
		R-94	59.5	59.5	60.7	--	--	59.9	0.8	59.6	1.1	59.5	1.2	59.4	1.3	58.8	1.9	--	--	--	--
		R-95	58.9	58.9	60.2	--	--	59.4	0.8	59.0	1.2	58.7	1.5	58.4	1.8	58.1	2.1	--	--	--	--
		R-96	60.8	60.8	62.2	--	--	61.1	1.1	60.6	1.6	60.7	1.5	60.7	1.5	60.7	1.5	--	--	--	--
		R-97	57.8	57.9	58.8	--	--	56.8	2.0	56.5	2.3	56.0	2.8	55.6	3.2	55.1	3.7	--	--	--	--
		R-98	55.4	55.5	56.7	--	--	54.7	2.0	54.4	2.3	54.0	2.7	53.6	3.1	53.3	3.4	--	--	--	--
		R-99	59.6	59.7	61.1	57.7	3.4	57.1	4.0	57.0	4.1	57.1	4.0	57.0	4.1	56.7	4.4	--	--	--	--
		R-100	65.2	65.2	**66.7**	58.6	8.1	58.2	8.5	57.6	9.1	56.9	9.8	56.5	10.2	56.0	10.7	--	--	--	--
79 (PL)		R-101	64.6	64.6	**66.4**	--	--	64.4	2.0	63.1	3.3	62.0	4.4	61.0	5.4	60.4	6.0	--	--	--	--
		R-102	60.7	60.7	62.5	--	--	61.4	1.1	60.8	1.7	60.3	2.2	59.9	2.6	59.7	2.8	--	--	--	--
		R-103	**66.5**	**66.5**	**68.2**	--	--	65.5	2.7	64.1	4.1	62.9	5.3	61.9	6.3	61.2	7.0	--	--	--	--
		R-104	62.5	62.5	64.3	--	--	63.0	1.3	62.3	2.0	61.8	2.5	61.5	2.8	61.3	3.0	--	--	--	--
		R-105	61.5	61.5	63.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-106	57.3	57.3	59.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
83 (PL)	3	R-107	65.4	65.5	**67.0**	--	--	65.2	1.8	63.7	3.3	62.7	4.3	62.0	5.0	61.7	5.3	61.4	5.6	--	--
		R-108	**66.6**	**66.6**	**68.6**	--	--	**67.0**	1.6	65.8	2.8	64.6	4.0	63.8	4.8	62.8	5.8	62.1	6.5	--	--
		R-109	**68.1**	**68.1**	**70.1**	--	--	**68.3**	1.8	**66.9**	3.2	65.6	4.5	64.5	5.6	63.5	6.6	63.0	7.1	--	--
		R-110	65.4	65.5	**67.0**	--	--	65.9	1.1	65.1	1.9	64.3	2.7	63.6	3.4	63.0	4.0	62.5	4.5	--	--
		R-111	61.2	61.3	62.8	--	--	62.7	0.1	62.6	0.2	62.5	0.3	62.4	0.4	62.2	0.6	62.2	0.6	--	--
86 (ROW)	4	R-112	**67.7**	**67.7**	**70.3**	--	--	--	--	--	--	--	--	**69.0**	1.3	**68.2**	2.1	--	--	--	--
		R-113	**67.9**	**67.9**	**69.9**	--	--	--	--	--	--	--	--	**69.5**	0.4	**68.8**	1.1	--	--	--	--
		R-114	**67.2**	**67.3**	**70.4**	--	--	--	--	--	--	--	--	**69.0**	1.4	**67.9**	2.5	--	--	--	--
		R-115	**66.2**	**66.2**	**68.3**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-116	71.3	71.7	72.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-117	56.1	56.3	57.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-118	75.1/48.1[13]	75.1/48.1	76.1/49.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5a	R-119	61.8	62.4	63.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-120	60.9	61.2	62.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	5b	R-121	59.3	59.5	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-122	62.9	62.9	64.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
115 (PL)	5c	R-123	**72.0**	**72.0**	**73.4**	64.6	8.8	61.8	11.6	60.1	13.3	58.7	14.7	57.5	15.9	56.9	16.5	--	--	--	--
		R-124	**68.5**	**68.5**	**69.8**	**67.7**	2.1	64.5	5.3	63.1	6.7	61.6	8.2	60.7	9.1	60.3	9.5	--	--	--	--
		R-125	**72.3**	**72.3**	**71.6**	**69.8**	1.8	**67.3**	4.3	65.5	6.1	64.3	7.3	63.1	8.5	62.3	9.3	--	--	--	--
		R-126	**68.1**	**68.2**	**69.4**	**68.4**	1.0	**66.8**	2.6	65.5	3.9	64.4	5.0	63.4	6.0	62.9	6.5	--	--	--	--
		R-127	64.7	64.7	**66.2**	65.5	0.7	64.7	1.5	64.0	2.2	63.2	3.0	62.6	3.6	61.9	4.3	--	--	--	--
		R-128	60.2	60.2	61.6	61.0	0.6	60.0	1.6	59.4	2.2	58.9	2.7	58.4	3.2	58.0	3.6	--	--	--	--
121 (ROW & PL)	6a	R-129	65.7	65.7	**67.4**	64.4	3.0	64.4	3.0	64.4	3.0	64.4	3.0	64.3	3.1	63.9	3.5	--	--	--	--
		R-130	57.4	57.4	58.6	58.3	0.3	58.3	0.3	58.3	0.3	58.3	0.3	58.2	0.4	57.7	0.9	--	--	--	--
		R-131	55.3	55.3	56.6	56.3	0.3	56.3	0.3	56.3	0.3	56.3	0.3	56.3	0.3	55.9	0.7	--	--	--	--
		R-132	63.1	63.1	64.4	64.2	0.2	64.2	0.2	64.2	0.2	64.2	0.2	64.0	0.4	63.3	1.1	--	--	--	--
		R-133	60.6	60.6	62.0	61.9	0.1	61.9	0.1	61.9	0.1	61.9	0.1	61.6	0.4	60.9	1.1	--	--	--	--
		R-134	59.2	59.3	60.6	60.5	0.1	60.5	0.1	60.5	0.1	60.5	0.1	60.3	0.3	59.7	0.9	--	--	--	--
	6b	R-135	**66.0**	**66.0**	**67.4**	**67.3**	0.1	**67.3**	0.1	**67.3**	0.1	**67.3**	0.1	**67.3**	0.1	**66.5**	0.9	--	--	--	--
		R-136	63.6	63.6	65.2	65.1	0.1	65.1	0.1	65.1	0.1	65.1	0.1	65.0	0.2	64.0	1.2	--	--	--	--
		R-137	61.8	61.8	63.5	63.4	0.1	63.4	0.1	63.4	0.1	63.4	0.1	63.2	0.3	62.3	1.2	--	--	--	--
		R-138	64.8	64.8	**66.3**	**66.2**	0.1	**66.2**	0.1	65.7	0.6	65.5	0.8	65.5	0.8	65.0	1.3	--	--	--	--
		R-139	62.6	62.6	64.1	64.0	0.1	64.0	0.1	63.7	0.4	63.6	0.5	63.6	0.5	63.0	1.1	--	--	--	--
		R-140	62.5	62.5	64.1	64.1	0.0	64.1	0.0	64.0	0.1	63.3	0.8	63.1	1.0	62.2	1.9	--	--	--	--

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
121 (ROW & PL)	6b/7	R-141	**67.6**	**67.6**	**69.0**	**67.0**	2.0	65.9	3.1	64.8	4.2	64.2	4.8	63.9	5.1	63.0	6.0	--	--	--	--
		R-142	**66.4**	**66.5**	**67.7**	65.0	2.7	64.0	3.7	63.0	4.7	62.4	5.3	62.3	5.4	61.3	6.4	--	--	--	--
		R-143	**66.4**	**66.4**	**67.9**	65.8	2.1	64.5	3.4	63.7	4.2	62.8	5.1	62.5	5.4	60.7	7.2	--	--	--	--
	7	R-144	61.1	61.1	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-145	59.9	59.9	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-146	58.2	58.2	59.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-147	61.8	61.8	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-148	59.9	59.9	61.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-149	59.1	59.2	60.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-150	63.5	63.5	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-151	61.4	61.4	62.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-152	60.5	60.6	62.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-153	63.7	63.7	65.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-154	62.3	62.3	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-155	61.4	61.4	62.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-156	63.6	63.6	64.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-157	62.9	62.9	64.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-158	62.4	62.5	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-159	64.2	64.3	65.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-160	67.1	67.2	69.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
117 (PL)	8	R-161	65.1	65.1	**66.8**	**66.4**	0.4	**66.4**	0.4	65.8	1.0	65.6	1.2	65.4	1.4	65.3	1.5	--	--	--	--
		R-162	63.4	63.4	65.7	--	--	--	--	--	--	--	--	--	--	65.1	0.6	--	--	--	--
		R-163	65.4	65.4	**67.4**	--	--	--	--	--	--	--	--	--	--	**66.4**	1.0	--	--	--	--
		R-164	65.7	65.7	**67.6**	--	--	--	--	--	--	--	--	--	--	**66.5**	1.1	--	--	--	--
		R-165	**66.9**	**66.9**	**68.4**	--	--	--	--	--	--	--	--	--	--	**67.7**	0.7	--	--	--	--
		R-166	65.6	65.7	**67.3**	--	--	--	--	--	--	--	--	--	--	**66.8**	0.5	--	--	--	--
		R-167	61.8	61.8	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-168	63.7	63.7	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-169	61.9	61.9	63.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-170	63.9	64.0	65.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-171	63.9	63.9	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-172	63.9	63.9	65.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-173	64.1	64.1	65.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
141 (ROW & PL)		R-174	65.0	65.0	**66.0**	**66.0**	0.0	**66.0**	0.0	65.8	0.2	65.4	0.6	64.5	1.5	64.7	1.3	--	--	--	--
		R-175	**68.4**	**68.5**	**69.3**	**69.3**	0.0	**69.3**	0.0	**68.3**	1.0	**67.2**	2.1	**66.1**	3.2	65.4	3.9	--	--	--	--
		R-176	**68.2**	**68.2**	**68.8**	**68.8**	0.0	**68.8**	0.0	**67.8**	1.0	**66.7**	2.1	65.8	3.0	65.0	3.8	--	--	--	--
		R-177	64.9	65.0	65.6	65.6	0.0	65.6	0.0	64.6	1.0	63.5	2.1	62.5	3.1	61.8	3.8	--	--	--	--
		R-178	**66.6**	**66.6**	**67.1**	**66.1**	1.0	64.3	2.8	62.8	4.3	61.7	5.4	60.5	6.6	59.9	7.2	--	--	--	--
	8	R-179	62.9	63.0	63.6	61.9	1.7	60.8	2.8	59.9	3.7	58.8	4.8	58.0	5.6	57.4	6.2	--	--	--	--
		R-180	69.0	69.1	69.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
117 (PL)		R-181	**68.5**	**68.5**	**69.2**	63.3	5.9	62.5	6.7	61.9	7.3	61.4	7.8	61.2	8.0	60.5	8.7	--	--	--	--
		R-182	60.2	60.2	61.2	--	--	--	--	--	--	--	--	--	--	60.2	1.0	--	--	--	--
		R-183	60.3	60.4	61.4	--	--	--	--	--	--	--	--	--	--	61.0	0.4	--	--	--	--
		R-184	61.5	61.5	62.5	--	--	--	--	--	--	--	--	--	--	62.2	0.3	--	--	--	--
		R-185	55.0	55.0	56.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-186	54.5	54.5	55.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-187	55.3	55.3	56.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-188	58.1	58.1	59.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
		R-189	57.4	57.5	58.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-190	59.8	59.8	60.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-191	60.6	60.7	61.4	61.4	0.0	61.3	0.1	61.2	0.2	61.1	0.3	60.5	0.9	60.5	0.9	--	--	--	--
		R-192	59.9	60.0	60.6	60.0	0.6	60.0	0.6	60.2	0.4	59.7	0.9	59.2	1.4	59.0	1.6	--	--	--	--
141 (ROW & PL)	8	R-193	62.1	62.2	62.7	62.5	0.2	62.1	0.6	62.1	0.6	61.9	0.8	61.4	1.3	60.9	1.8	--	--	--	--
		R-194	56.8	56.9	57.5	57.4	0.1	57.3	0.2	57.0	0.5	56.8	0.7	56.5	1.0	56.2	1.3	--	--	--	--
		R-195	60.1	60.1	60.7	60.6	0.1	60.5	0.2	60.1	0.6	59.5	1.2	58.9	1.8	58.4	2.3	--	--	--	--
		R-196	56.8	56.9	57.5	56.9	0.6	56.7	0.8	56.7	0.8	56.3	1.2	55.9	1.6	55.6	1.9	--	--	--	--
		R-197	60.7	60.9	61.4	60.7	0.7	60.3	1.1	60.0	1.4	59.7	1.7	59.5	1.9	59.4	2.0	--	--	--	--
		R-198	66.5	68.2	68.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-199	58.0	58.6	58.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-200	67.8	67.9	68.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-201	60.3	60.4	61.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-202	60.3	60.4	61.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-203	59.5	59.6	60.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-204	60.2	60.3	61.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9a	R-205	59.8	59.9	61.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-206	58.9	58.9	59.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-207	61.1	61.2	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-208	60.3	60.3	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-209	59.4	59.5	60.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-210	62.0	62.0	63.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-211	61.2	61.2	62.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9c	R-212	60.4	60.5	61.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-213	59.7	59.8	60.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-214	57.7	57.7	58.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	9d	R-215	59.3	59.4	60.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-216	71.1	71.1	71.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	11	R-217	65.3	65.3	**66.2**	65.7	0.5	61.8	4.4	62.7	3.5	61.6	4.6	60.8	5.4	60.2	6.0	59.5	6.7	58.9	7.3
	10a	R-218	60.4	60.4	62.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10b	R-219	61.1	61.2	62.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10c	R-220	60.1	60.2	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-221	59.5	59.5	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	10d	R-222	58.8	58.9	60.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-223	55.2	55.3	56.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	12	R-224	58.4	58.5	59.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-225	79.0	79.1	79.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-226	65.3	65.4	**66.1**	63.8	2.3	63.6	2.5	63.3	2.8	63.0	3.1	62.7	3.4	62.4	3.7	--	--	--	--
		R-227	65.6	65.6	**66.3**	63.9	2.4	63.7	2.6	63.4	2.9	63.1	3.2	62.8	3.5	62.4	3.9	--	--	--	--
		R-228	63.2	63.3	64.0	61.7	2.3	61.3	2.7	60.9	3.1	60.5	3.5	60.1	3.9	59.7	4.3	--	--	--	--
		R-229	58.8	58.8	59.4	57.3	2.1	57.0	2.4	56.7	2.7	56.5	2.9	56.3	3.1	56.1	3.3	--	--	--	--
		R-230	63.9	63.9	64.5	62.1	2.4	61.9	2.6	61.7	2.8	61.5	3.0	61.3	3.2	61.1	3.4	--	--	--	--
162 (ROW)		R-231	62.0	62.0	62.6	60.6	2.0	60.4	2.2	60.3	2.3	60.1	2.5	60.0	2.6	59.8	2.8	--	--	--	--
		R-232	60.7	60.8	61.3	59.4	1.9	59.0	2.3	58.6	2.7	58.1	3.2	57.8	3.5	57.6	3.7	--	--	--	--
		R-233	58.6	58.7	59.4	58.1	1.3	57.8	1.6	57.6	1.8	57.6	1.8	57.4	2.0	57.3	2.1	--	--	--	--
		R-234	60.9	60.9	61.5	60.2	1.3	60.1	1.4	60.2	1.3	60.2	1.3	60.2	1.3	60.1	1.4	--	--	--	--
		R-235	58.8	58.8	59.5	58.6	0.9	58.4	1.1	58.6	0.9	58.7	0.8	58.6	0.9	58.6	0.9	--	--	--	--
		R-236	59.5	59.6	60.1	58.7	1.4	58.4	1.7	58.2	1.9	58.0	2.1	57.8	2.3	57.7	2.4	--	--	--	--

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
162 (ROW)		R-237	58.1	58.2	58.7	57.1	1.6	57.0	1.7	56.9	1.8	56.7	2.0	56.7	2.0	56.6	2.1	--	--	--	--
		R-238	59.4	59.5	60.1	58.6	1.5	59.0	1.1	59.2	0.9	59.1	1.0	59.0	1.1	58.9	1.2	--	--	--	--
		R-239	60.2	60.3	60.9	59.2	1.7	59.5	1.4	59.4	1.5	59.7	1.2	59.4	1.5	59.2	1.7	--	--	--	--
168 (EOS & ROW)	13	R-240	**67.2**	**67.3**	**67.6**	--	--	--	--	**67.6**	0.0	**67.6**	0.0	**67.4**	0.2	**67.6**	0.0	--	--	--	--
		R-241	**69.3**	**69.4**	**69.5**	--	--	--	--	**69.5**	0.0	**69.5**	0.0	**69.4**	0.1	**69.5**	0.0	--	--	--	--
		R-242	**67.9**	**67.9**	**68.2**	--	--	--	--	**68.2**	0.0	**68.2**	0.0	**67.9**	0.3	**68.2**	0.0	--	--	--	--
		R-243	65.1	65.1	65.6	--	--	--	--	65.5	0.1	64.0	1.6	65.0	0.6	65.0	0.6	--	--	--	--
	13	R-244	**69.8**	**69.8**	**70.5**	--	--	--	--	**70.1**	0.4	**69.9**	0.6	**69.9**	0.6	**69.6**	0.9	--	--	--	--
	13/14	R-245	**69.3**	**69.3**	**69.8**	--	--	--	--	**67.3**	2.5	**67.1**	2.7	**66.7**	3.1	**66.4**	3.4	--	--	--	--
	13	R-246	64.7	64.7	65.2	--	--	--	--	65.2	0.0	65.2	0.0	65.2	0.0	65.2	0.0	--	--	--	--
		R-247	63.1	63.1	63.5	--	--	--	--	63.5	0.0	63.5	0.0	63.5	0.0	63.5	0.0	--	--	--	--
		R-248	61.0	61.1	61.6	--	--	--	--	61.6	0.0	61.6	0.0	61.6	0.0	61.6	0.0	--	--	--	--
		R-249	63.7	63.7	64.1	--	--	--	--	64.1	0.0	64.0	0.1	64.1	0.0	64.1	0.0	--	--	--	--
		R-250	65.8	65.8	**66.6**	--	--	--	--	**66.6**	0.0	**66.3**	0.3	**66.3**	0.3	**66.3**	0.3	--	--	--	--
	14	R-251	62.9	63.0	63.7	--	--	--	--	61.6	2.1	61.0	2.7	60.4	3.3	60.0	3.7	--	--	--	--
		R-252	59.8	60.0	60.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-253	61.2	61.5	61.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-254	61.0	61.1	61.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-255	72.3	72.3	73.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-256	70.8	71.1	71.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-257	65.2	65.2	66.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-258	65.9	65.9	67.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-259	65.2	65.3	66.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-260	68.7	68.8	70.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-261	68.2	68.1	69.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-262	72.6	72.5	73.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-263	63.6	63.6	64.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-264	65.3	65.5	65.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-265	**71.9**	**72.3**	**72.4**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-266	69.6	69.6	70.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15c	R-267	64.1	64.1	64.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15e	R-268	62.8	62.9	63.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-269	62.6	62.6	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-270	61.0	61.0	61.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-271	60.0	60.0	60.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-272	63.7	63.7	64.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-273	61.4	61.4	61.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-274	61.7	61.7	62.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15d/15e	R-275	62.1	62.1	62.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
205 (ROW & PL)	15d	R-276	64.2	64.1	64.5	--	--	--	--	--	--	--	--	--	--	63.6	0.9	--	--	--	--
	15c/15d	R-277	**67.0**	**66.9**	**67.3**	--	--	**67.3**	0.0	**67.3**	0.0	**67.0**	0.3	**66.7**	0.6	65.8	1.5	--	--	--	--
	15f	R-278	60.8	60.8	61.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15e	R-279	62.6	62.6	63.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-280	61.9	61.9	62.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-281	61.2	61.3	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-282	62.3	62.4	63.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-283	61.0	61.0	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-284	63.6	63.6	64.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	15e	R-285	63.1	63.0	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-286	63.1	63.0	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	15d/15e	R-287	63.0	62.9	63.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
205 (ROW & PL)	15d	R-288	64.2	64.1	64.9	--	--	--	--	--	--	--	--	--	--	64.0	0.9	--	--	--	--
	15a	R-289	**66.5**	**66.4**	**66.8**	--	--	**66.7**	0.1	**66.3**	0.5	65.8	1.0	65.5	1.3	64.8	2.0	--	--	--	--
		R-290	78.3	78.3	78.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-291	66.5	66.6	66.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-292	70.3	70.7	71.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-293	74.8	75.0	75.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-294	68.2	68.3	68.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
227 (ROW)	17b	R-295	**69.5/**44.5[3]	**69.7/**44.7	**70.0/**45.0	--	--	--	--	--	--	--	--	--	--	**68.9**	1.1	--	--	--	--
		R-296	**71.0**	**71.1**	**71.2**	--	--	--	--	--	--	--	--	--	--	**71.2**	0.0	--	--	--	--
	16a	R-297	57.2	57.4	57.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-298	58.5	58.7	58.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-299	54.6	54.8	55.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-300	58.1	58.2	58.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-301	54.7	54.9	55.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-302	56.8	56.9	57.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-303	56.2	56.3	56.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-304	52.1	52.3	52.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-305	52.8	53.0	53.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-306	50.6	50.8	50.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-307	51.4	51.6	51.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-308	51.0	51.2	51.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-309	51.0	51.1	51.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-310	51.5	51.6	51.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-311	50.4	50.5	50.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-312	54.5	54.6	54.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-313	54.3	54.4	54.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-314	57.7	57.8	57.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-315	56.2	56.3	56.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-316	60.1	60.2	60.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-317	56.9	57.0	57.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-318	58.0	58.1	58.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-319	59.3	59.4	59.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-320	60.8	60.9	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-321	60.5	60.6	60.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-322	54.0	54.1	52.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-323	54.2	54.3	52.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-324	55.5	55.7	55.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-325	55.3	55.4	55.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-326	56.9	57.0	57.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-327	57.3	57.4	57.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	16b	R-328	65.6	65.7	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-329	63.5	63.6	63.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-330	65.5	65.6	65.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-331	65.2	65.3	65.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-332	57.8	58.0	58.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

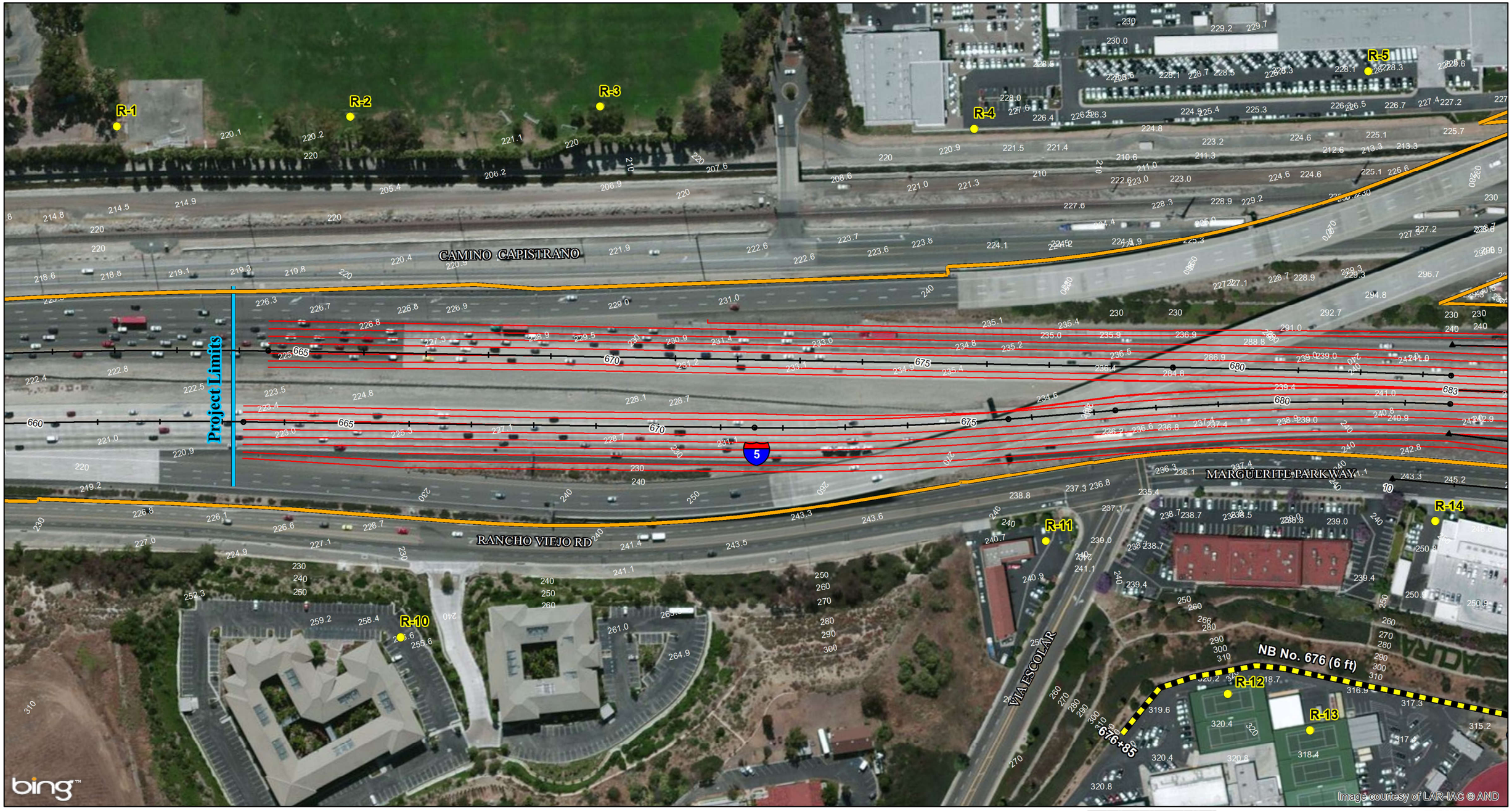
Table 2.14-11 Predicted Noise Levels and Insertion Loss for Alternative 3 (dBA L_{eq})

Noise Barrier No.	Existing Wall No.	Receptor No.	Existing	Future No Build	Alternative 3	With Barrier H = 6 ft		With Barrier H = 8 ft		With Barrier H = 10 ft		With Barrier H = 12 ft		With Barrier H = 14 ft		With Barrier H = 16 ft		With Barrier[2] H = 18 ft		With Barrier[2] H = 20 ft	
						L_{eq}	I.L.[1]	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.	L_{eq}	I.L.
	16b	R-333	59.4	59.5	59.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-334	58.4	58.5	58.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-335	59.3	59.4	59.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-336	73.7	73.9	73.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-337	70.4	70.7	70.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-338	68.6	68.8	68.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-339	64.6	64.7	64.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
	19	R-340	**67.8**	**67.9**	**68.1**	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	NF	--	--	--	--
		R-341	61.3	61.5	61.7	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-342	62.4	62.5	62.6	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-343	57.8	58.0	58.1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-344	56.1	56.3	56.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-345	56.0	56.1	56.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-346	60.6	60.7	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-347	63.1	63.2	63.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-348	62.8	63.0	62.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-349	60.8	60.9	61.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-350	58.3	58.4	58.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-351	57.0	57.1	57.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-352	56.2	56.4	56.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-353	60.6	60.7	60.8	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
		R-354	61.8	61.9	61.9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Source: LSA Associates, Inc., Noise Study Report (April 2013).

[1] I.L.: Insertion Loss.
[2] Feasible barriers were evaluated at 18 ft and 20 ft high to see if the barrier would provide at least a 7 dBA noise reduction at one or more benefited receptor (if needed).
[3] No barriers were analyzed at this location because the modeled receptor would not approach or exceed the NAC.
[4] Numbers in bold represent noise levels that approach or exceed the NAC.
[5] NF = Not Feasible. It is not feasible to attenuate traffic noise levels with noise barriers due to driveway or pedestrian access to the property.
[6] Receptor R-9 would be fully acquired by the proposed project.
[7] Underlined noise levels have been attenuated by at least 5 dBA (i.e., feasible barrier height).
[8] Exterior/interior noise level. The interior noise level was determined using a 25 dB exterior to interior noise level reduction for the classroom building. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the classroom building is masonry with single glazed windows.
[9] NP = Not Permitted. Sound barriers within 15 ft of the nearest travel lane are not permitted to exceed 14 ft in height.
[10] Exterior/interior noise level. The interior noise level was determined using a 30 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined from the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry with windows that would perform between single and double glazed windows.
[11] Noise barriers higher than 20 ft were not evaluated because they would not provide at least a 7 dBA noise reduction at one or more benefited receptor.
[12] Shaded area represents wall heights not evaluated because they are the same as or shorter than the existing wall height.
[13] Exterior/interior noise level. The interior noise level was determined using a 27 dB exterior to interior noise level reduction for the hotel. The noise level reduction was determined based on the FHWA Highway Traffic Noise: Analysis and Abatement Guidance because the construction of the building is masonry and the windows would perform a little better than single glazed windows.

dB = decibels
dBA L_{eq} = equivalent continuous sound level measured in A-weighted decibels
EOS = Edge of Shoulder
FHWA = Federal Highway Administration
ft = feet
H = height
NAC = Noise Abatement Criteria
NF = Not Feasible
NP = Not Permitted
PL = Property Line
ROW = right of way



LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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Note:
Receptor R-9 would be fully acquired under Alternative 2.

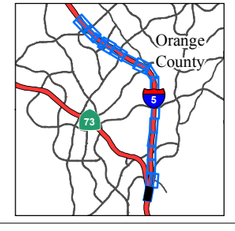

FIGURE 2.14-2
Sheet 1 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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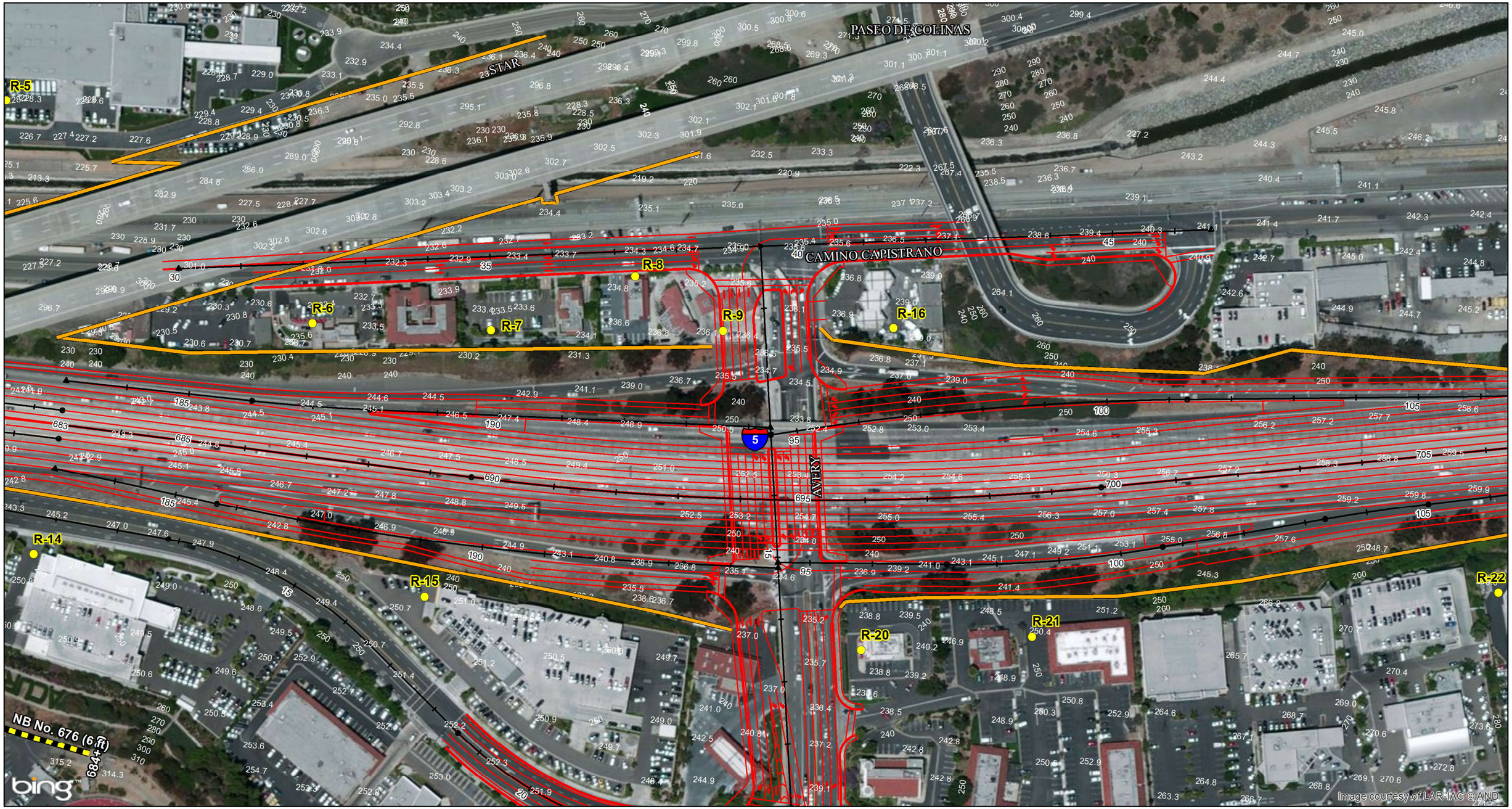

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
Receptor R-9 would be fully acquired under Alternative 2.

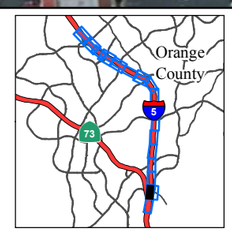

FIGURE 2.14-2
Sheet 2 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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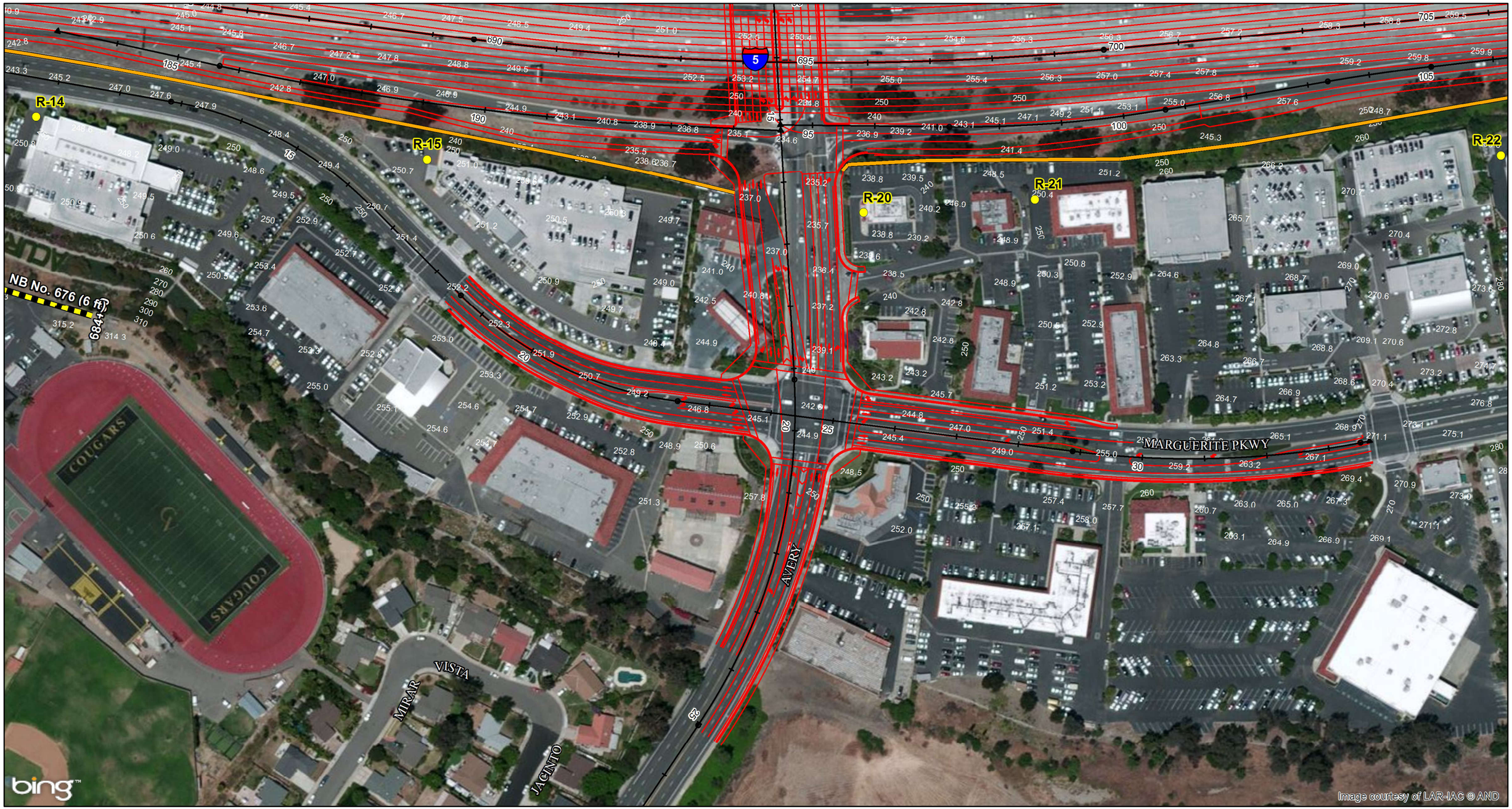

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
Receptor R-9 would be fully acquired under Alternative 2.

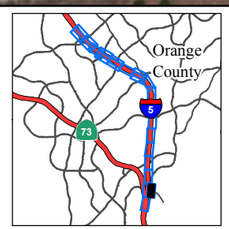

FIGURE 2.14-2
Sheet 3 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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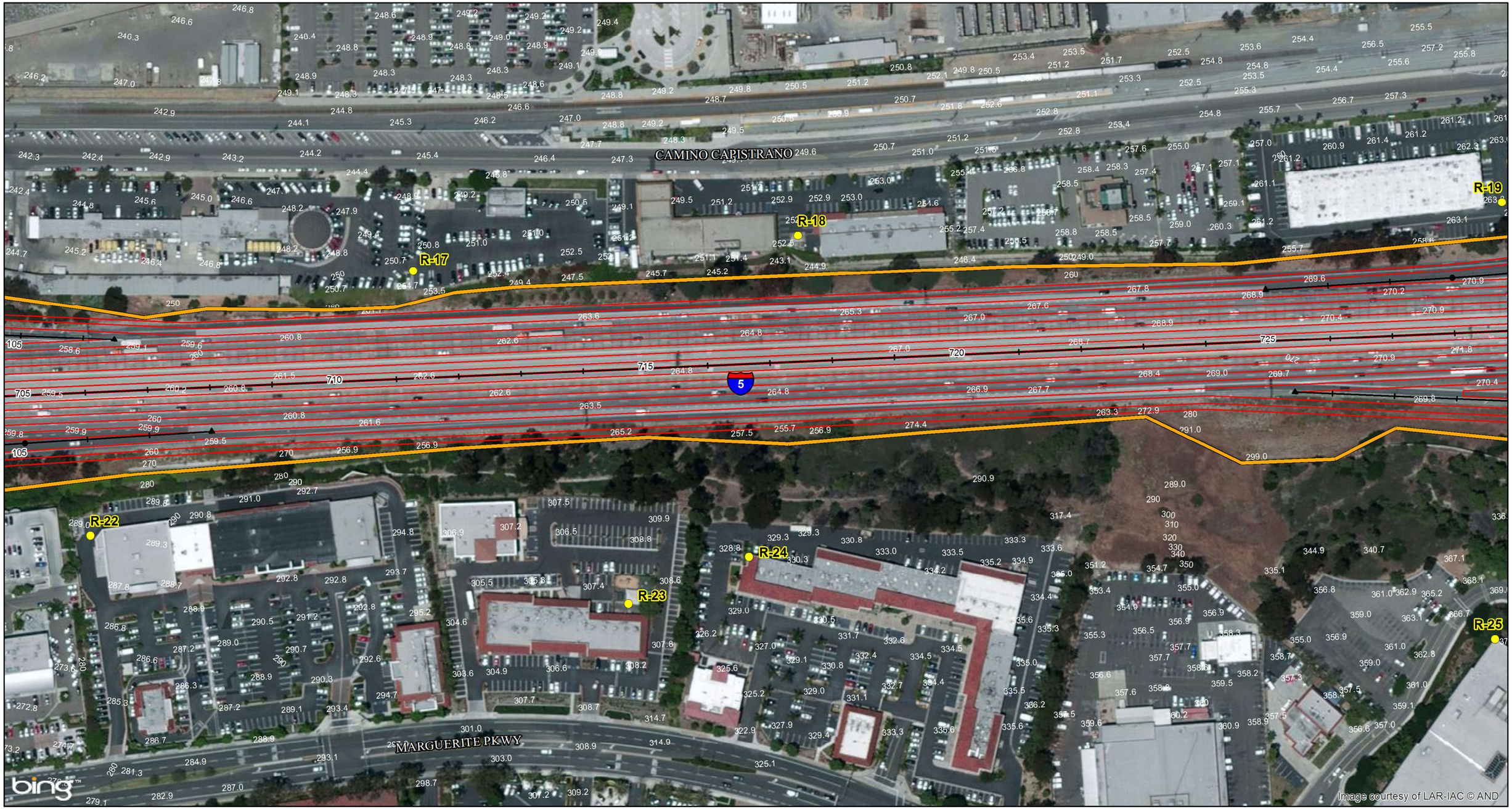

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
Receptor R-9 would be fully acquired under Alternative 2.

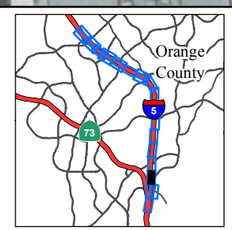

FIGURE 2.14-2
Sheet 4 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

I:\TSY1102\GIS\MonitoredNoiseBarriers_Receiver_Locs_Alt2_ISEA.mxd (12/2/2013)

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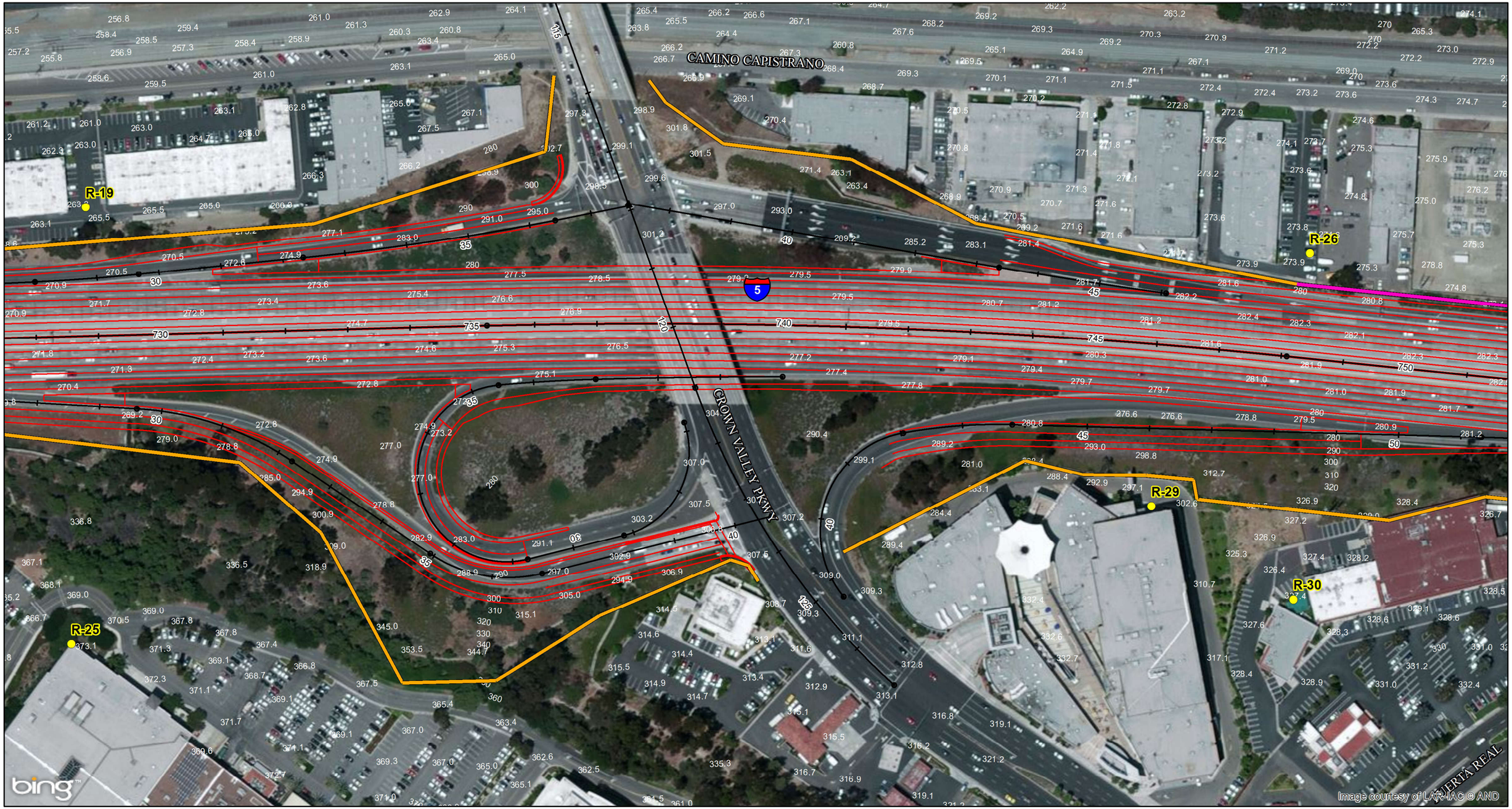

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

I:\TSY1102\GIS\MonitoredNoiseBarriers_Receiver_Locs_Alt2_ISEA.mxd (12/2/2013)

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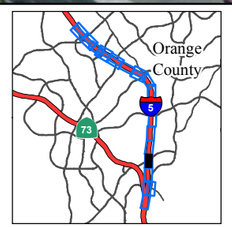

FIGURE 2.14-2
Sheet 5 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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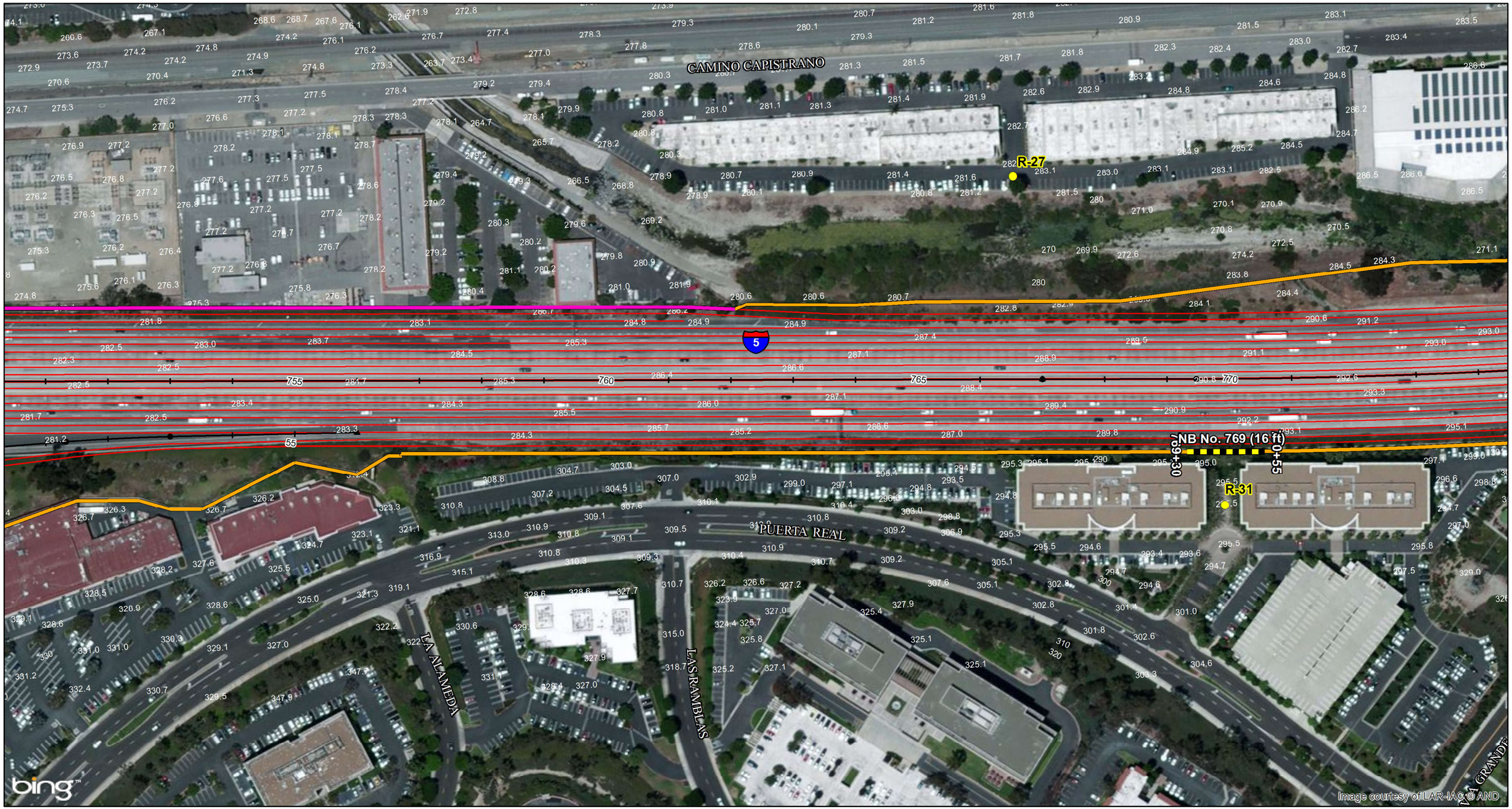

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
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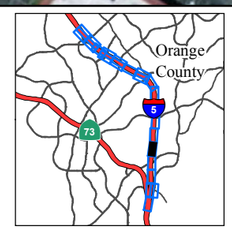

FIGURE 2.14-2
Sheet 6 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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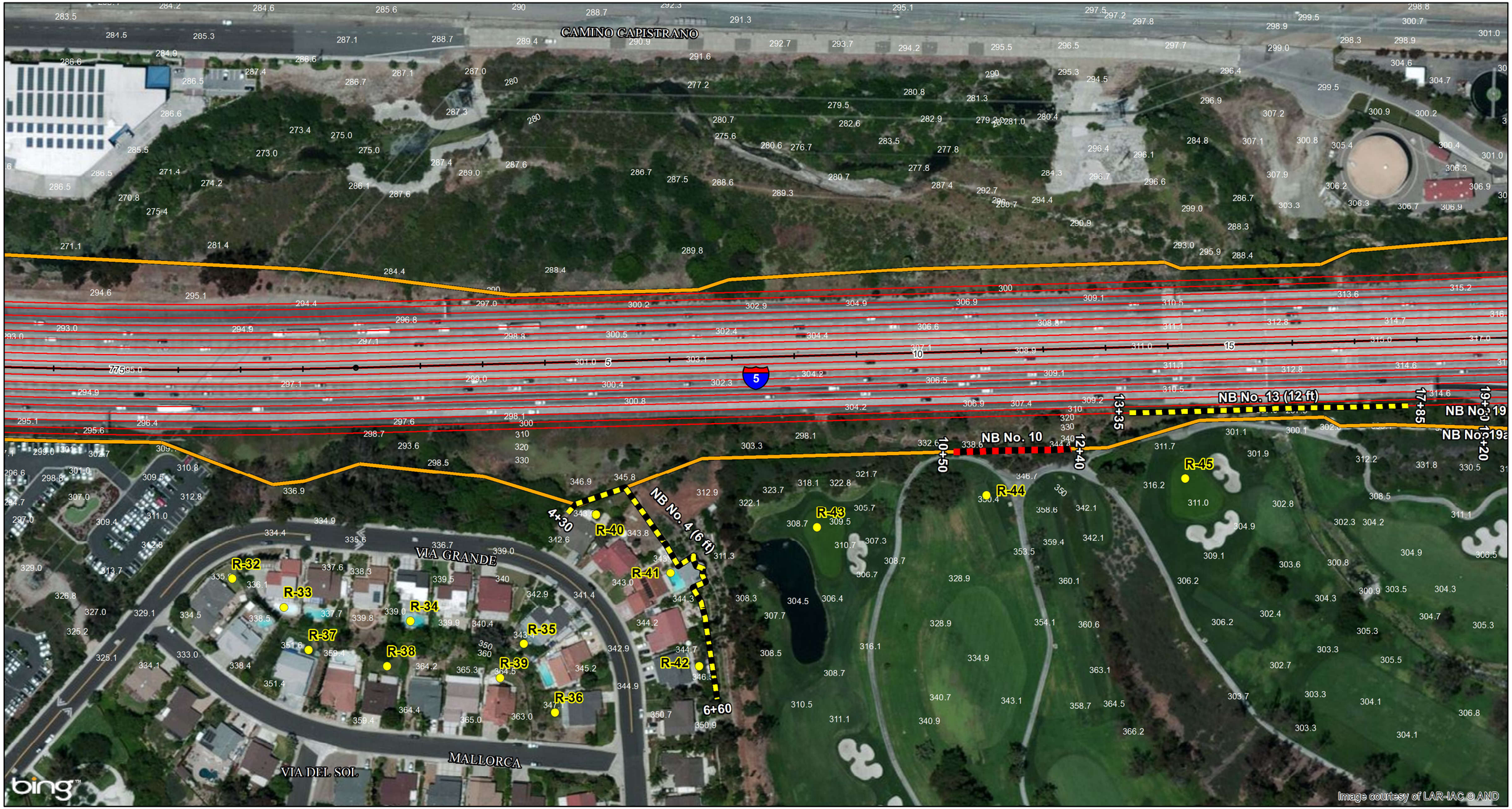

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

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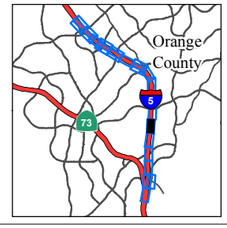

FIGURE 2.14-2
Sheet 7 of 24

I-5 Widening Project: SR-73 to El Toro Road
Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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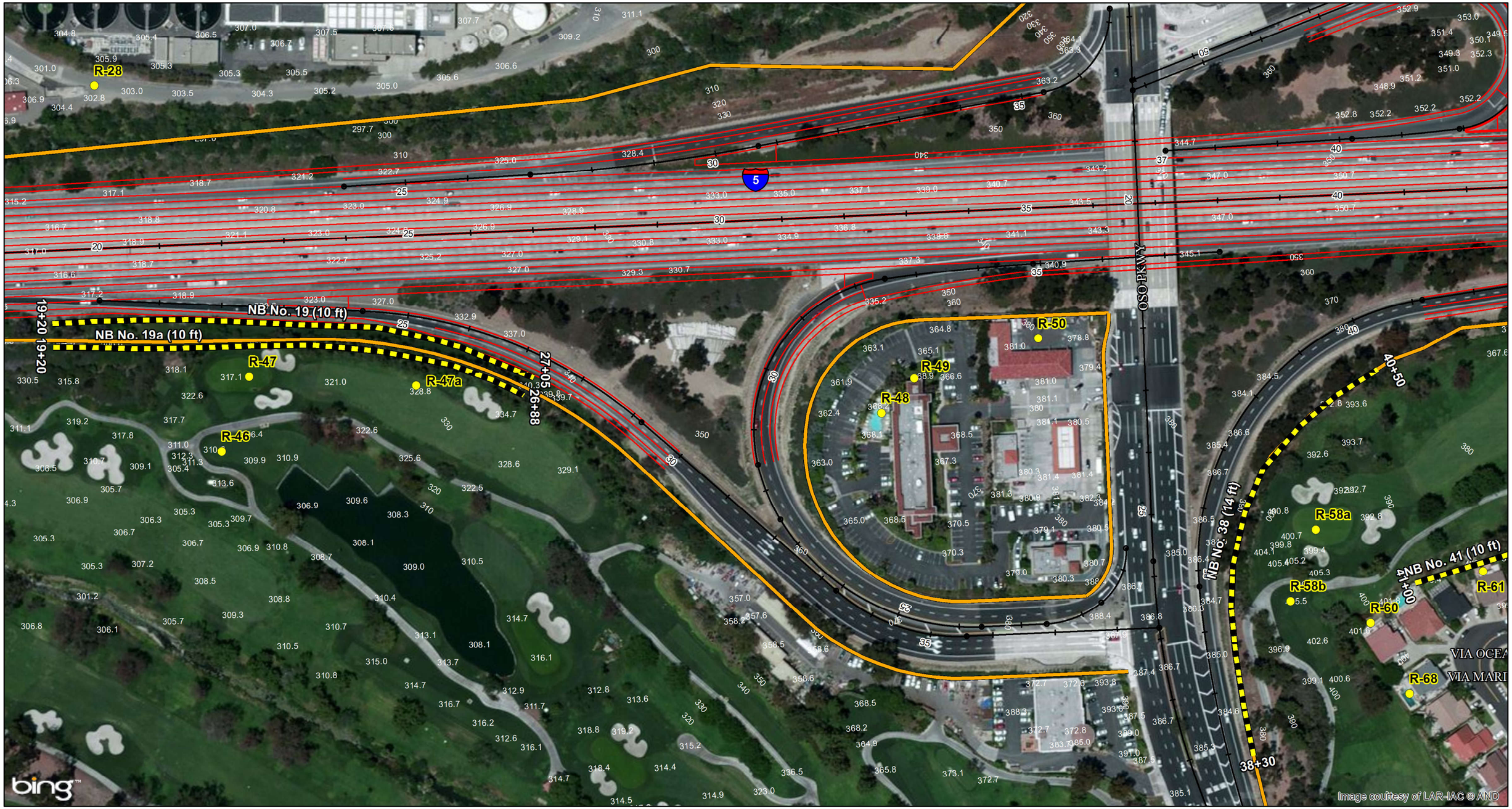

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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- Alternative 2

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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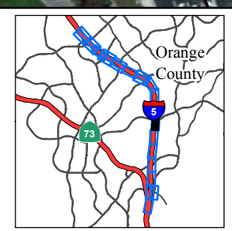

FIGURE 2.14-2
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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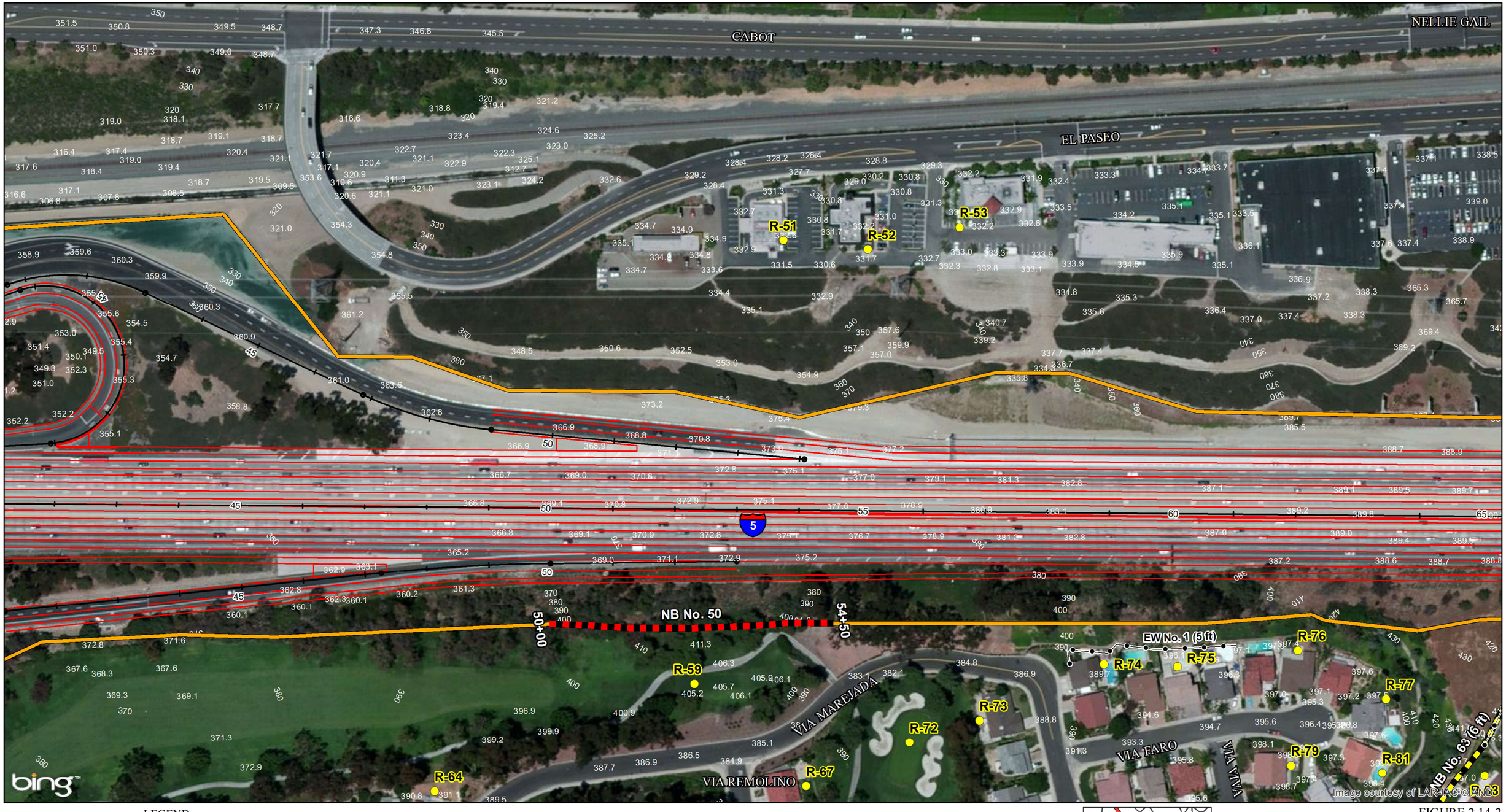

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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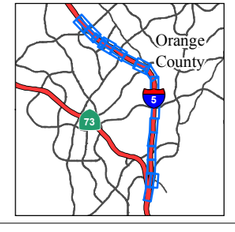

FIGURE 2.14-2
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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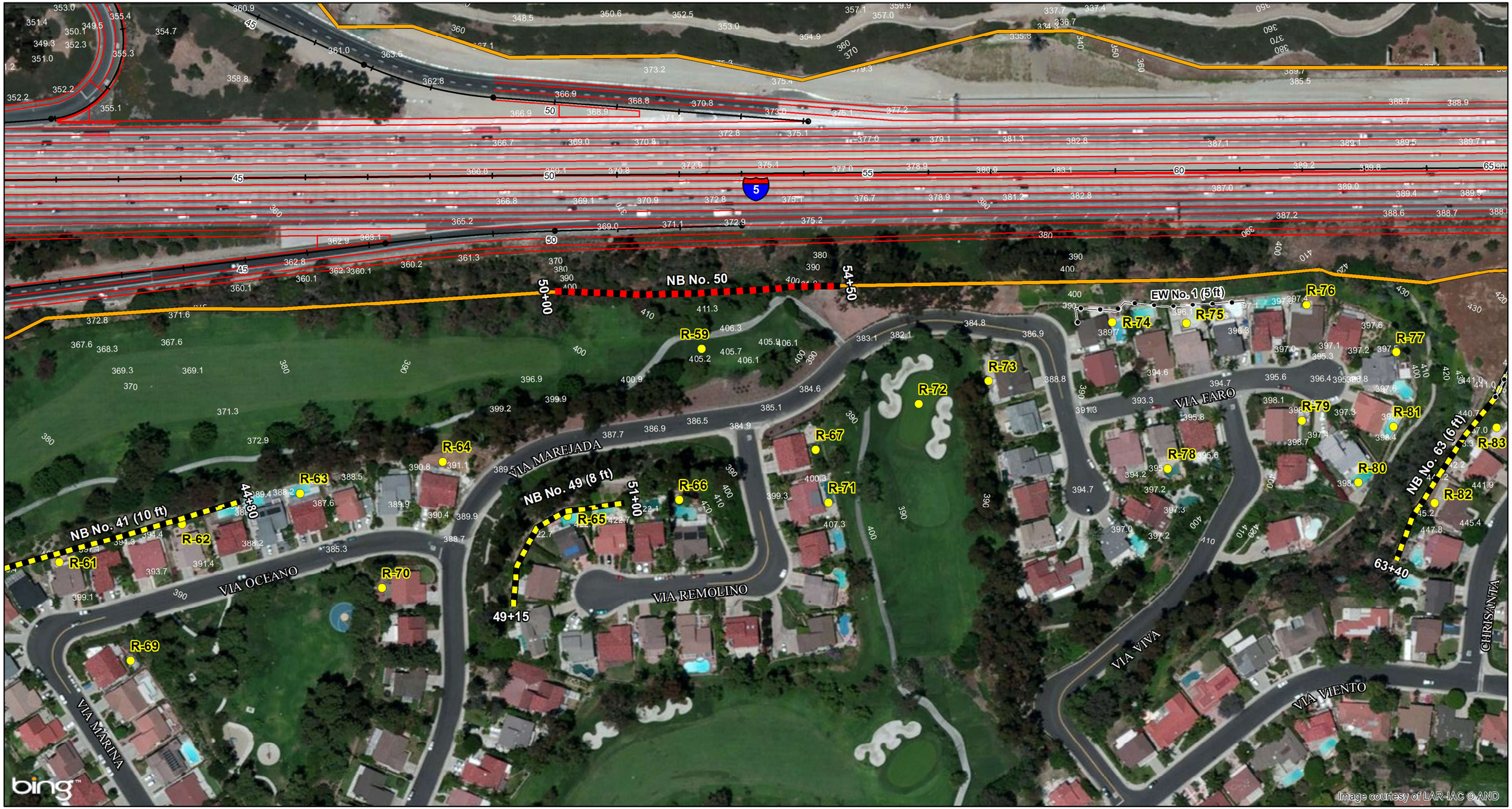

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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- Alternative 2

0 75 150
FEET

Note:
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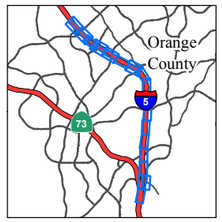

FIGURE 2.14-2
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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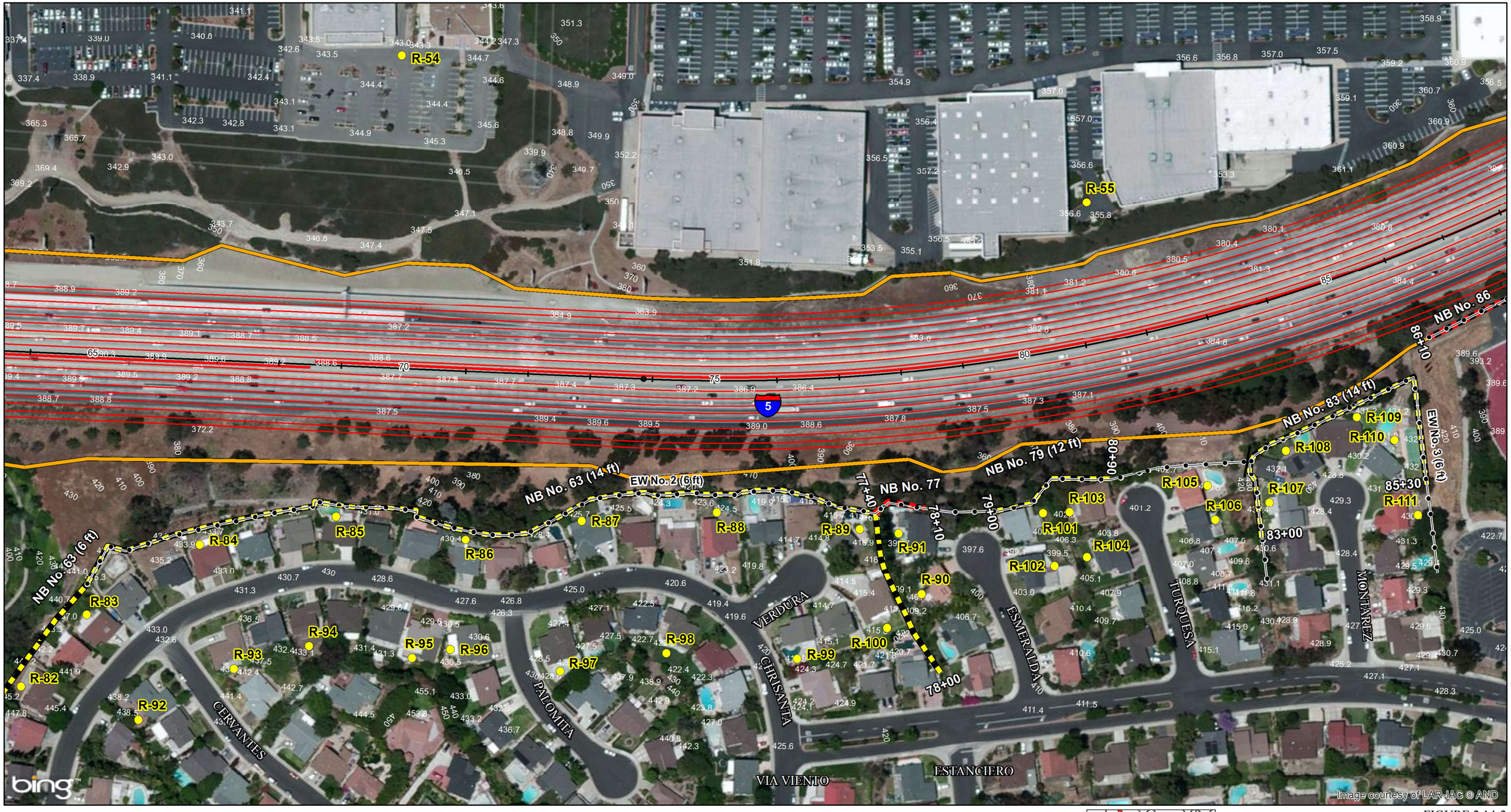

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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FEET

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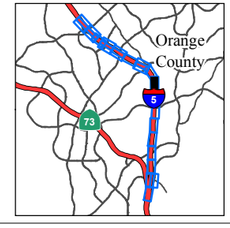

FIGURE 2.14-2
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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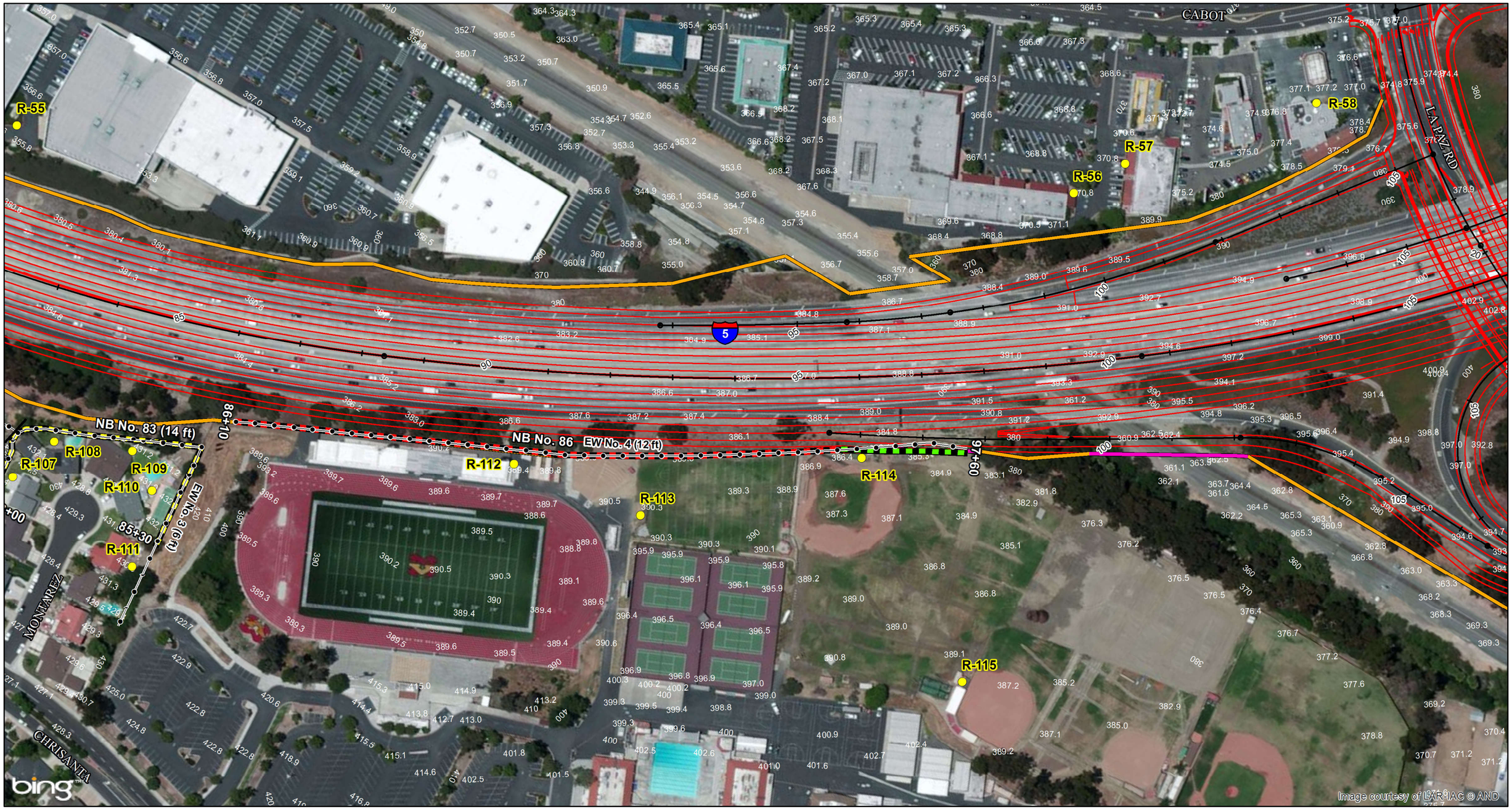

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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- Alternative 2

0 75 150
FEET

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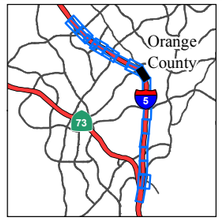

FIGURE 2.14-2
Sheet 12 of 24

I-5 Widening Project: SR-73 to El Toro Road
Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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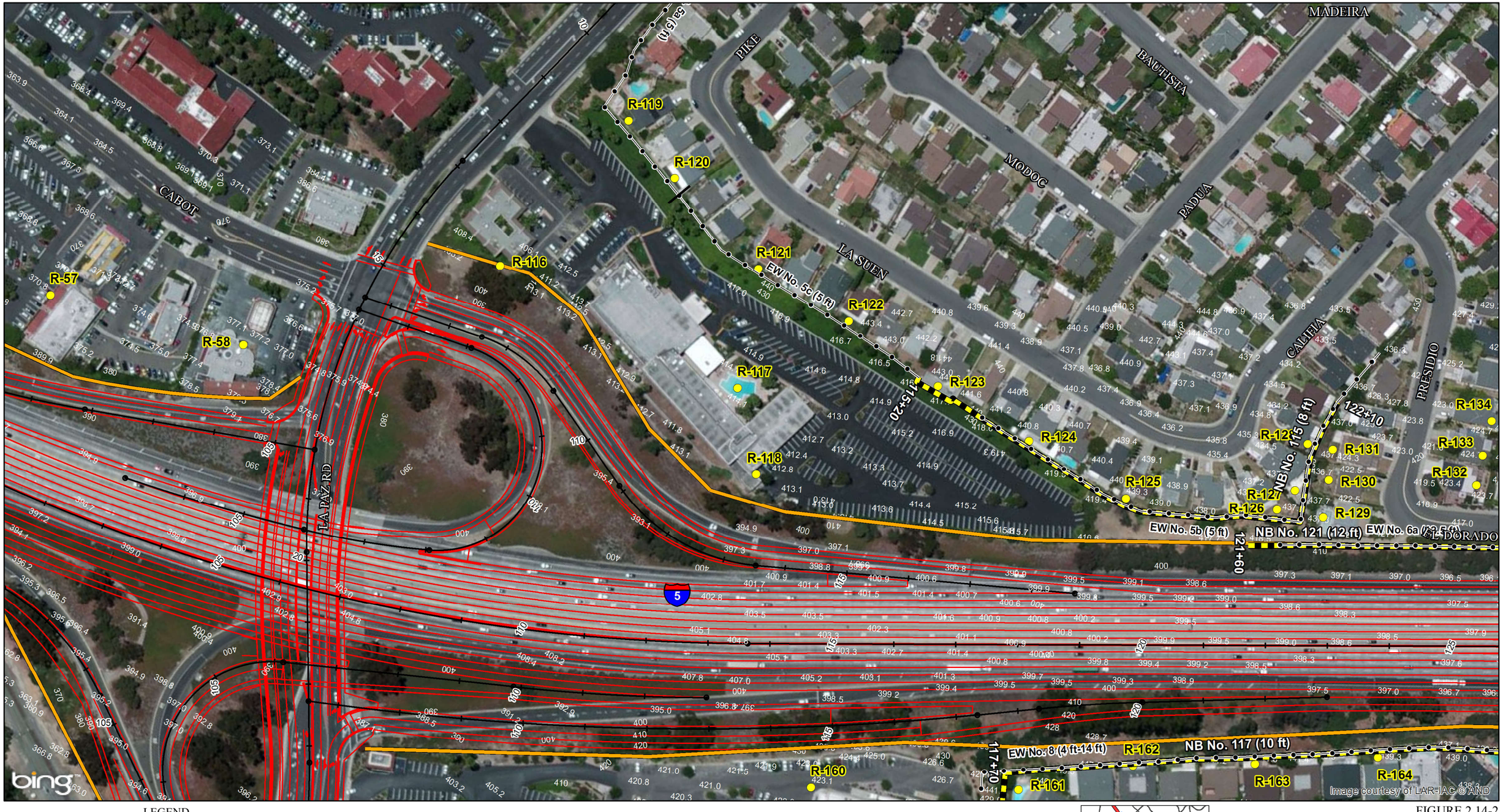

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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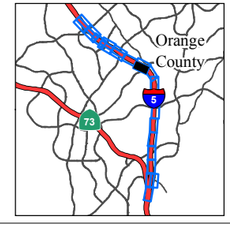

FIGURE 2.14-2
Sheet 13 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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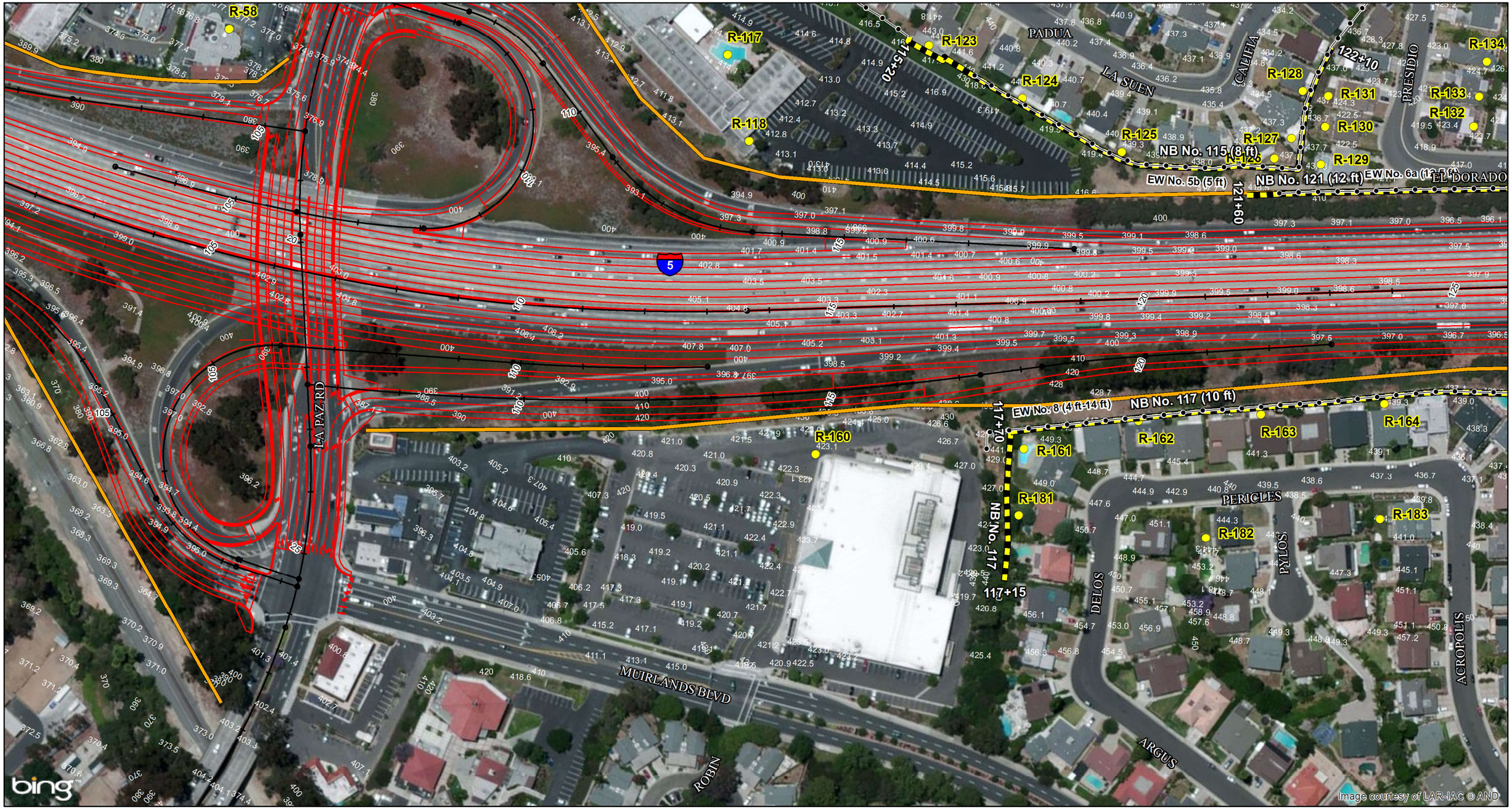

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
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- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

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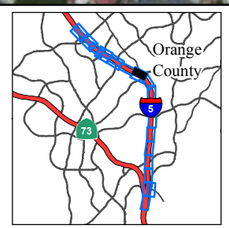

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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FIGURE 2.14-2
Sheet 14 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
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0 75 150
FEET

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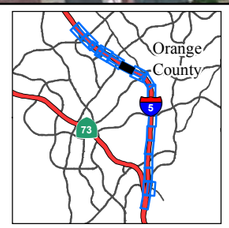

FIGURE 2.14-2
Sheet 15 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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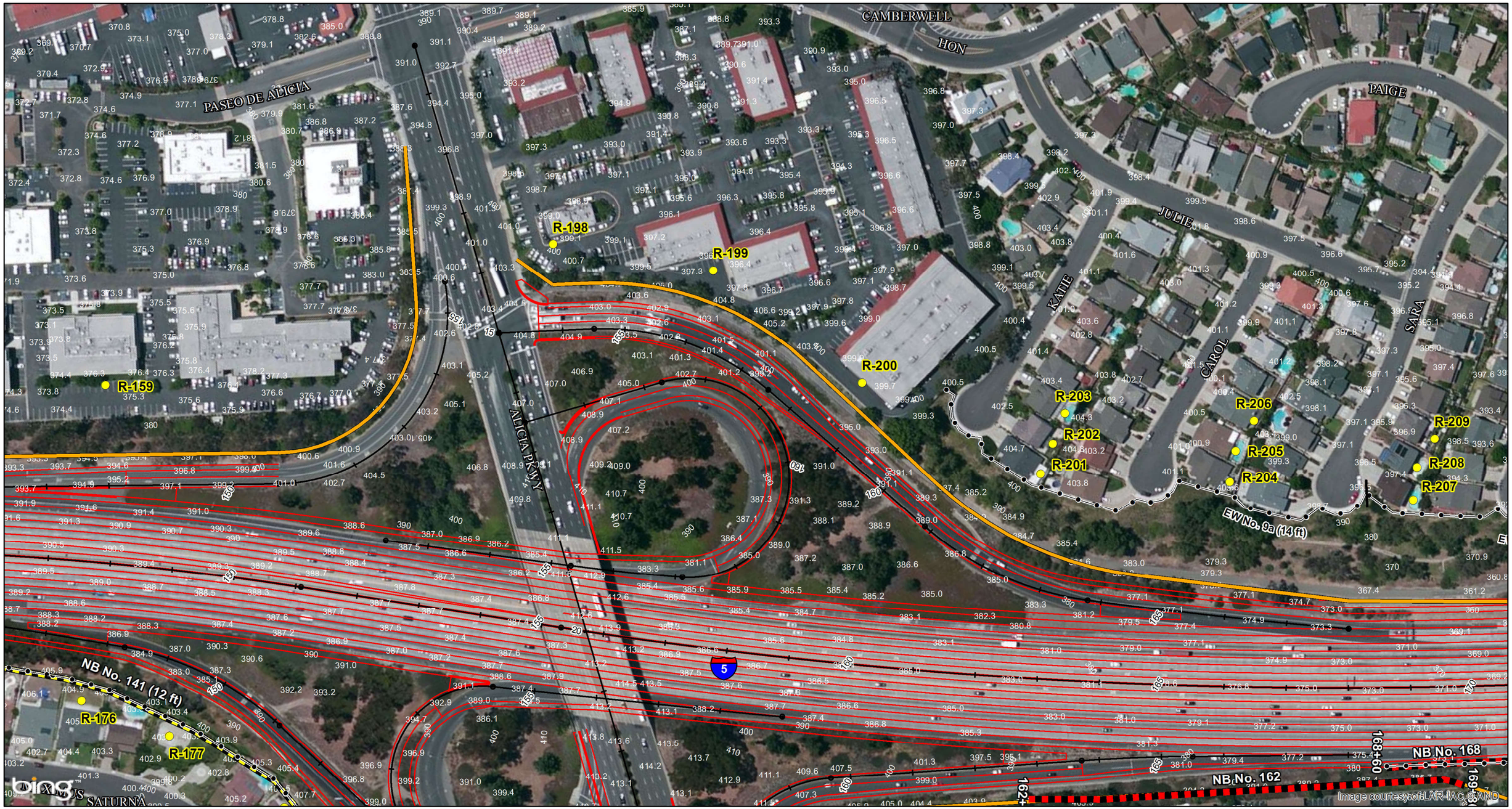

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
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FIGURE 2.14-2
Sheet 16 of 24

I-5 Widening Project: SR-73 to El Toro Road
Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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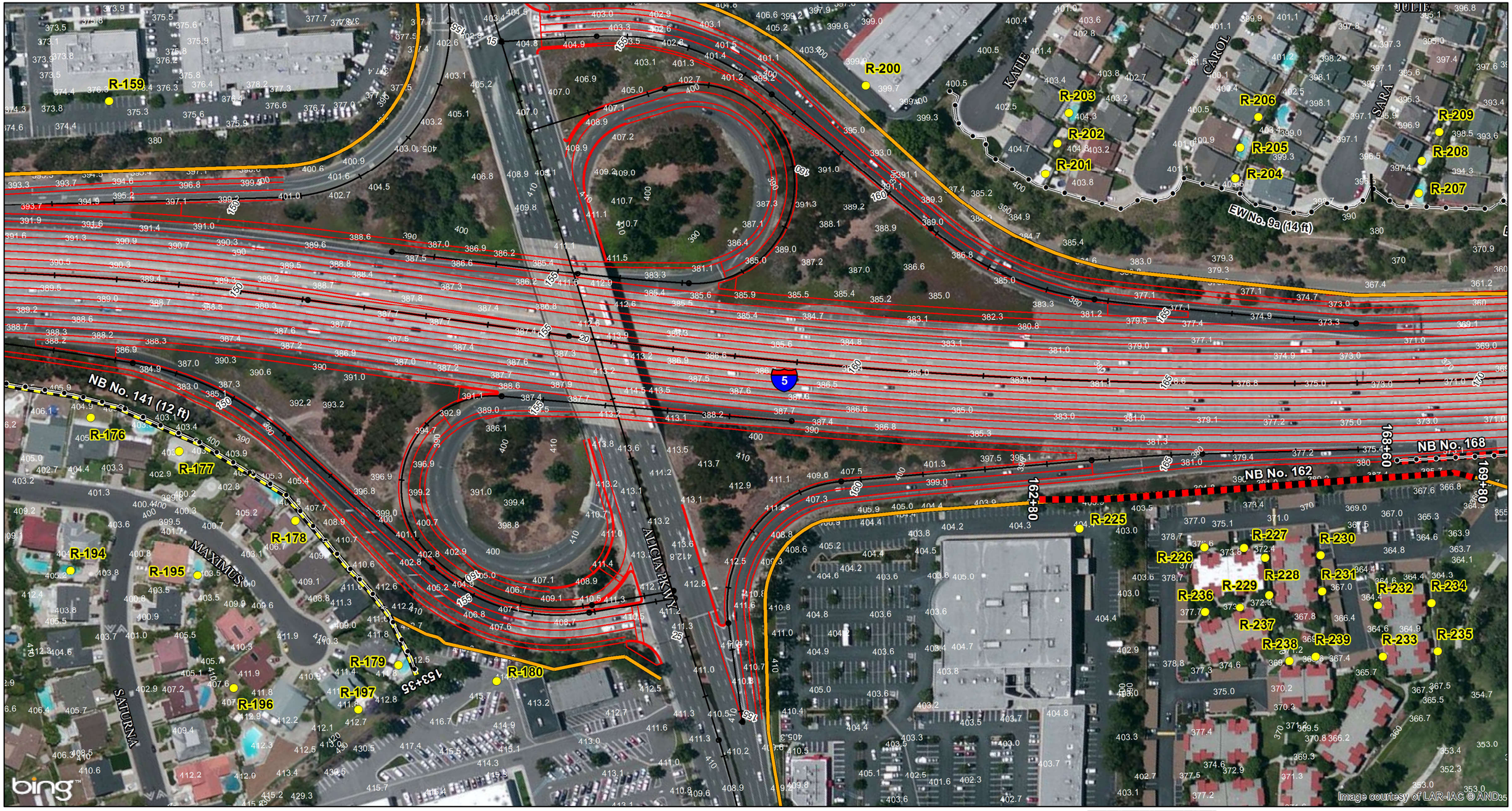

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
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0 75 150
FEET

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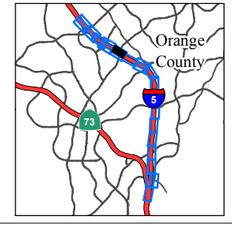

FIGURE 2.14-2
Sheet 17 of 24

I-5 Widening Project: SR-73 to El Toro Road
Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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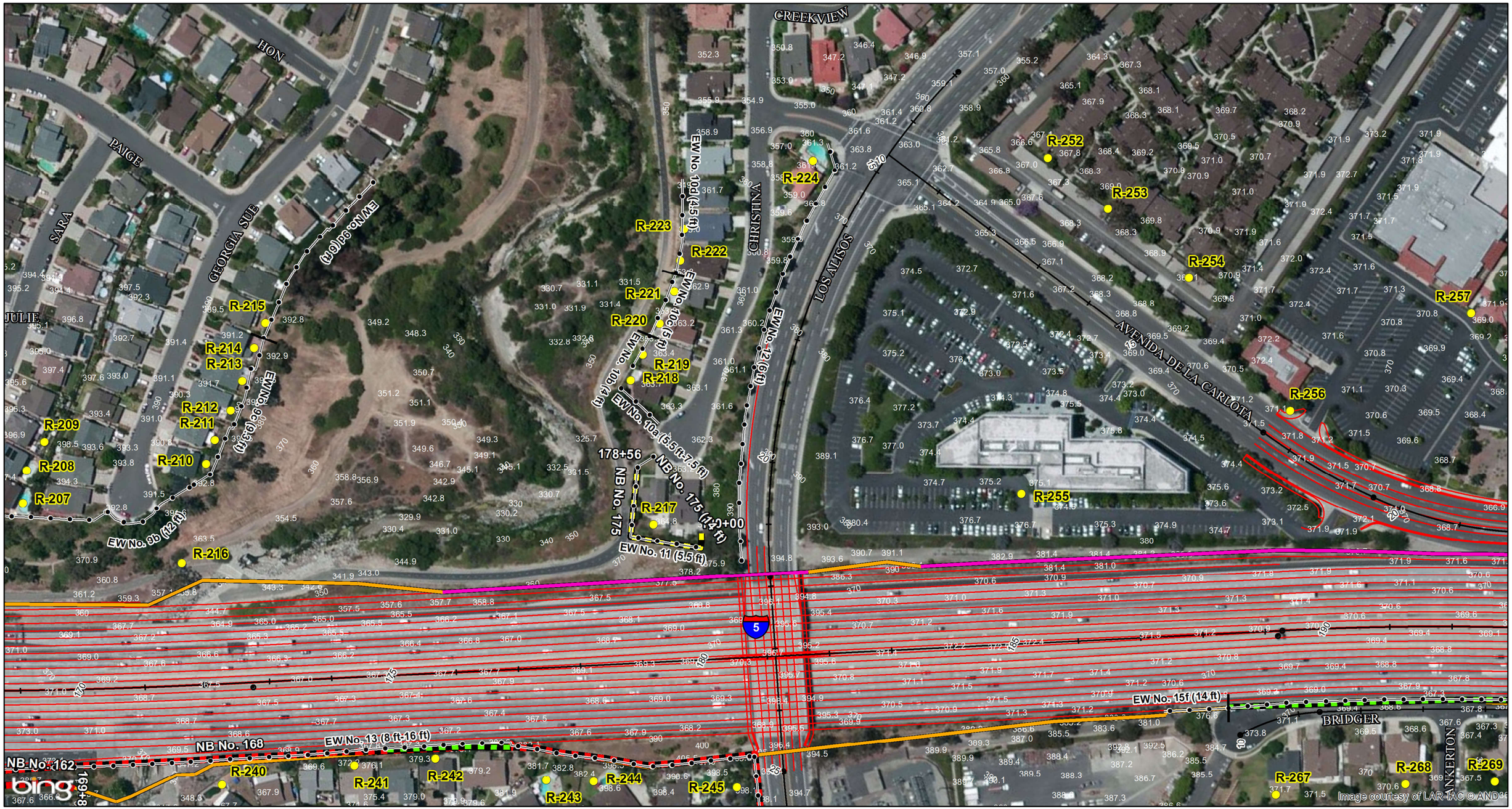

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
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0 75 150
FEET

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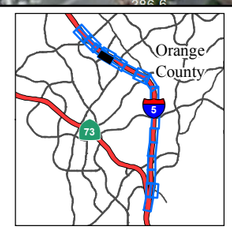

FIGURE 2.14-2
Sheet 18 of 24

I-5 Widening Project: SR-73 to El Toro Road
Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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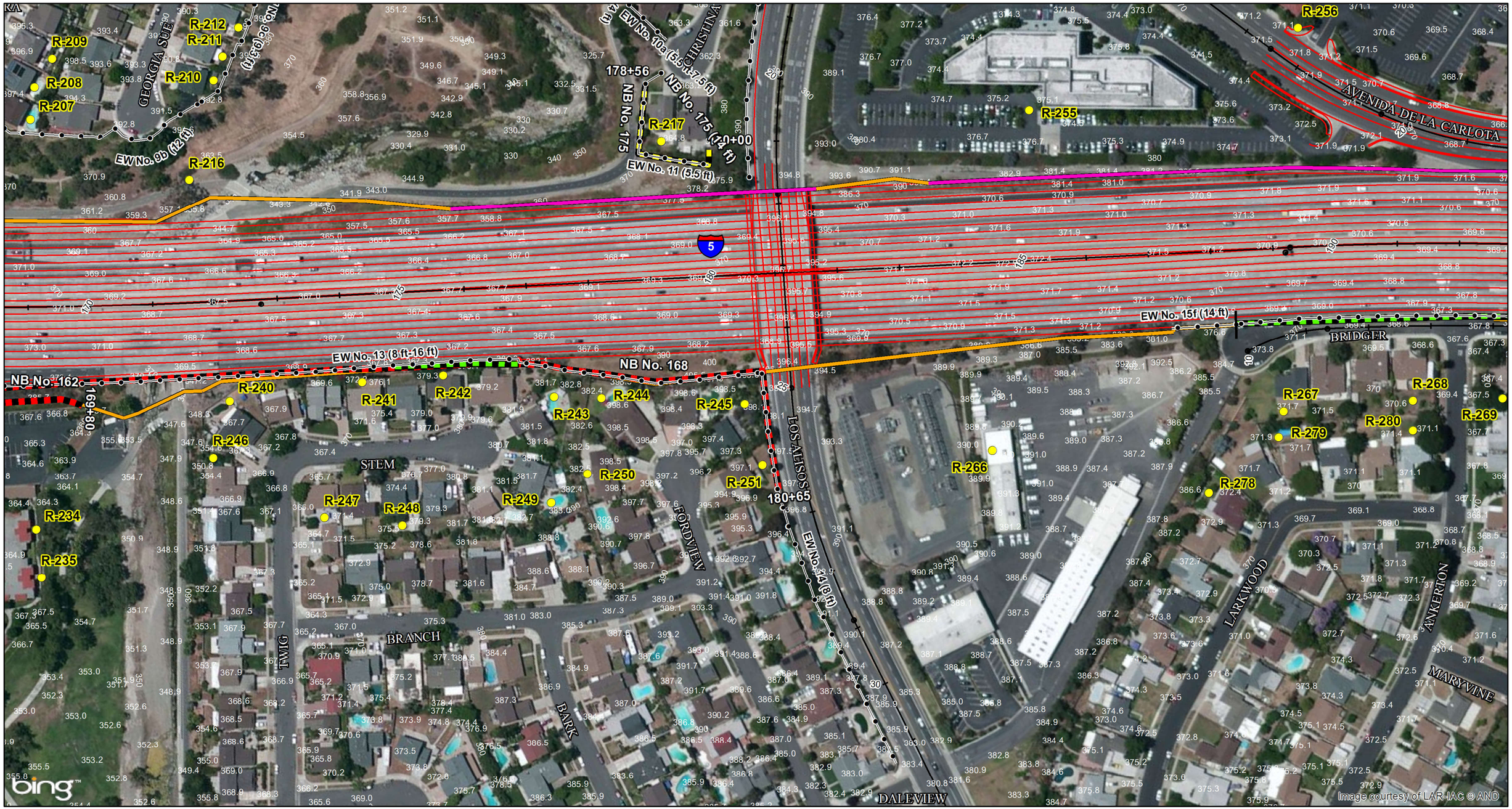

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

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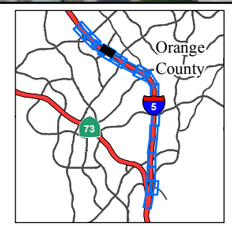

FIGURE 2.14-2
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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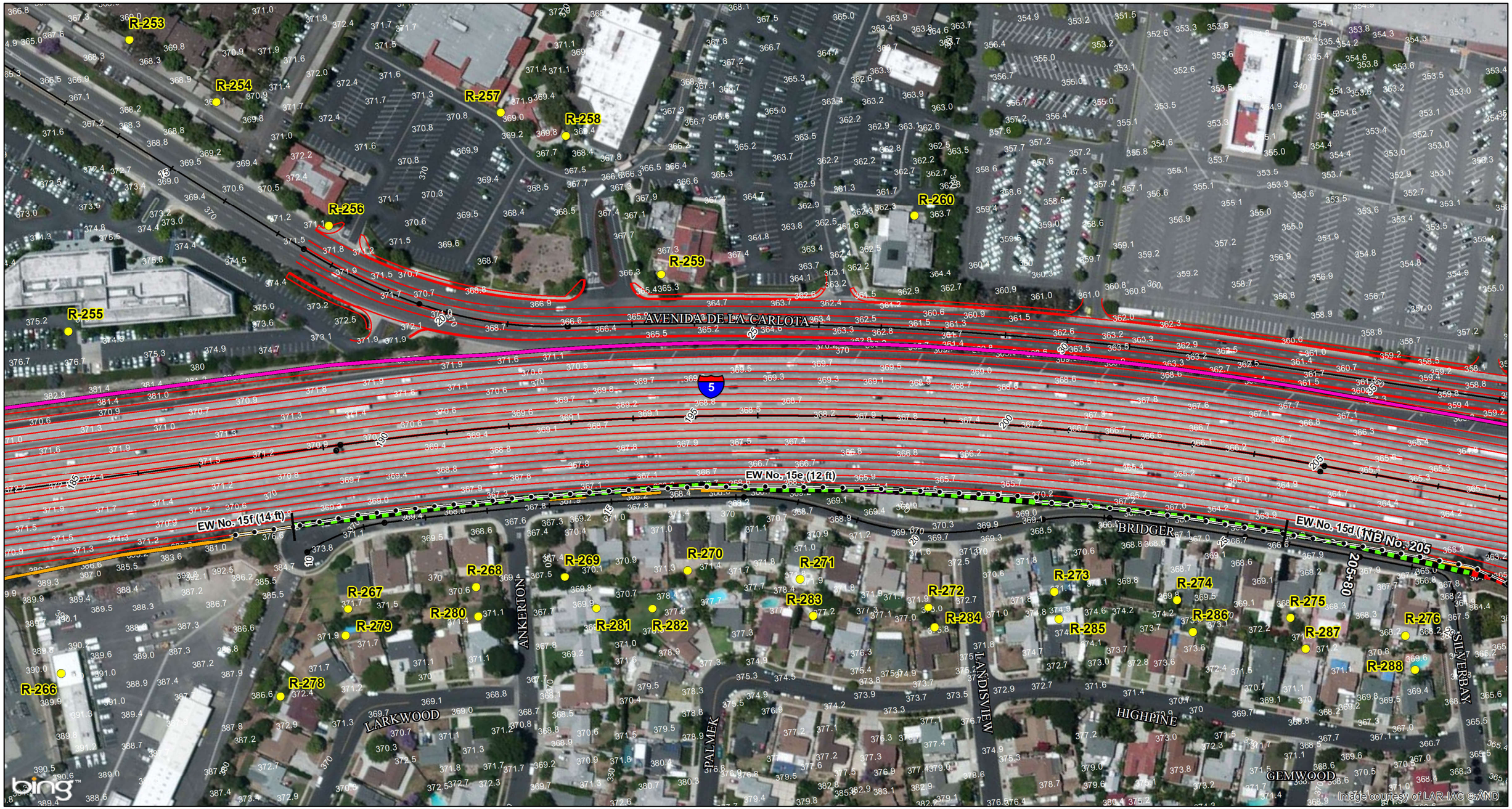

LEGEND

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- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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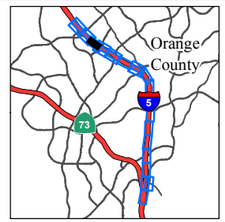

FIGURE 2.14-2
Sheet 20 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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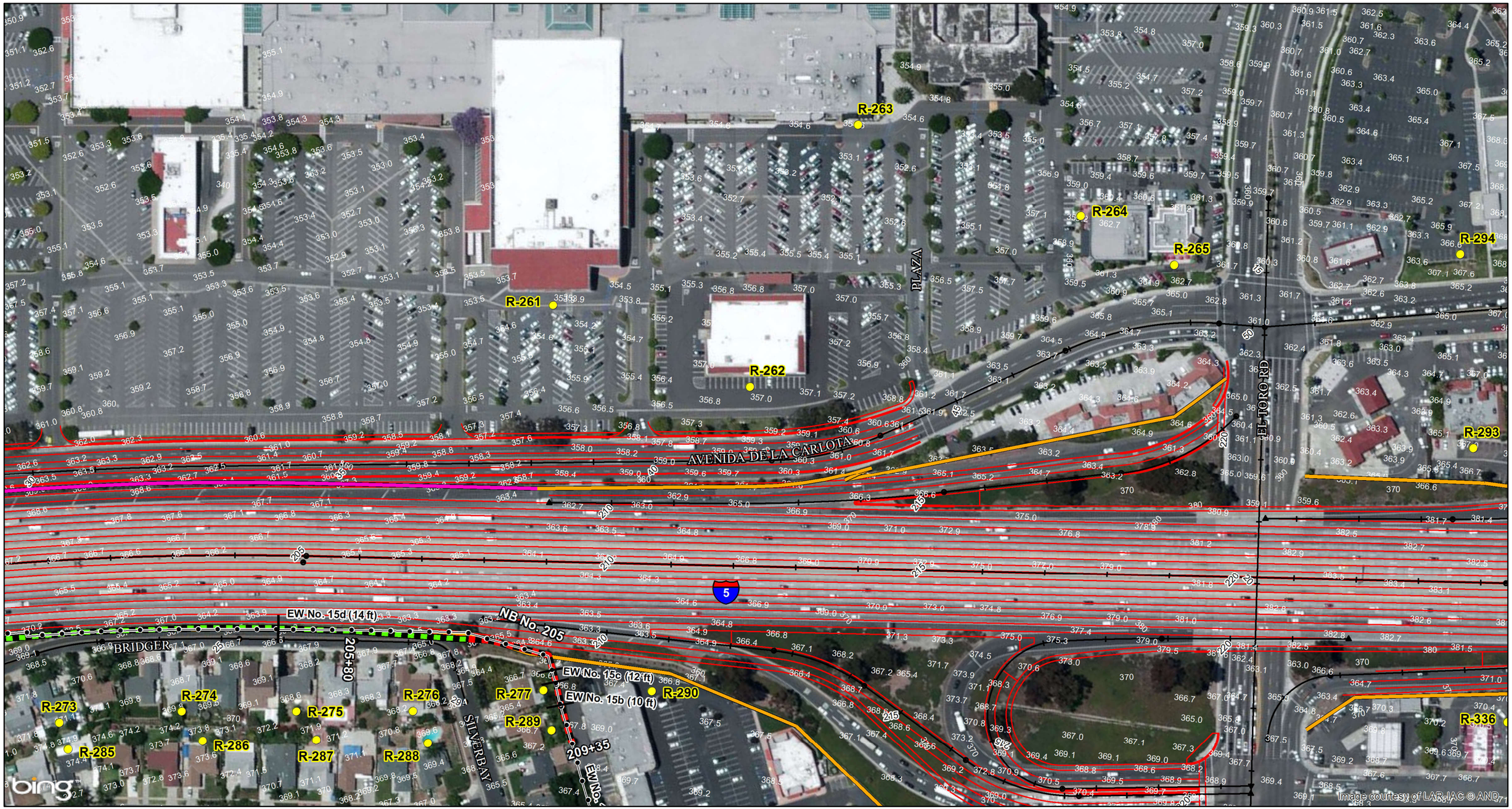

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
Receptor R-9 would be fully acquired under Alternative 2.

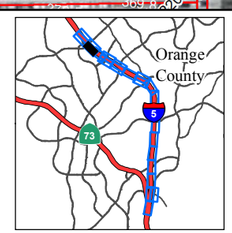

FIGURE 2.14-2
Sheet 21 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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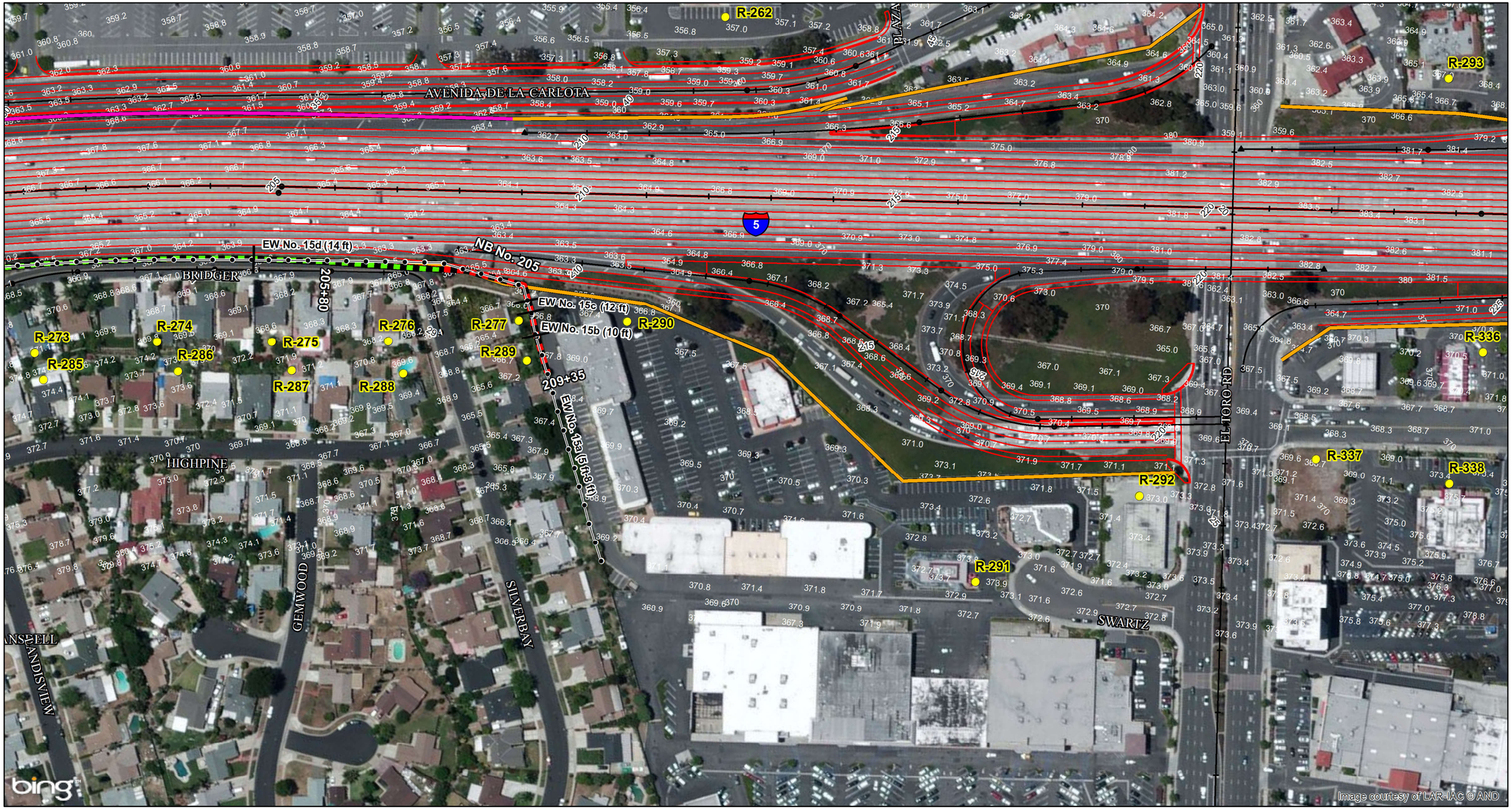

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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Note:
Receptor R-9 would be fully acquired under Alternative 2.

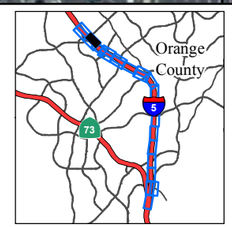

FIGURE 2.14-2
Sheet 22 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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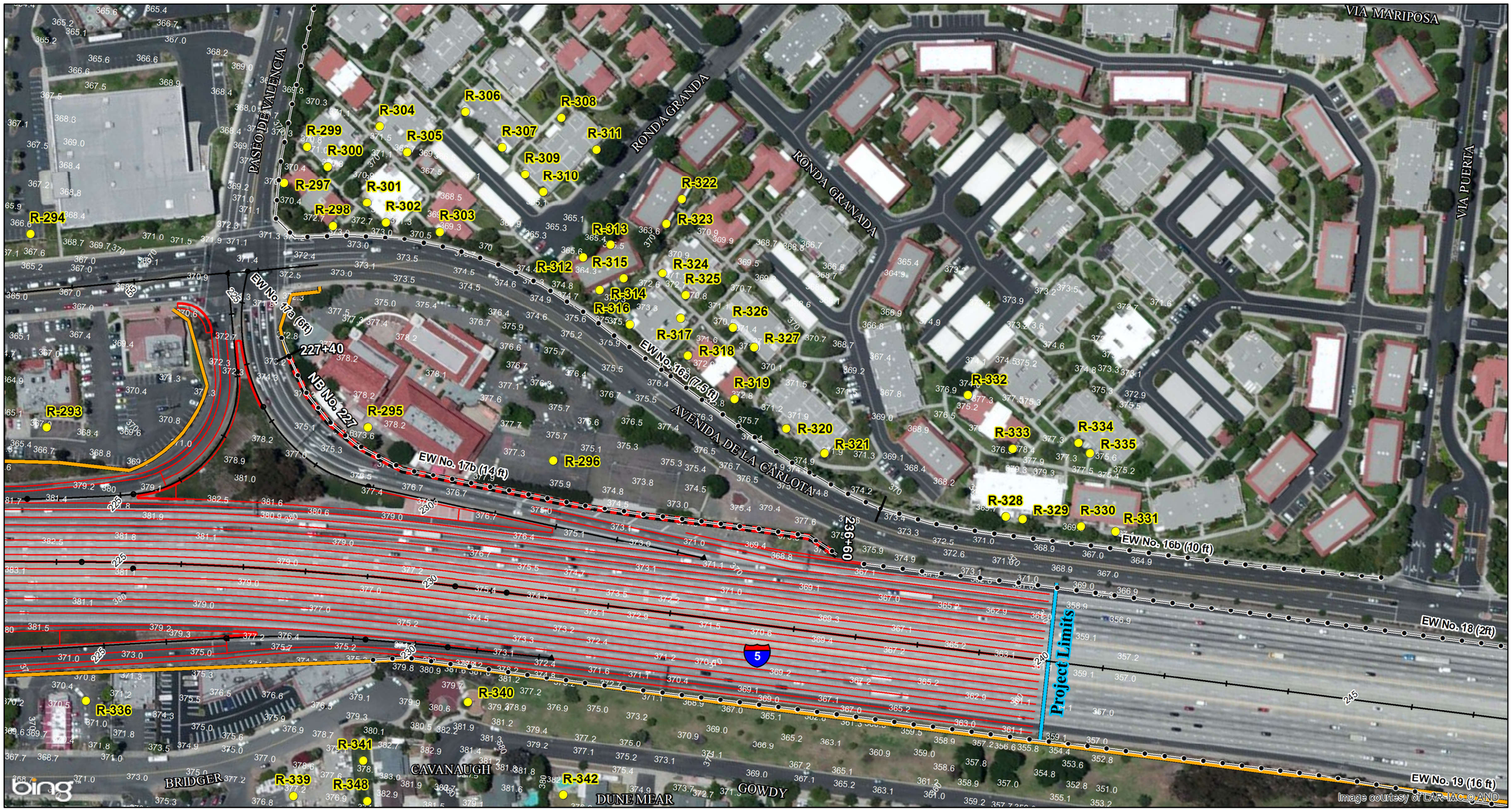

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

Note:
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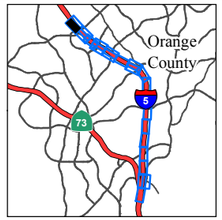

FIGURE 2.14-2
Sheet 23 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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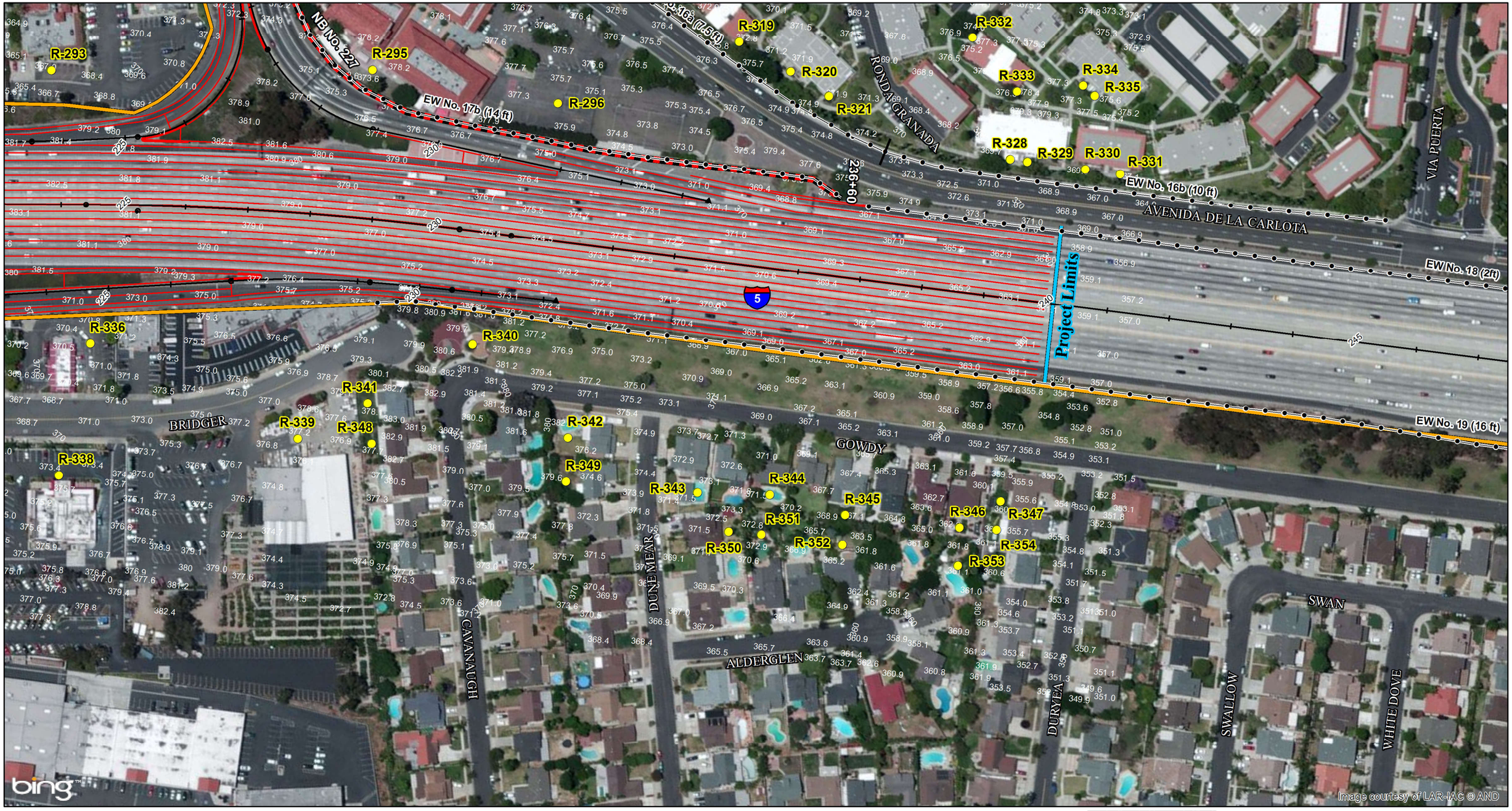

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 2

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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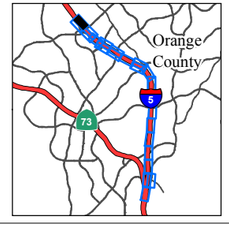

FIGURE 2.14-2
Sheet 24 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 2 (Preferred Alternative)
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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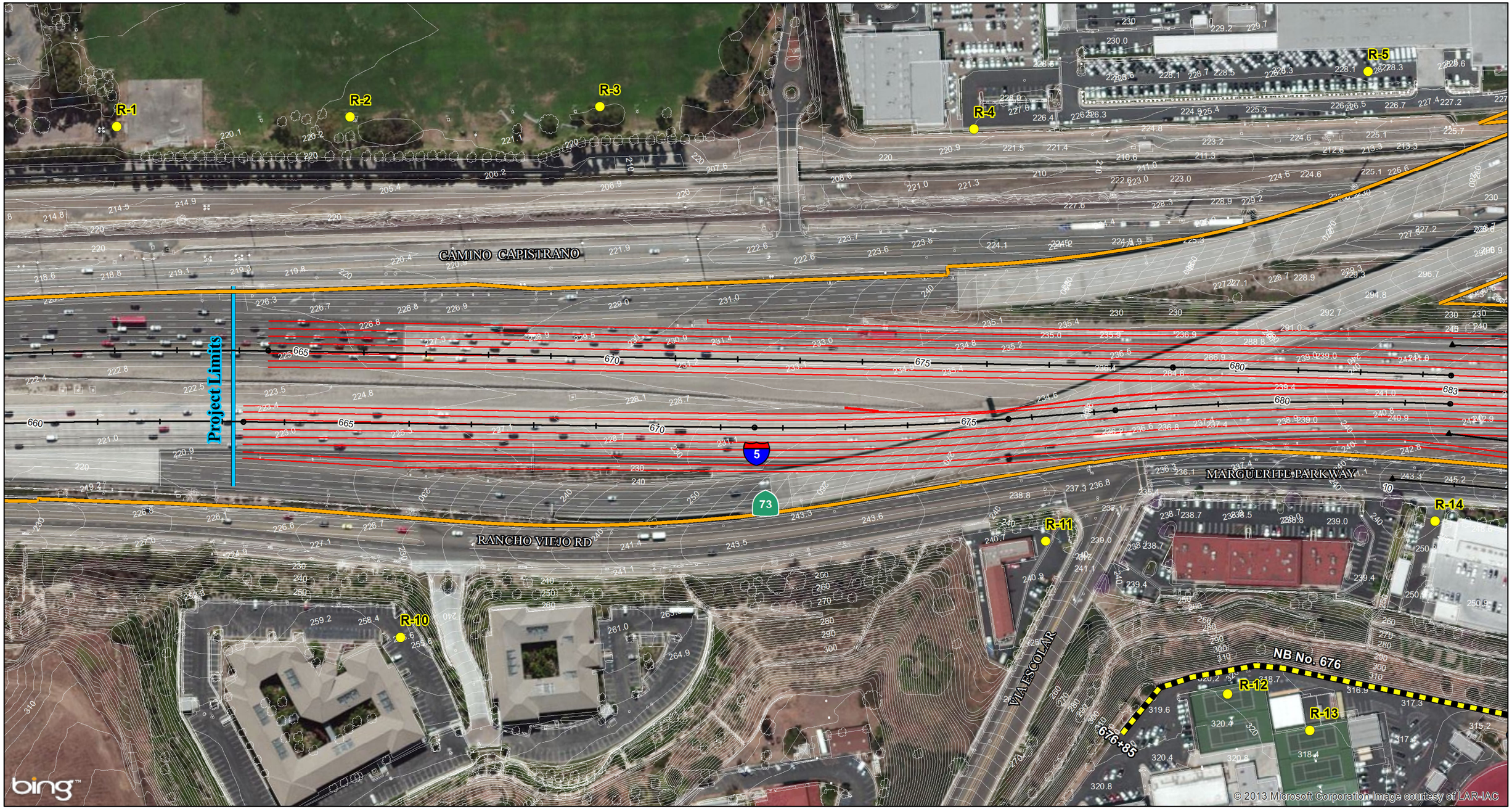

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
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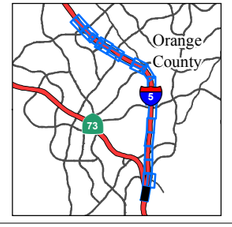

FIGURE 2.14-3
Sheet 1 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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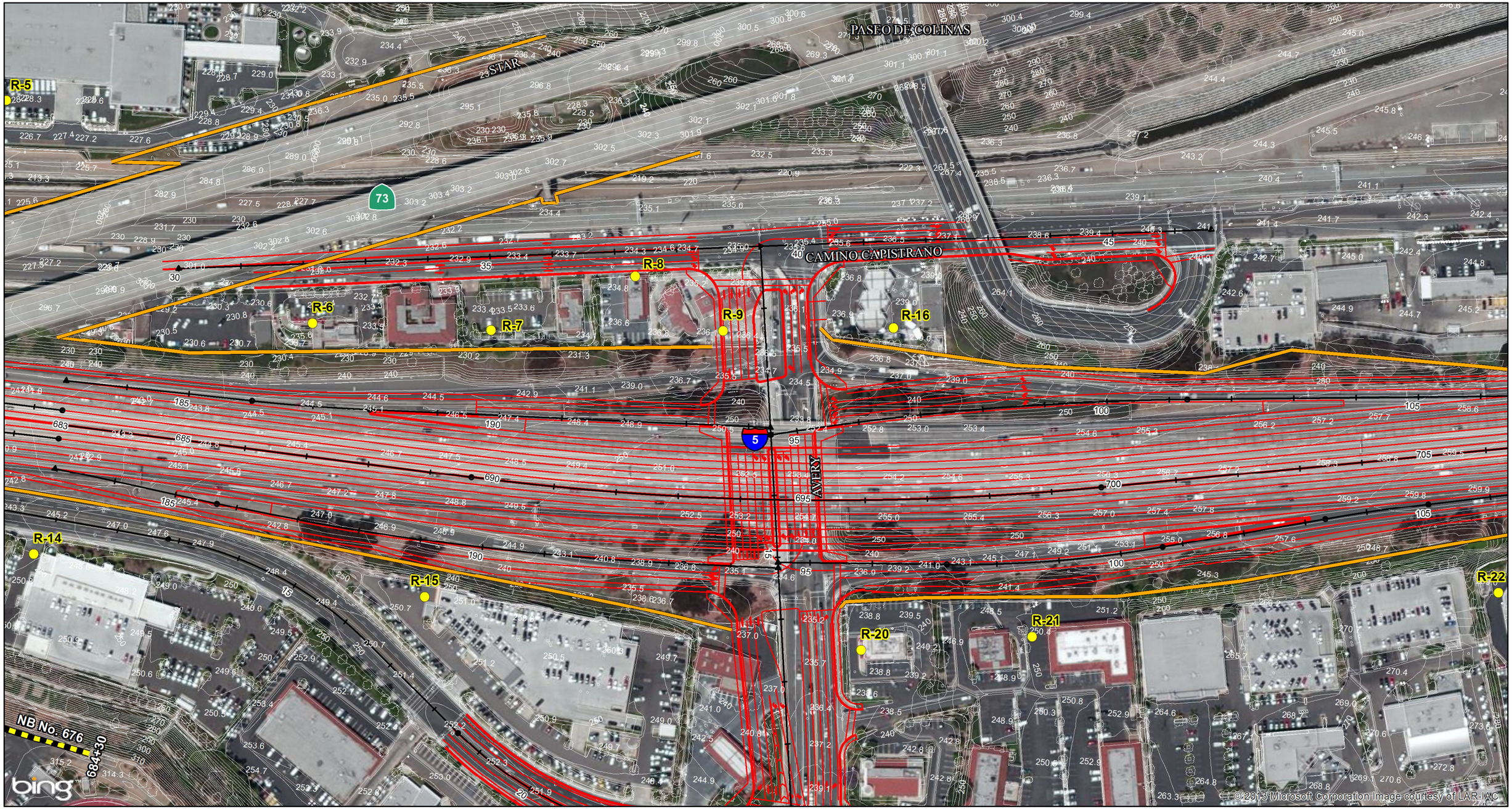

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
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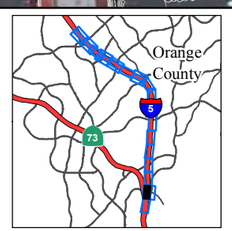

FIGURE 2.14-3
Sheet 2 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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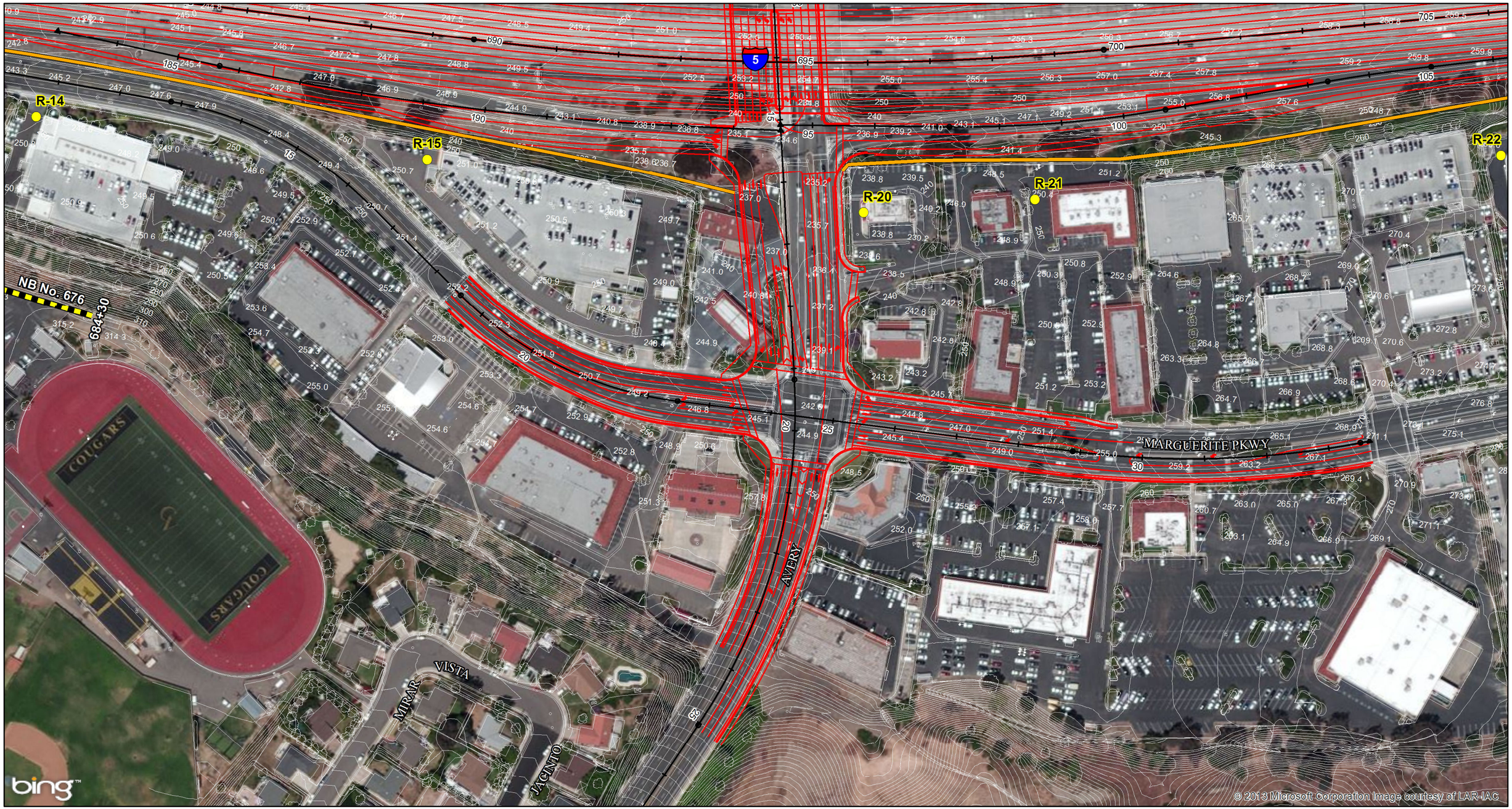

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
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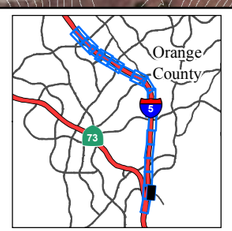

FIGURE 2.14-3
Sheet 3 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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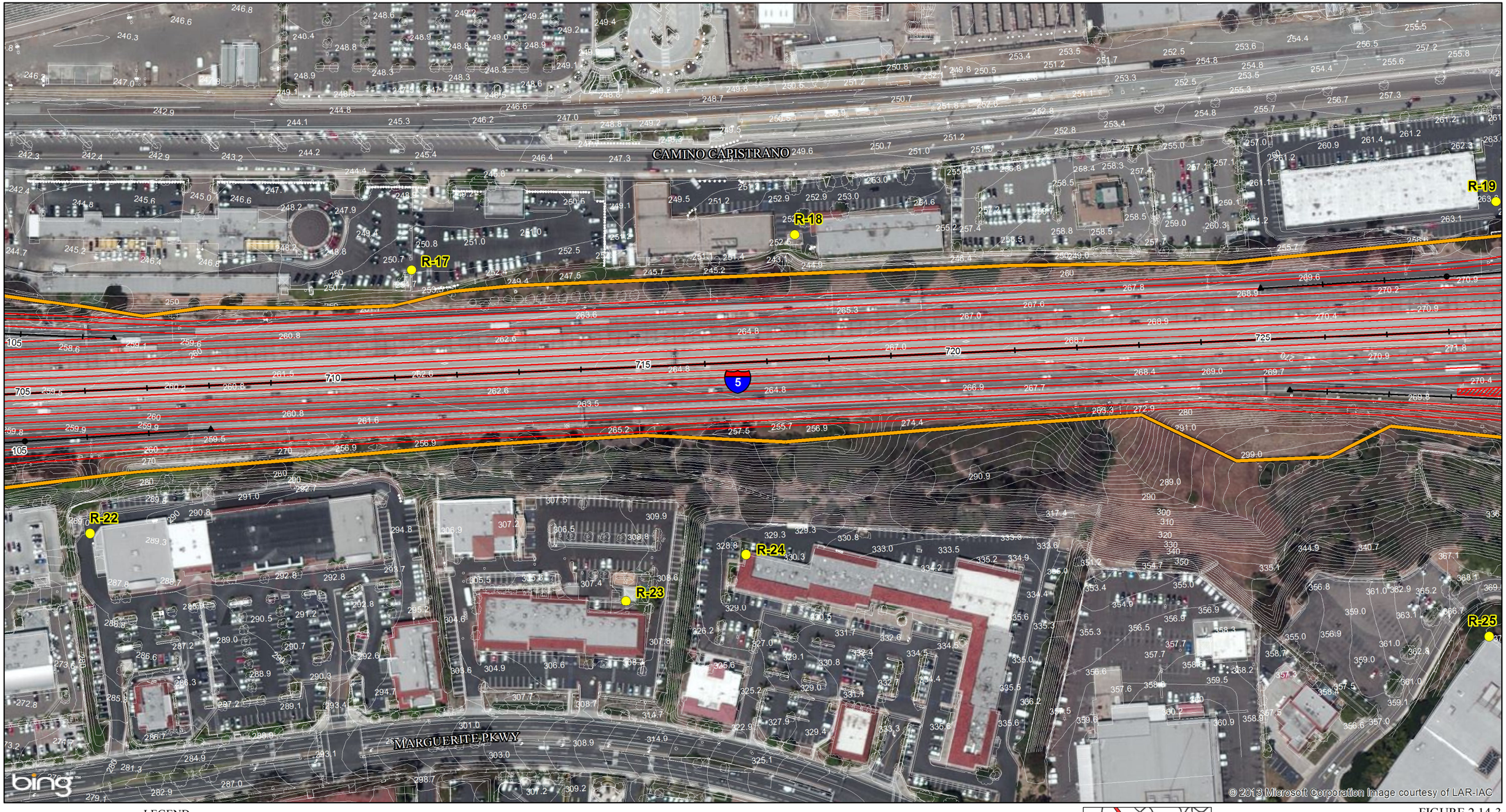

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

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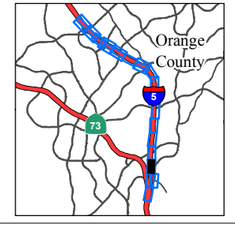

FIGURE 2.14-3
Sheet 4 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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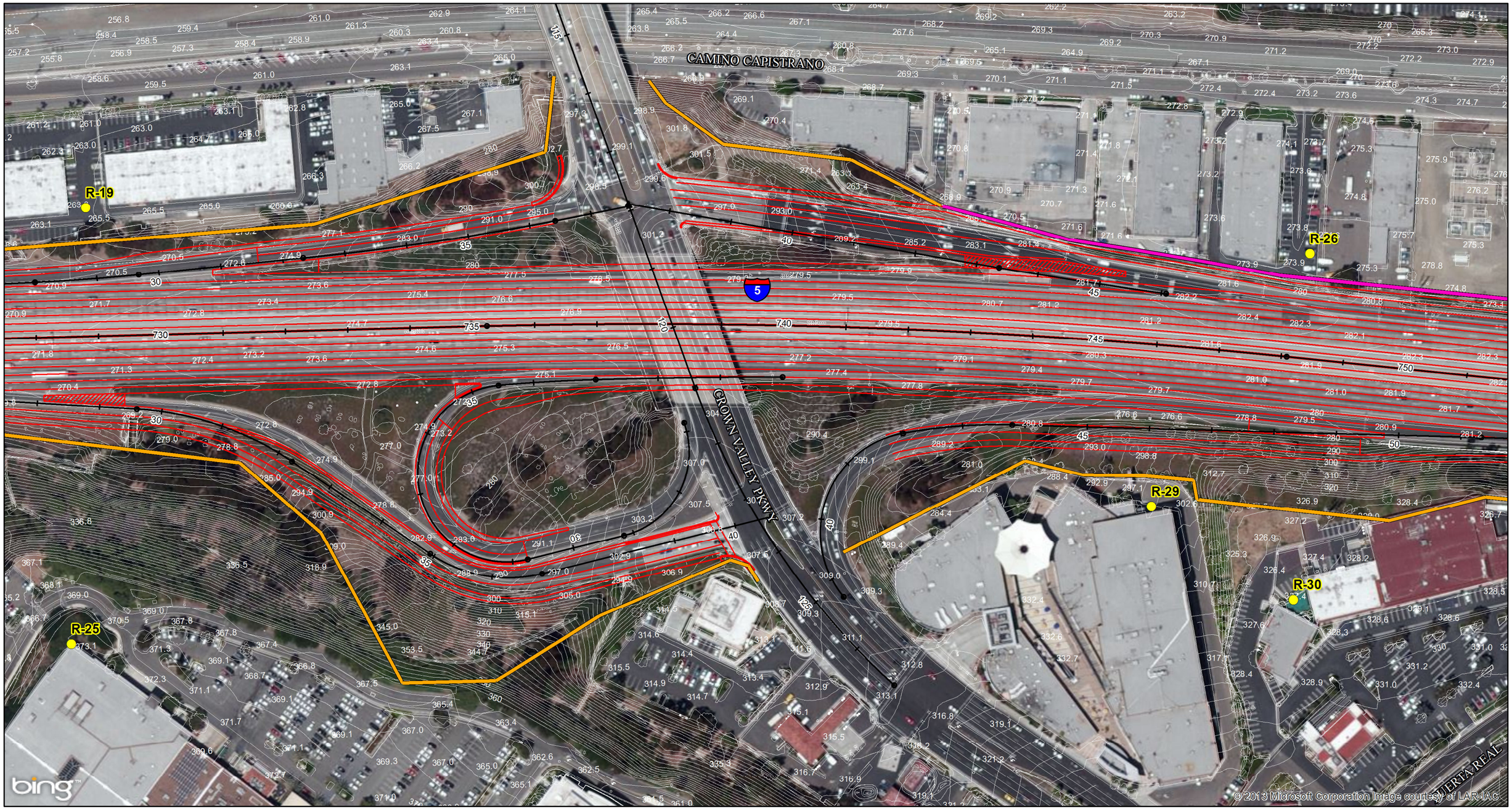

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

Note:
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0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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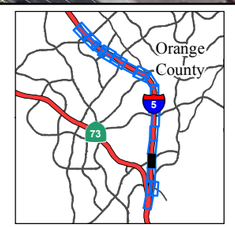

FIGURE 2.14-3
Sheet 5 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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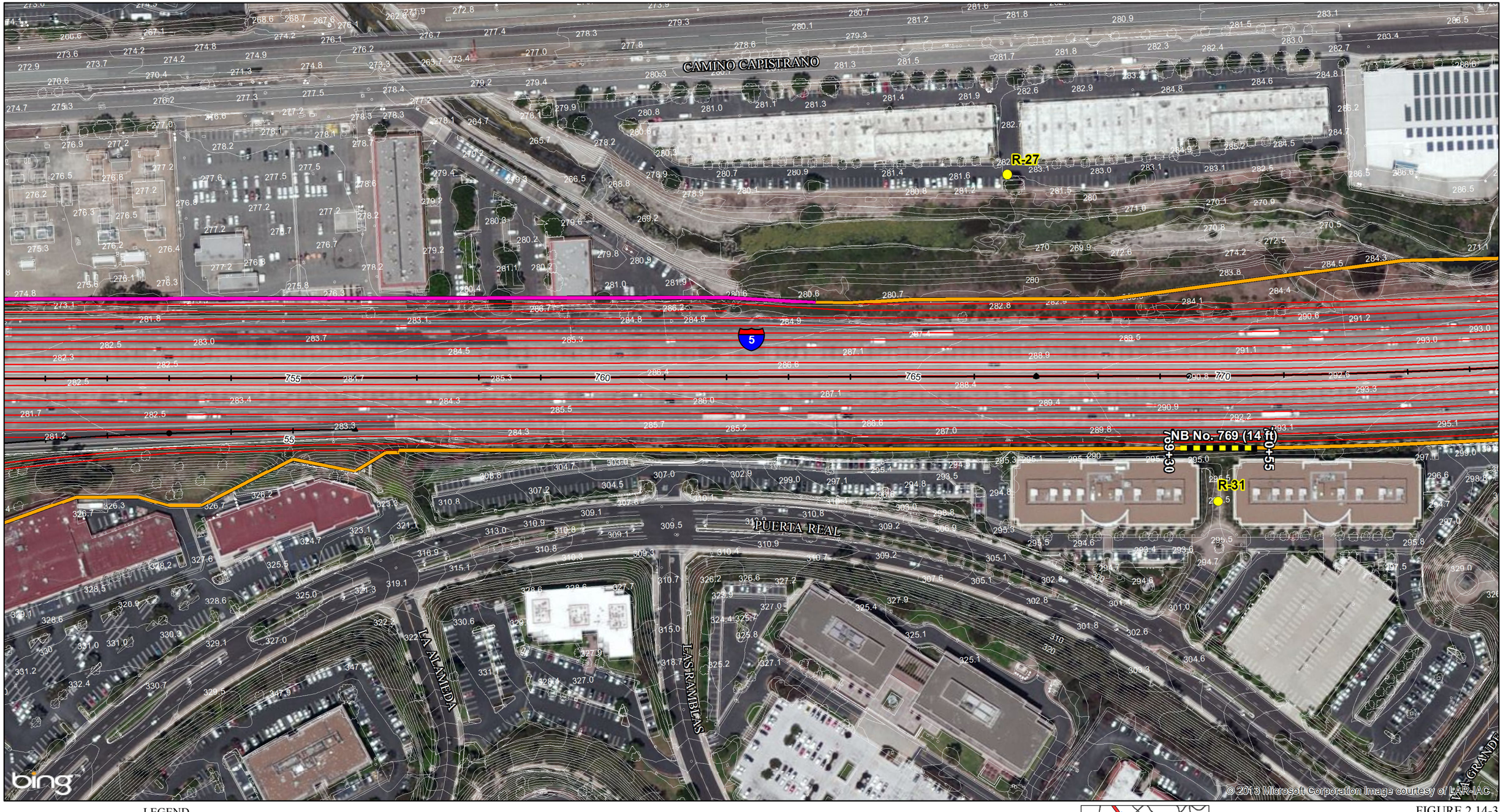

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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Note:
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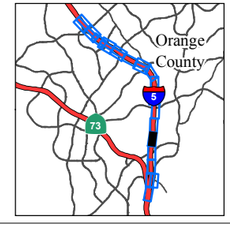

FIGURE 2.14-3
Sheet 6 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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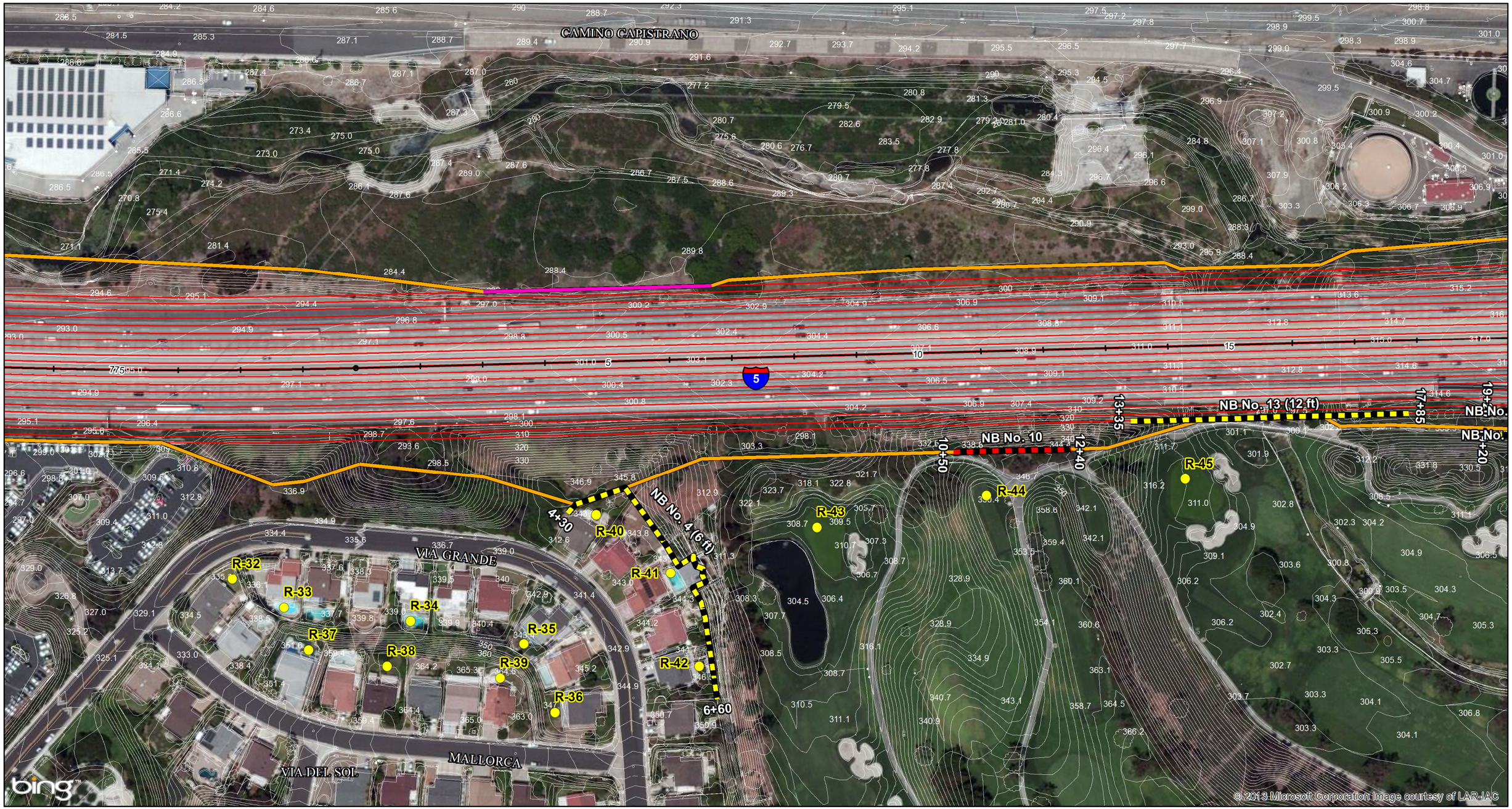

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
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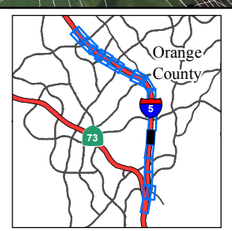

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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FIGURE 2.14-3
Sheet 7 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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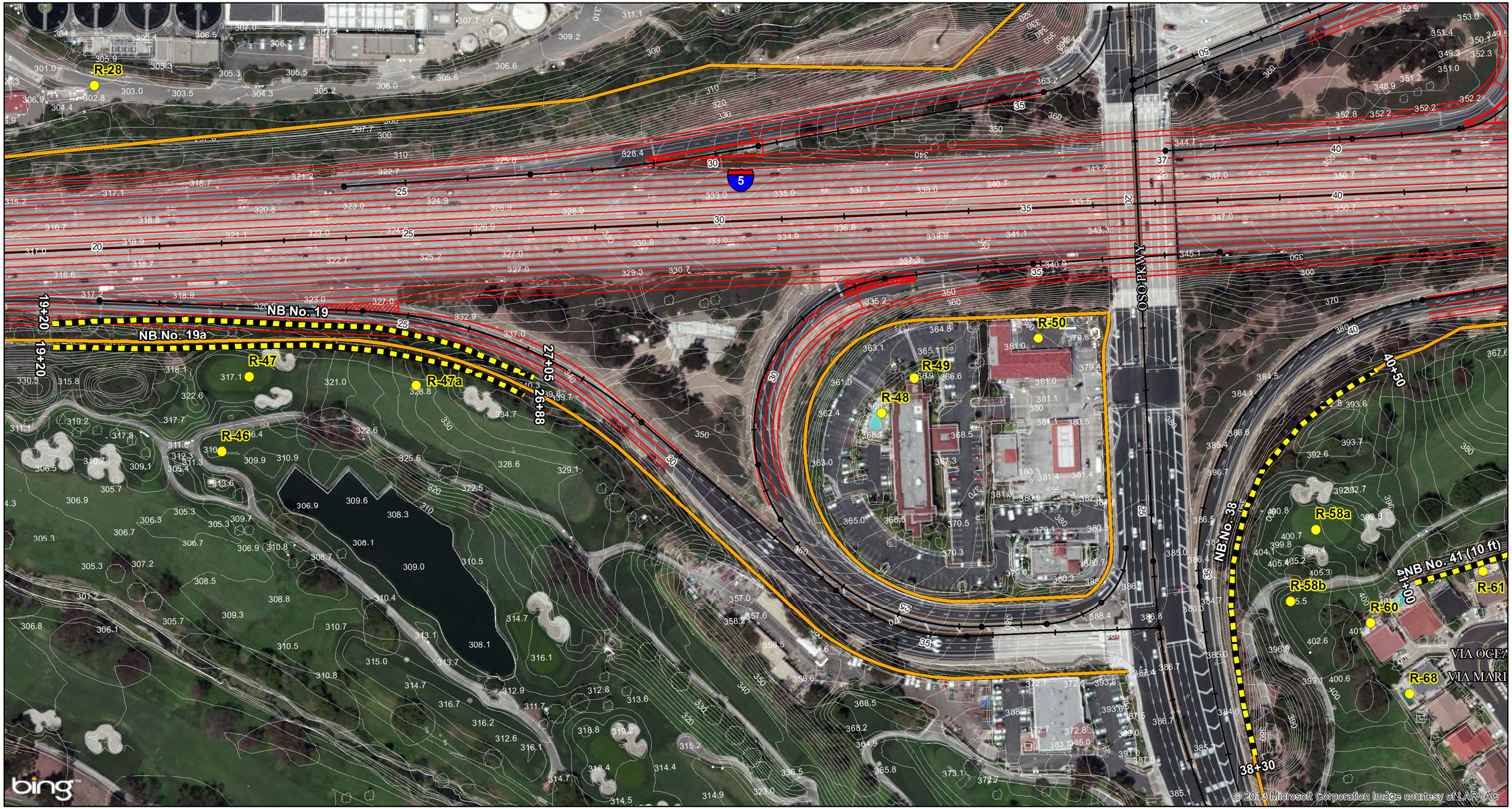

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
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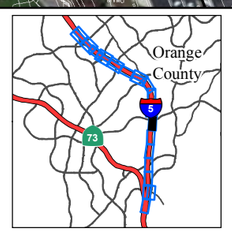

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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FIGURE 2.14-3
Sheet 8 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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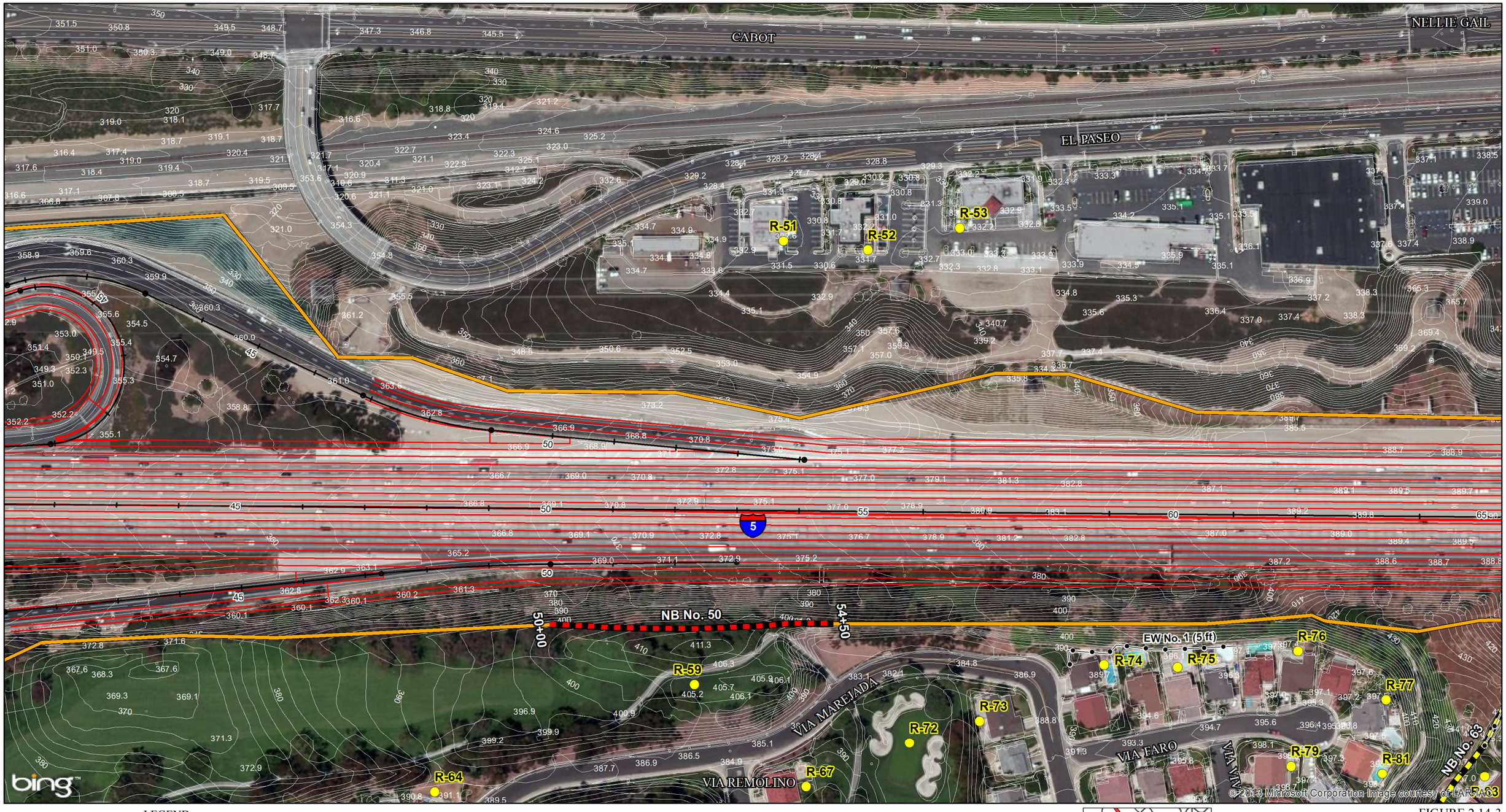

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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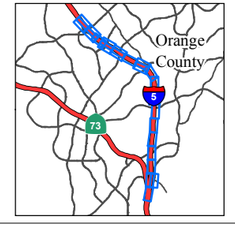

FIGURE 2.14-3
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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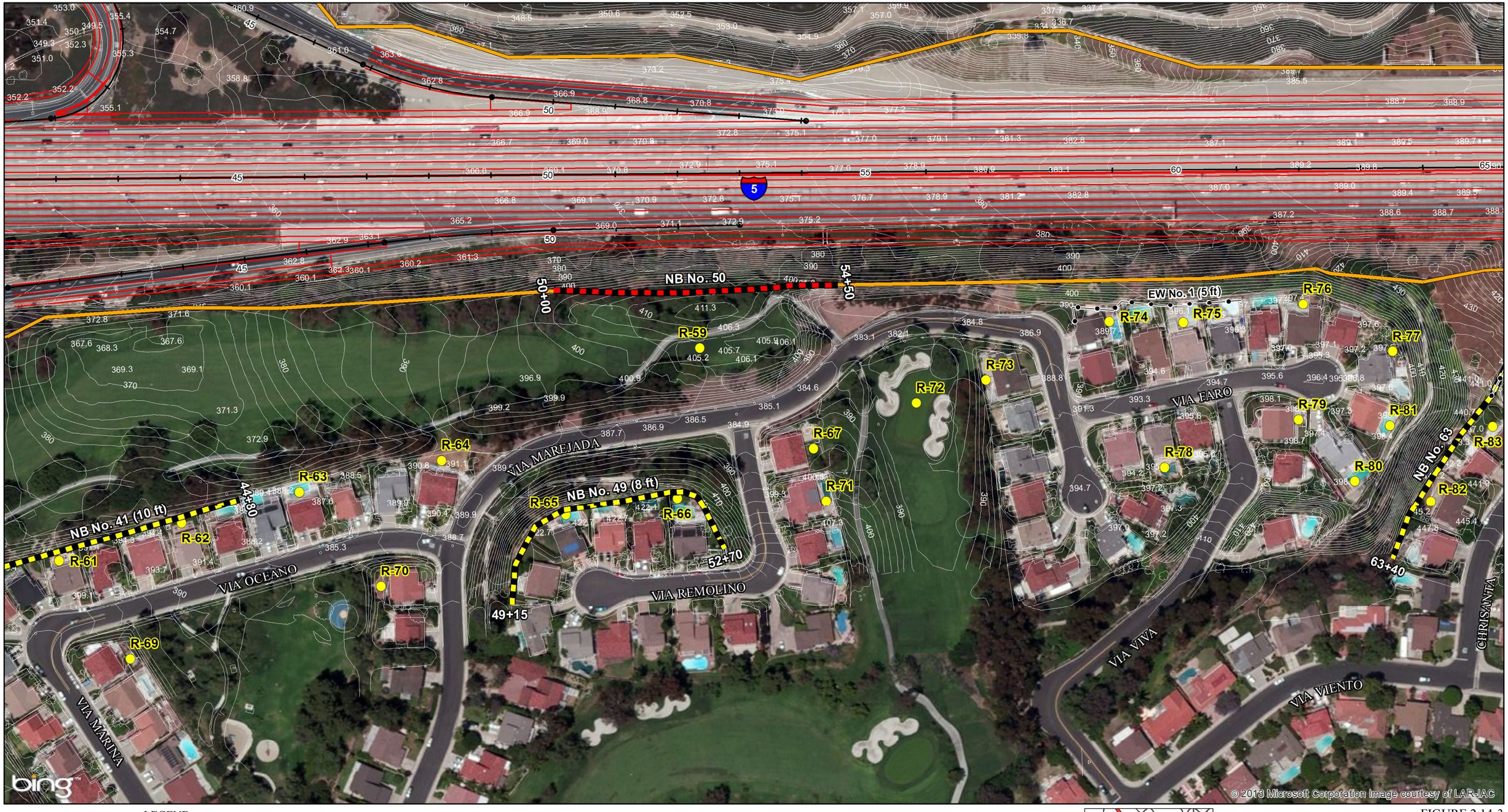

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

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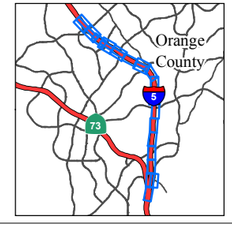

FIGURE 2.14-3
Sheet 10 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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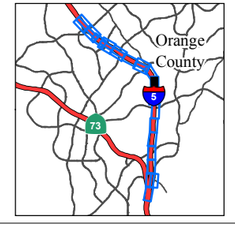

FIGURE 2.14-3
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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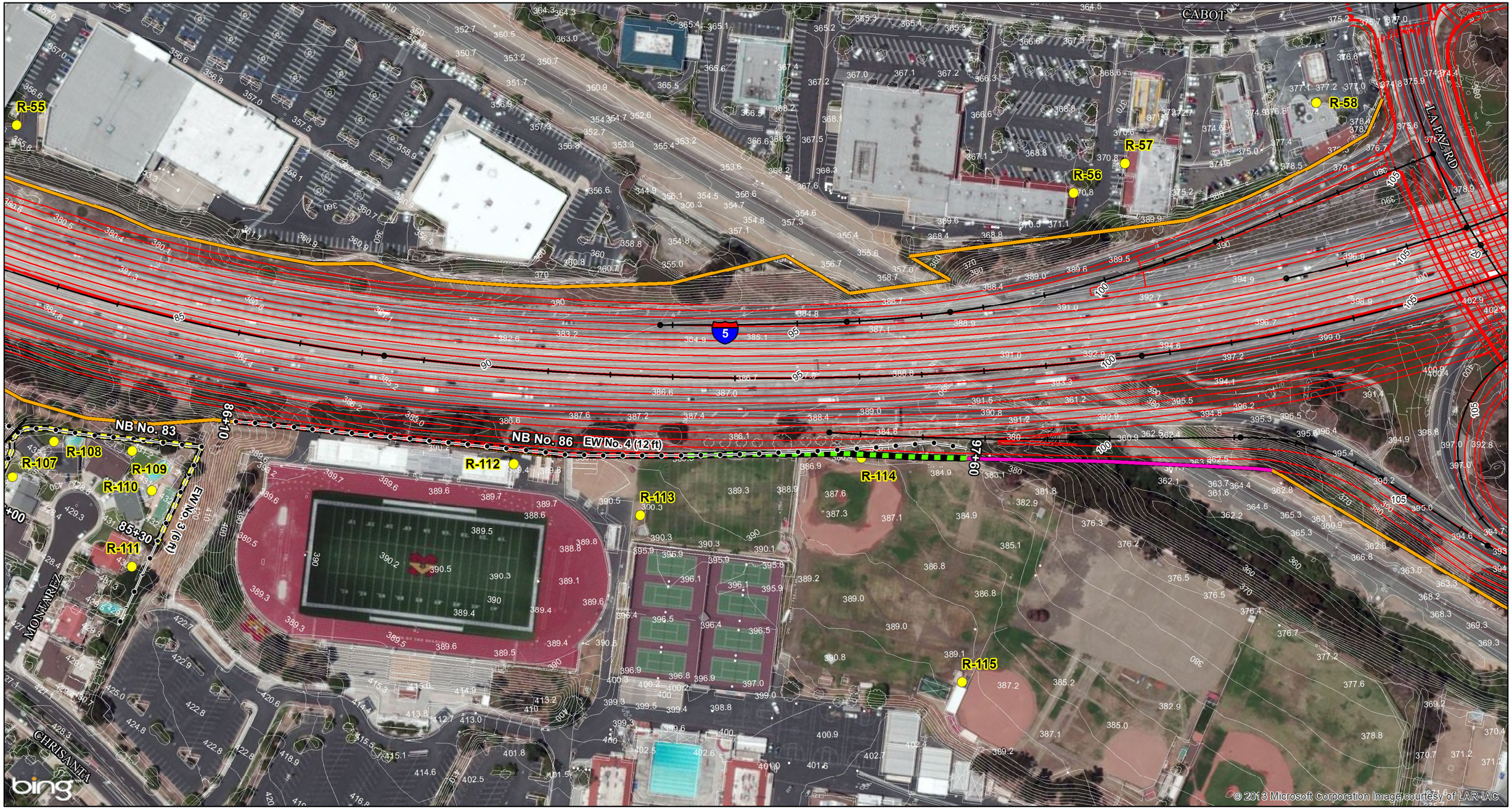

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
Receptor R-9 would be fully acquired under Alternative 3.

FIGURE 2.14-3
Sheet 12 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
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SOURCE: Bing Maps (c. 2009); Transystems (2012)

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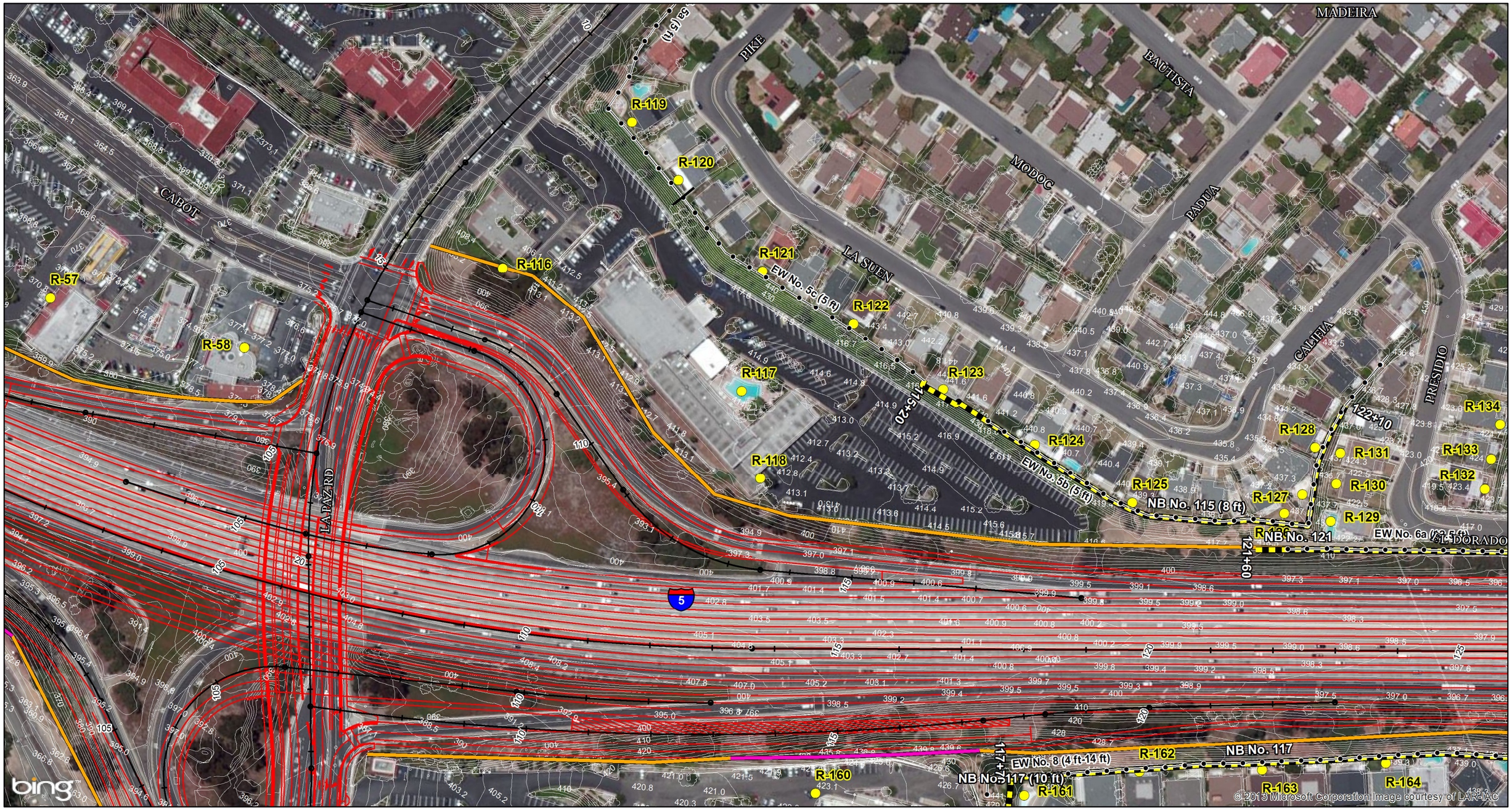

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

Note:
Receptor R-9 would be fully acquired under Alternative 3.

0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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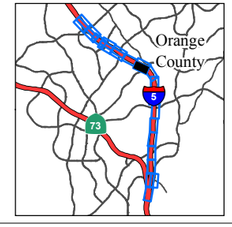

FIGURE 2.14-3
Sheet 13 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
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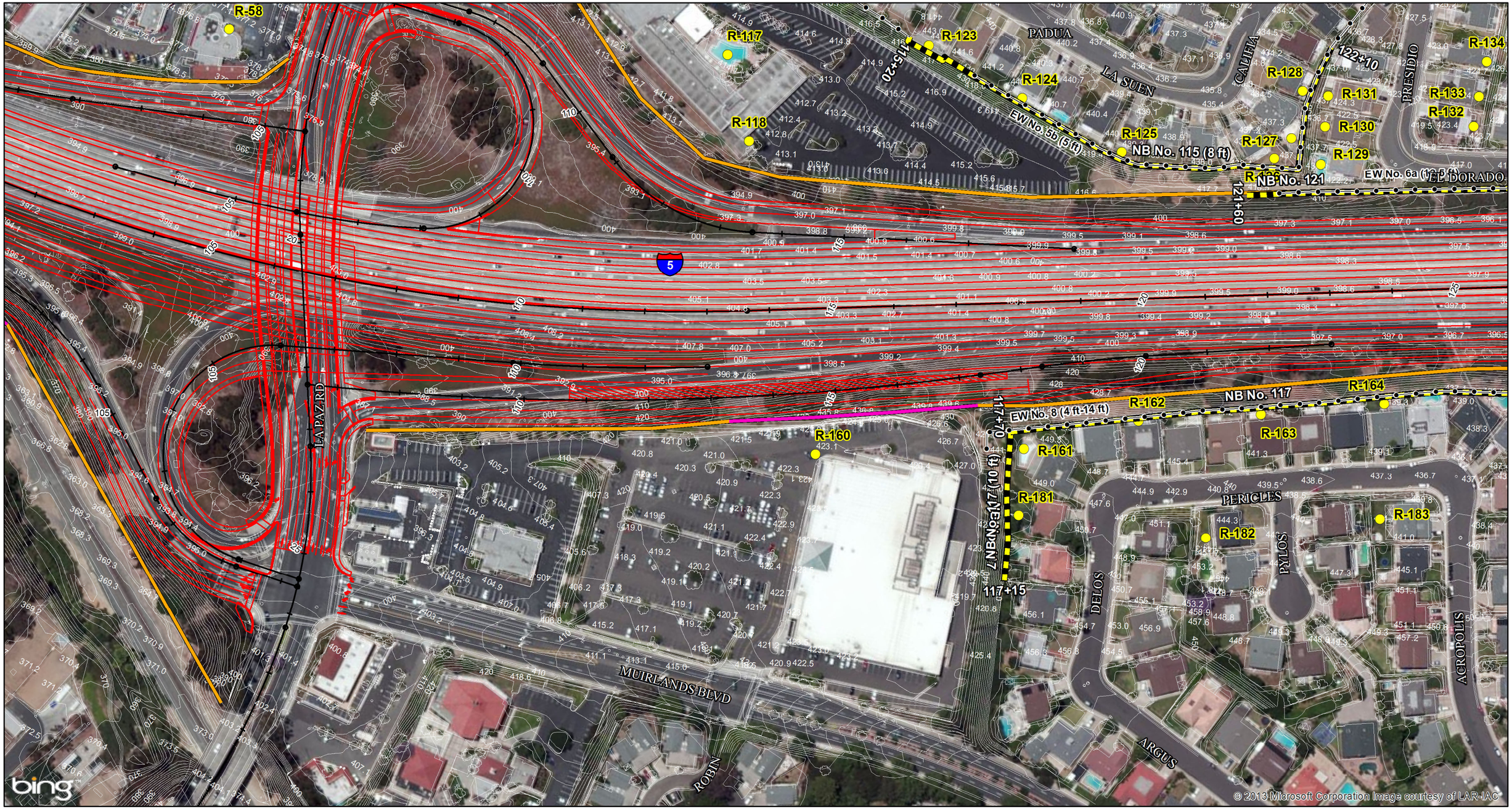

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
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Note:
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0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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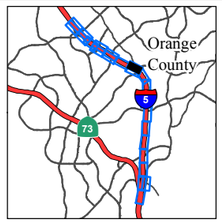

FIGURE 2.14-3
Sheet 14 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
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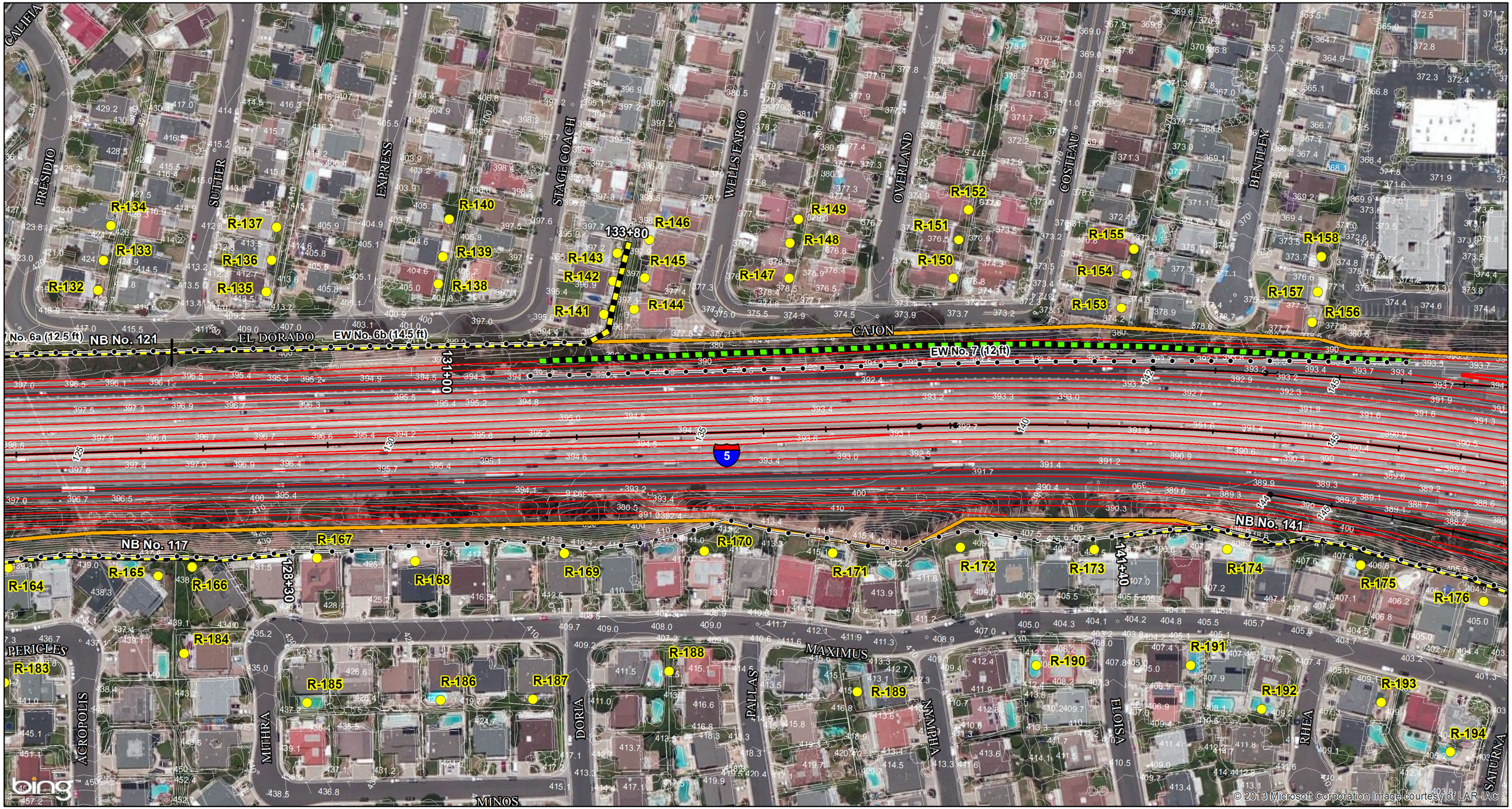

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
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- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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Note:
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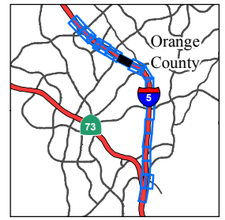

FIGURE 2.14-3
Sheet 15 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

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LEGEND

- Project Limits
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- Proposed Right-of-Way
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- Modeled Noise Barriers - Not Feasible
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FEET

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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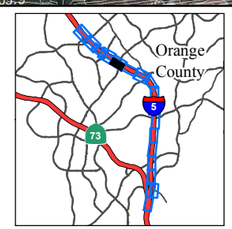

FIGURE 2.14-3
Sheet 16 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

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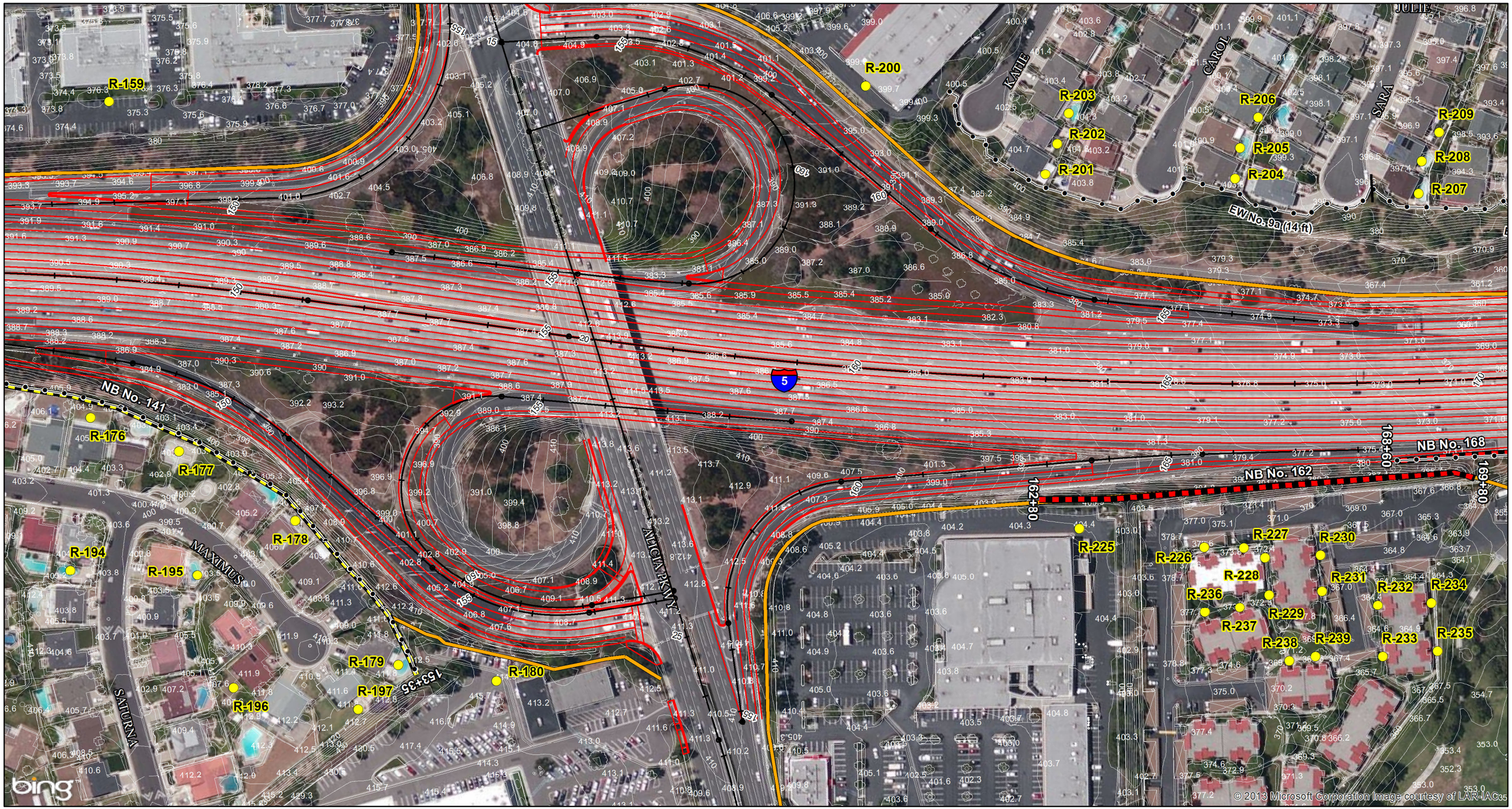

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

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FEET

Note:
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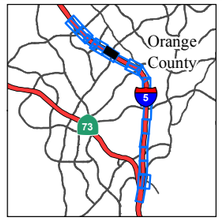

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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FIGURE 2.14-3
Sheet 17 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
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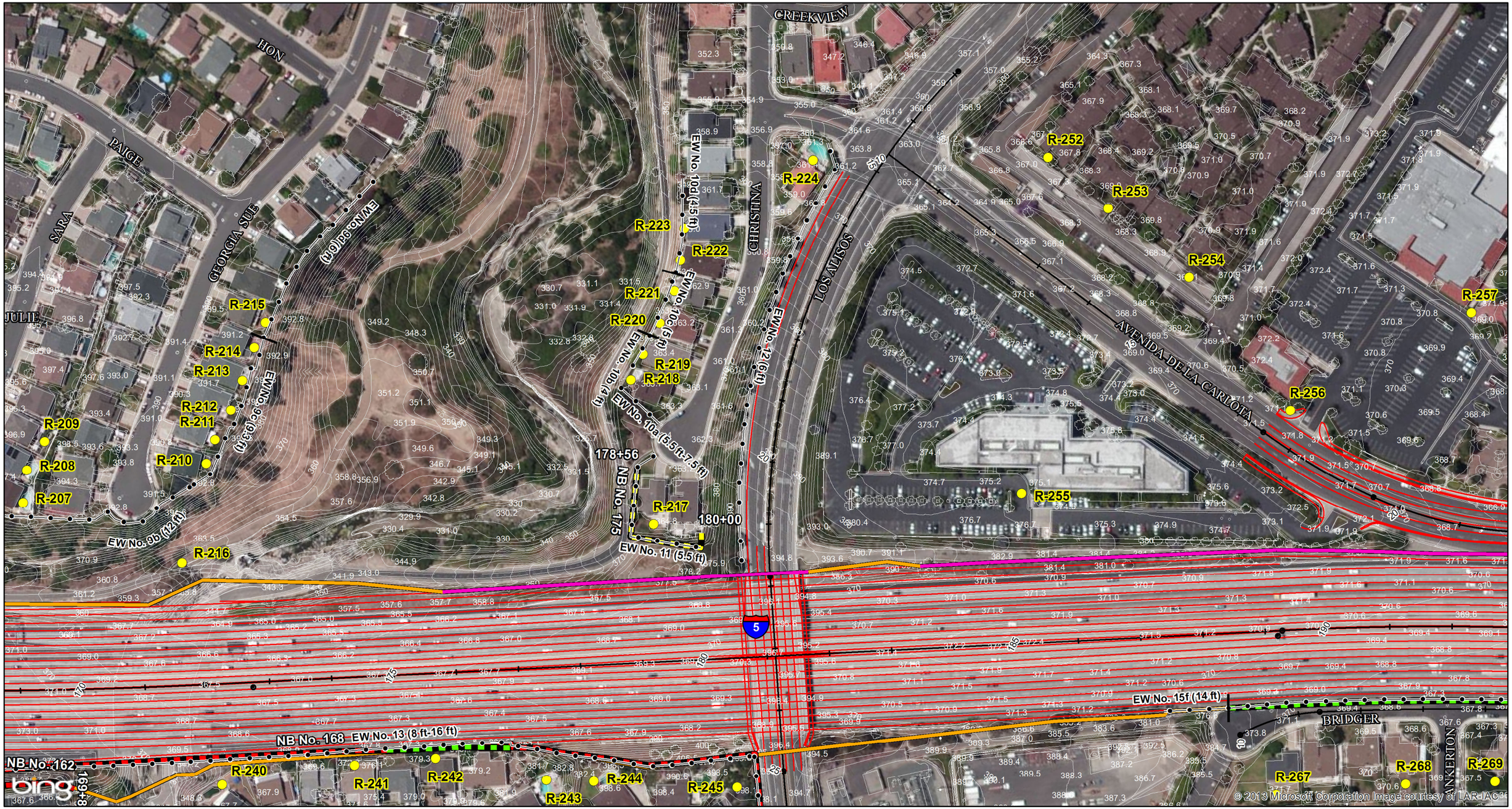

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
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0 75 150
FEET

Note:
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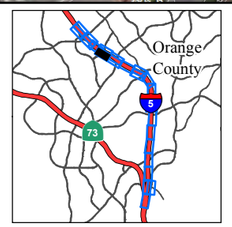

FIGURE 2.14-3
Sheet 18 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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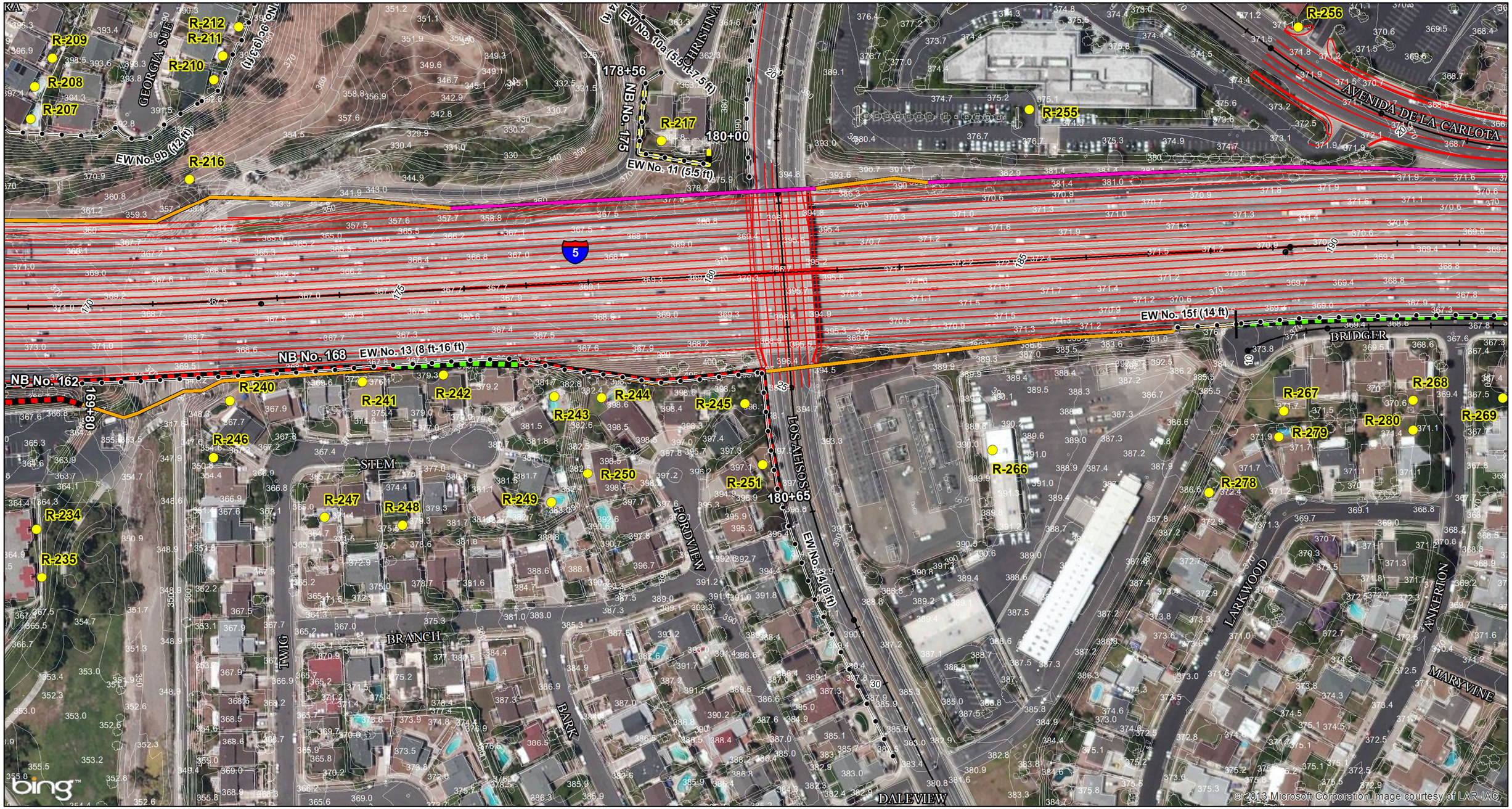

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

Note:
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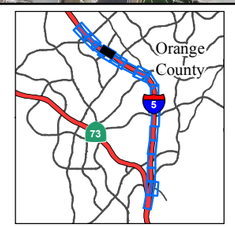

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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FIGURE 2.14-3
Sheet 19 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

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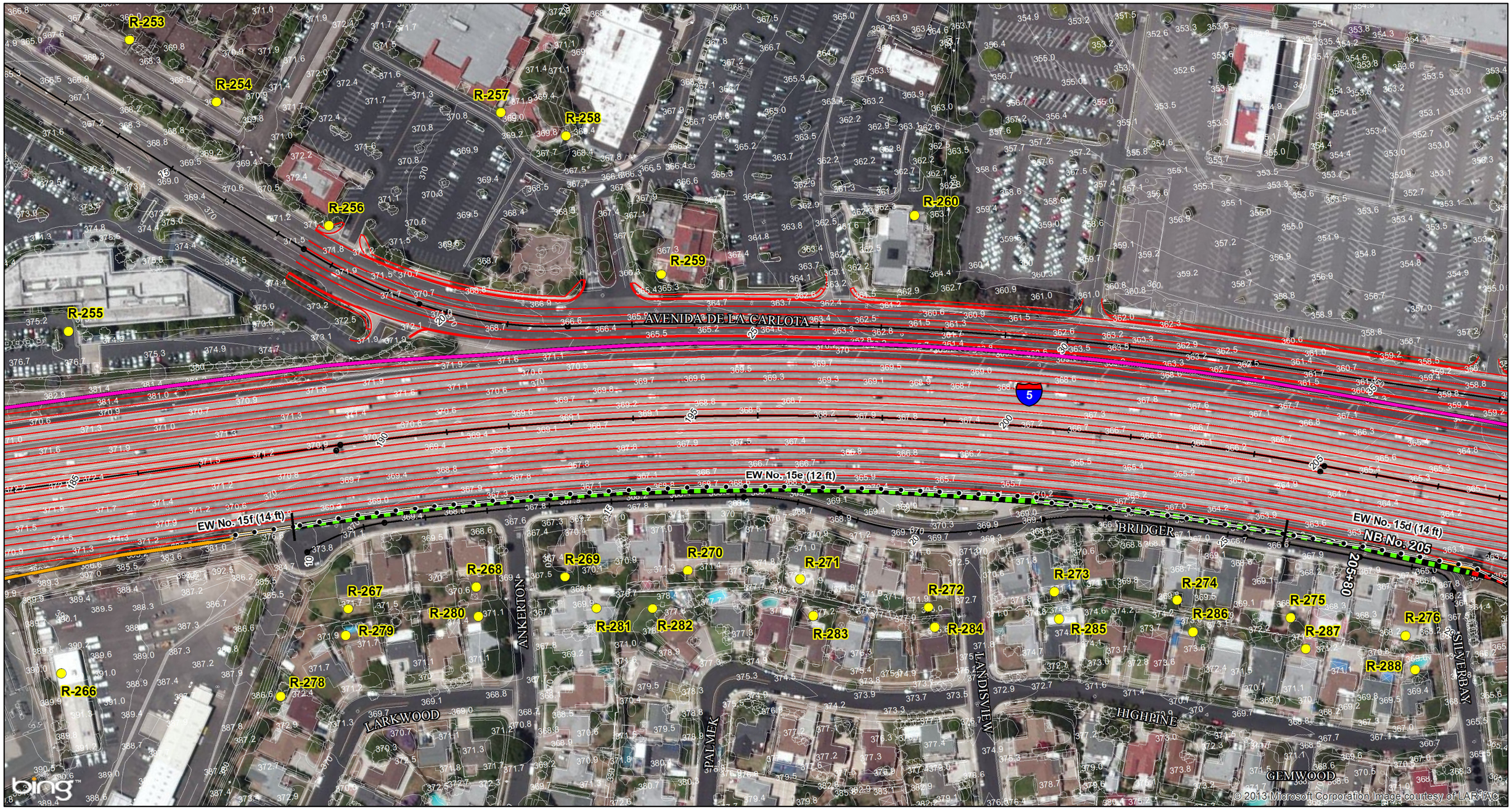

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
- Existing Walls to be Removed and Replaced
- Alternative 3

0 75 150
FEET

Note:
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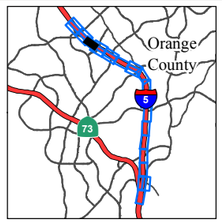

FIGURE 2.14-3
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I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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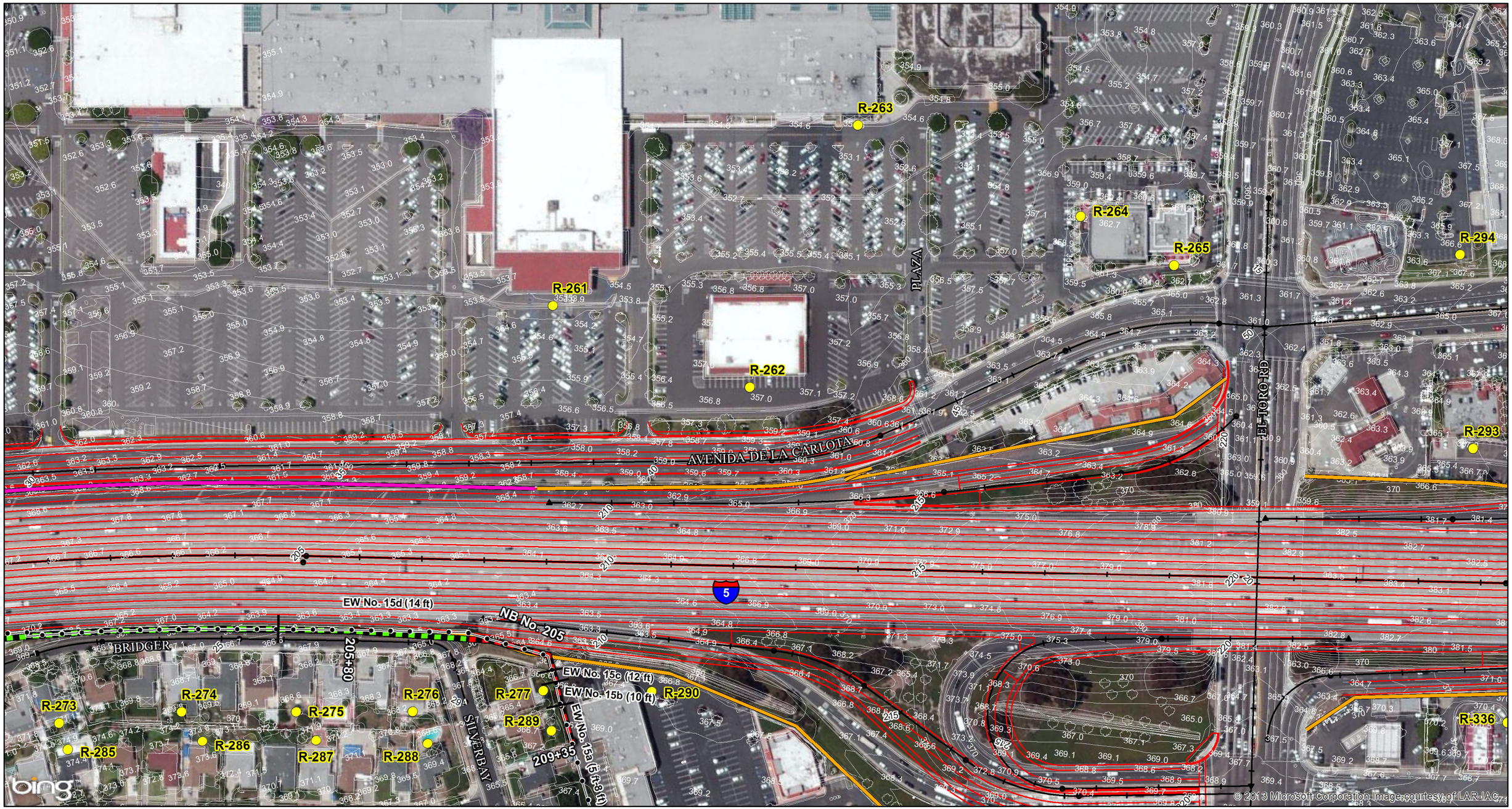

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
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- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

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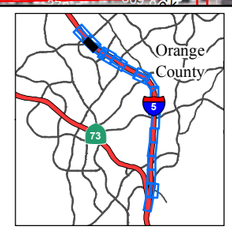

FIGURE 2.14-3
Sheet 21 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations
12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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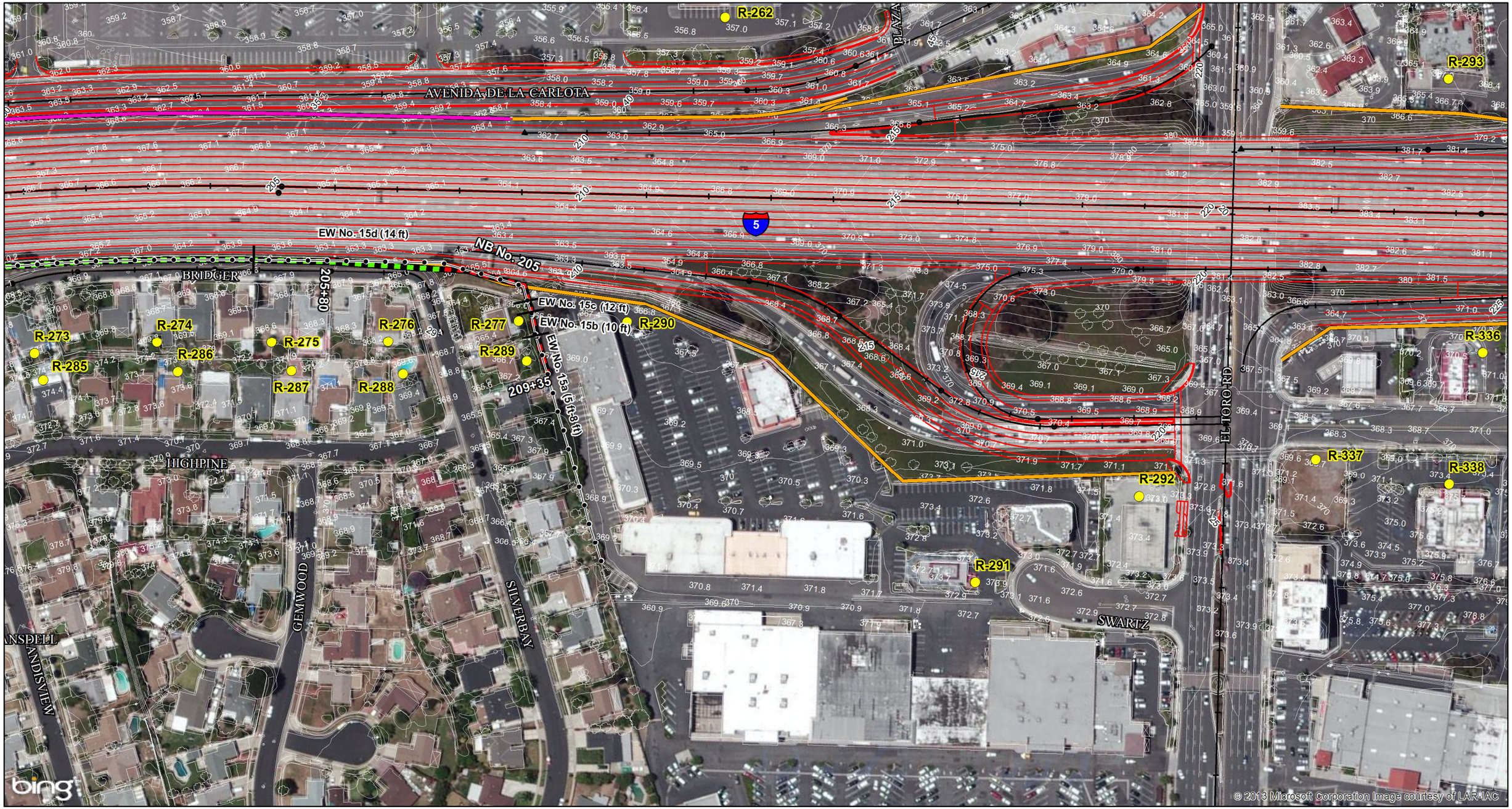

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
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0 75 150
FEET

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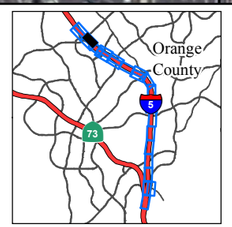

FIGURE 2.14-3
Sheet 22 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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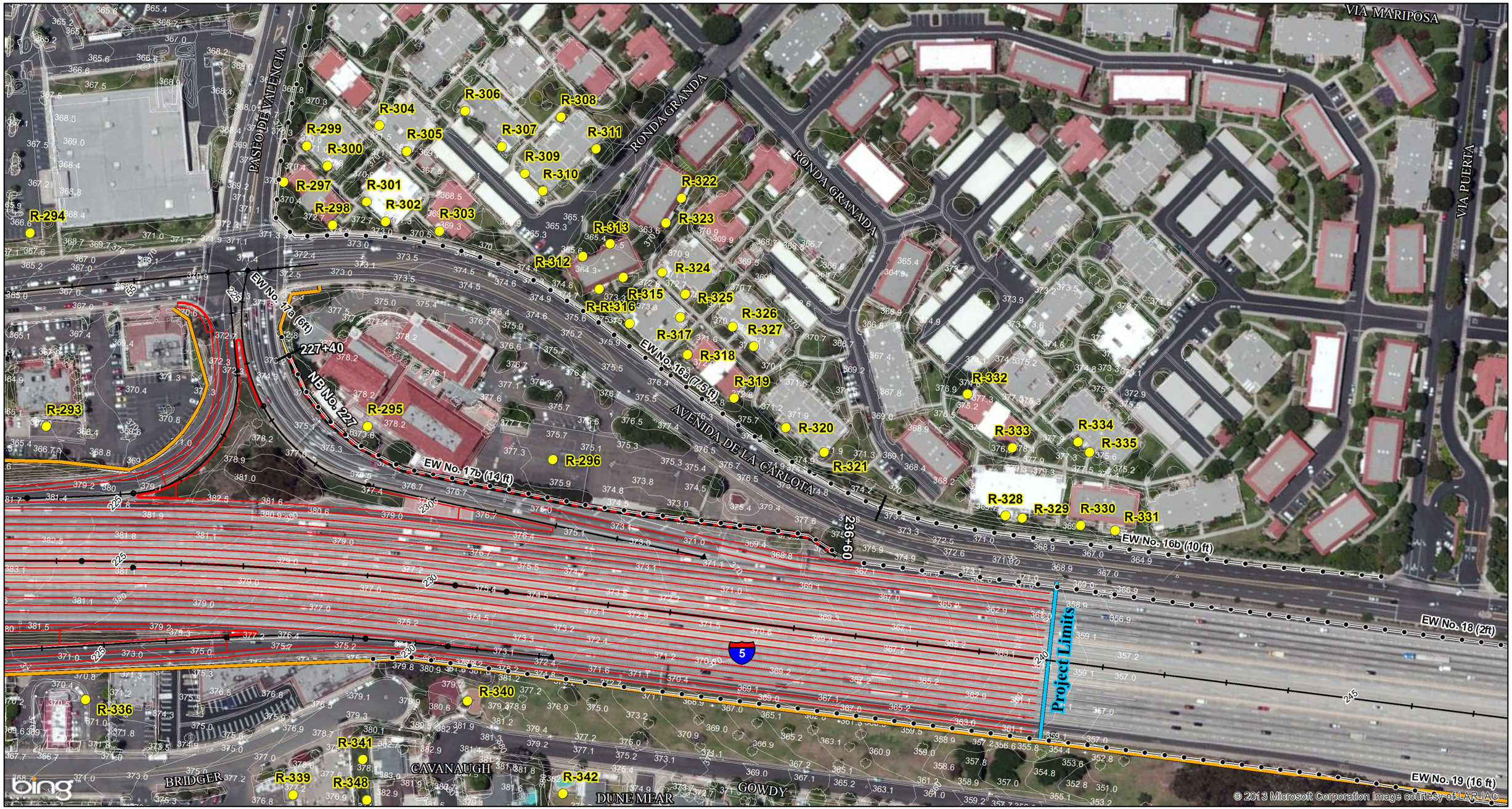

LEGEND

- Project Limits
- Existing Right-of-Way
- Proposed Right-of-Way
- Modeled Receptor Locations
- Modeled Noise Barriers
- Modeled Noise Barriers - Not Feasible
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0 75 150
FEET

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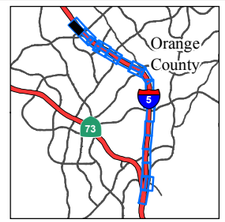

FIGURE 2.14-3
Sheet 23 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
EA# 0K0200

SOURCE: Bing Maps (c. 2009); Transystems (2012)

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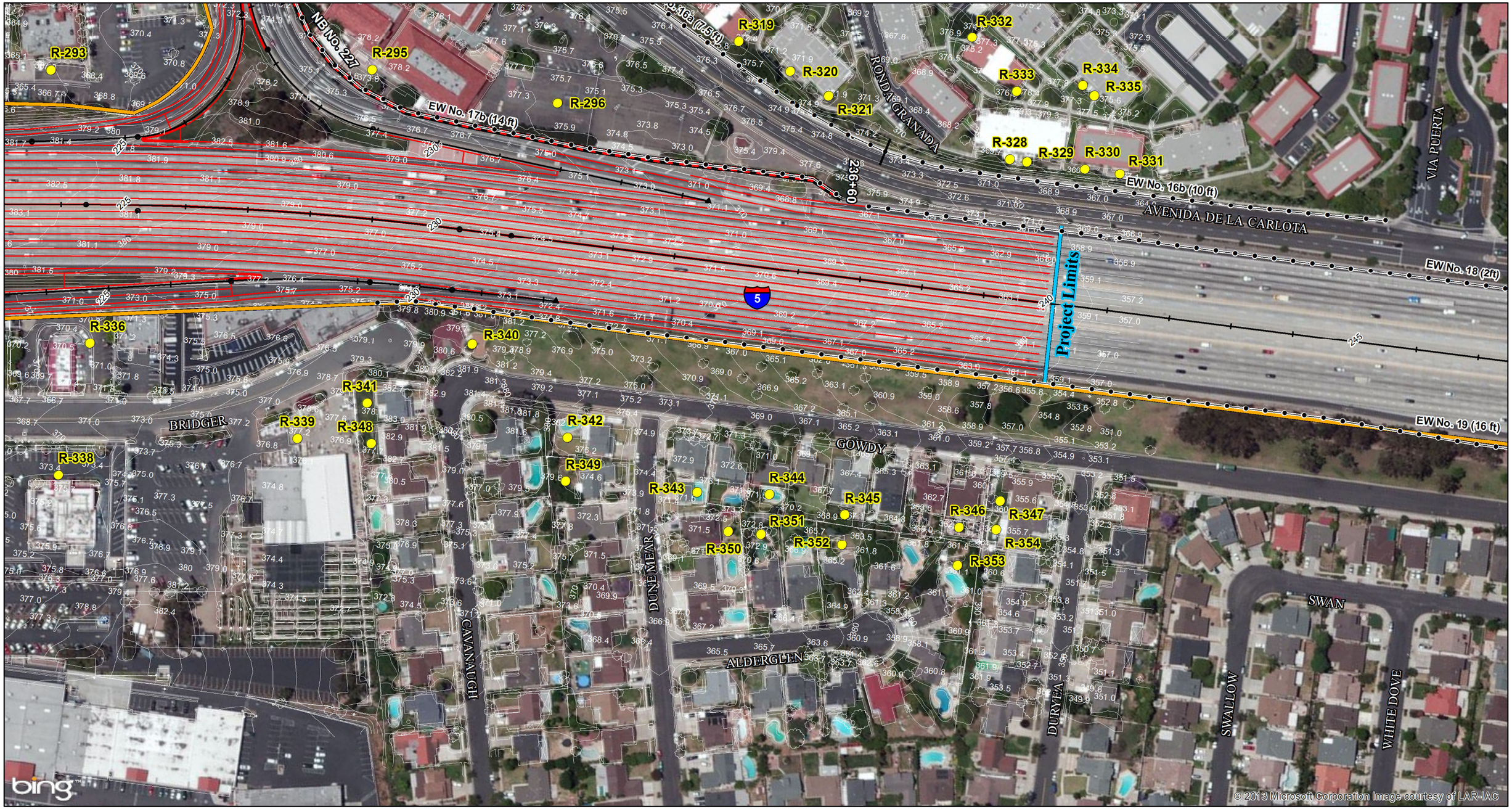

LEGEND

- Project Limits
- Existing Right-of-Way
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FEET

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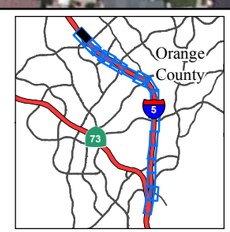

FIGURE 2.14-3
Sheet 24 of 24

I-5 Widening Project: SR-73 to El Toro Road

Alternative 3
Modeled Noise Barriers and Receptor Locations

12-ORA-5 PM 12.4/18.9
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- **Noise Barrier No. 38:** A 717 ft long barrier along the State ROW on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptors R-58a and R-58b.
- **Noise Barrier No. 41:** A 416 ft long barrier located along the property line on the NB side of I-5 between Oso Parkway and La Paz Road was analyzed to shield Receptors R-61 and R-62.
- **Noise Barrier No. 49:** A 283 ft long barrier for Alternative 2 and a 500 ft long barrier for Alternative 3, located along the property line on the NB side of I-5 between Oso Parkway and La Paz Road, were analyzed to shield Receptors R-65 and R-66 (Alternative 3 only).
- **Noise Barrier No. 50:** A 459 ft long barrier, located along State ROW on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptor R-59.
- **Noise Barrier No. 63:** A 1,947 ft long barrier, located along the property line on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptors R-82, R-84 through R-86, R-87 (Alternative 3 only), R-88, R-89, and R-100.
- **Noise Barrier No. 77:** An 89 ft long barrier, located along the property line on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptor R-91.
- **Noise Barrier No. 79:** A 200 ft long barrier, located along the property line on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptors R-101 and R-103.
- **Noise Barrier No. 83:** A 599 ft long barrier, located along the property line on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptors R-107 through R-110.
- **Noise Barrier No. 86:** A 1,178 ft long barrier, located along the State ROW on the NB side of I-5 between Oso Parkway and La Paz Road, was analyzed to shield Receptors R-112 through R-114.
- **Noise Barrier No. 115:** A 959 ft long barrier along the property line located on the NB side of I-5, north of La Paz Road, was analyzed to shield Receptors R-123 through R-126 and R-127 (Alternative 3 only).
- **Noise Barrier No. 117:** A 1,301 ft long barrier along the property line located on the NB side of I-5, north of La Paz Road, was analyzed to shield Receptors R-161, R-163 through R-166, and R-181. This barrier is made of two segments. The first segment is approximately 244 ft in length from Station (STA) 117+15 to STA 117+70. The

second segment is approximately 1,057 ft in length from STA 117+70 to STA 128+30.

- **Noise Barrier No. 121:** A 1,336 ft long barrier along the State ROW/property line located on the NB side of I-5, south of Alicia Parkway, was analyzed to shield Receptors R-129, R-135, R-138 (Alternative 3 only), and R-141 through R-143. This barrier is made of two segments. The first segment is approximately 928 ft in length from STA 121+60 to STA 131+00. The second segment is approximately 408 ft in length from STA 131+00 to STA 133+80.
- **Noise Barrier No. 141:** A 1,315 ft long barrier along the State ROW/property line, located on the NB side of I-5 between La Paz Road and Alicia Parkway, was analyzed to shield Receptors R-174 (Alternative 3 only), R-175, R-176, and R-178.
- **Noise Barrier No. 162:** A 702 ft long barrier located along State ROW on the NB side of I-5 between Alicia Parkway and Los Alisos Boulevard was analyzed to shield Receptor R-227.
- **Noise Barrier No. 168:** A 1,416 ft long barrier, located along the edge of shoulder and State ROW on the NB side of I-5, south of Los Alisos Boulevard, was analyzed to shield Receptors R-240 through R-242, R-244, R-245, and R-250.
- **Noise Barrier No. 175:** A 252 ft long barrier, located along property line on the SB side of I-5 between Alicia Parkway and Los Alisos Boulevard, was analyzed to shield Receptor R-217.
- **Noise Barrier No. 205:** A 463 ft long barrier, located along State ROW/property line on the NB side of I-5 between Los Alisos Boulevard and El Toro Road, was analyzed to shield Receptors R-277 and R-289.
- **Noise Barrier No. 227:** A 979 ft long barrier, located along State ROW on the SB side of I-5, north of El Toro Road, was analyzed to shield Receptors R-295 and R 296.

Reflected Noise

Single Reflection

Noise generated from a single reflection occurs when receptors on one side of the highway have a direct line-of-sight to a reflective barrier on the opposite side of the highway. Noise barriers with hard and smooth surfaces can result in a small amount of noise reflection on the opposite side of the highway. Noise from the highway would be reflected back toward the highway and beyond. However, due to the small percentage of highway traffic noise that would be reflected off the noise barrier and the longer distance it has to travel before reaching the receptor on the other side of the freeway, the effect on the total noise levels would be small even during extreme weather conditions with low

inversion layer. It is Caltrans current standard practice (based on Caltrans Traffic Noise Analysis Protocol, May 2011) to provide walls with an acoustically absorptive material for the walls when receptors on the opposite side have a direct line of sight to the wall.

Multiple Reflections

Noise generated from multiple reflections occurs when there are reflective barriers on both sides of the highway, also known as parallel barriers. Parallel barrier effects occur when noise barriers are located on both sides of the roadway, reflecting traffic noise back and forth across the roadway multiple times, and the barriers build up a reverberant sound field between them. This reverberation increases noise levels at nearby receptors on both sides of the roadway, compared to what would exist without the barrier on the opposite side. In addition, noise increases generated by reflection would have the potential to degrade the performance of modeled noise barriers (i.e., parallel barrier degradation). To avoid a reduction in the performance of parallel reflective barriers, the width-to-height ratio of the roadway section to the barriers should be at least 15:1. Parallel barriers were evaluated approximately from STA 132+25 to STA 143+90 because the distance between Existing Wall (EW) No. 7 and EW No. 8 is the shortest, and the height of the reflective portion of the barrier is the highest within the Study Area. It should be noted that EW No. 7 would be relocated and replaced under both Alternatives 2 and 3. The distance between the two barriers was 240 ft, and the height of the barrier was 12 ft. Based on these dimensions, the width-to-height ratio of the roadway section would be 20:1. Therefore, no substantial barrier degradation would occur due to parallel barriers along I-5.

Feasibility and Reasonable Allowance

A minimum reduction of 5 dBA must be achieved at an affected receiver for the noise abatement measure to be considered feasible. The feasibility criterion is not necessarily a noise abatement design goal. Greater noise reductions are encouraged if they can be reasonably achieved. Feasibility may also be restricted by the following factors: (1) topography, (2) access requirement for driveways, (3) the presence of local cross streets, (4) underground utilities, (5) other noise sources in the area, and (6) safety considerations.

A total of 17 out of 25 noise barriers evaluated for both Alternatives 2 and 3 were capable of reducing noise levels by 5 dB or more as required to be considered feasible.
Table 2.14-12 lists all the feasible noise barriers for Alternatives 2 and 3 along with their height, approximate length, noise attenuation, number of benefited units/receptors, reasonable allowances per unit, the total reasonable allowance, the receptor with the highest noise level reduction, and the noise barrier locations. The cost consideration for

residential land uses in the reasonableness determination of noise abatement is based on a 2011 allowance per benefited unit/receptor of $55,000. For nonresidential land uses, the reasonable allowance determination is based on frontage units of 100 ft being equal to one benefited receptor.

The proposed project under Alternatives 2 and 3 would remove all or portions of the existing walls within the Study Area to accommodate the proposed roadway improvements. The existing walls would be removed as part of the proposed project, relocated outside of the widening proposed by the project, and replaced. The elevation of the top of the wall for all these existing walls should be at the same elevation or higher as the elevation of the top of the walls they replaced. Below is a summary of the existing walls that would be removed and replaced for Alternatives 2 and 3.

- **Existing Wall No. 4:** A portion of this wall along the NB off-ramp at La Paz Road would be removed from STA 95+70 to STA 97+80 for Alternative 2 and from STA 93+40 to STA 97+80 for Alternative 3. The existing wall is also shown as Noise Barrier No. 86.
- **Existing Wall No. 7:** A portion of this wall or the entire wall along the SB side of I-5 between La Paz Road and Alicia Parkway would be removed from STA 132+35 to STA 143+88 for Alternative 2 and STA 132+35 to STA 146+12 for Alternative 3. No traffic noise effects would result when this wall is replaced at the new location with the same height.
- **Existing Wall No. 13:** The existing wall along the NB side of I-5 between Alicia Parkway and Los Alisos Boulevard from STA 174+80 to STA 176+80 for both Alternatives 2 and 3 would be removed. The existing wall is also shown as Noise Barrier No. 168. Noise Barrier No. 168 was evaluated with a higher height and was determined to be not feasible because the barrier would not reduce noise levels by 5 dBA or more. Therefore, the replacement of this wall at the new location with the same height at the very minimum would be required.
- **Existing Wall No. 15e:** The existing wall along the NB side of I-5 between Los Alisos Boulevard and El Toro Road from STA 187+15 to STA 208+00 would be removed. The existing wall is also shown as Noise Barrier No. 205. Noise Barrier No. 205 was evaluated with a higher height and was determined to be not feasible because the barrier would not reduce noise levels by 5 dBA or more. Therefore, the replacement of this wall at the new location with the same height at the very minimum would be required.

Table 2.14-12 Total Reasonable Allowance Per Noise Barrier

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Noise Attenuation (dBA)	Number of Benefited Units/ Receptors[1]	Reasonable Allowance Per Unit	Total Reasonable Allowance	Receptor[2]	Noise Barrier Location
2 (Preferred Alternative)	676	6[3]	666	7.9	7[4]	$55,000	$385,000	R-12	PL
		8	666	5.5 to 9.4	7[4]	$55,000	$385,000		
		10	666	6.2 to 10.7	7[4]	$55,000	$385,000		
		12	666	6.9 to 11.8	7[4]	$55,000	$385,000		
		14	666	7.5 to 12.6	7[4]	$55,000	$385,000		
		16	666	8 to 13.5	7[4]	$55,000	$385,000		
	769	12[3]	124	6.5	2[4]	$55,000	$110,000	R-31	ROW
		14	124	6.9	2[4]	$55,000	$110,000		
		16	124	7.8	2[4]	$55,000	$110,000		
	4	6[3]	543	5.0 to 8.4	5	$55,000	$275,000	R-41	PL
		8	543	5.4 to 9.8	5	$55,000	$275,000		
		10	543	6.0 to 10.8	5	$55,000	$275,000		
		12	543	6.7 to 11.4	5	$55,000	$275,000		
		14	543	7.2 to 12.1	5	$55,000	$275,000		
		16	543	8.0 to 12.5	5[4]	$55,000	$275,000		
	13	8	447	5.7	5[4]	$55,000	$275,000	R-45	EOS
		10	447	6.6	5[4]	$55,000	$275,000		
		12[3]	447	7.8	5[4]	$55,000	$275,000		
		14	447	8.4	5[4]	$55,000	$275,000		
	38	14	717	5.4	8[4]	$55,000	$440,000	R-58b	ROW
		16[3]	717	5.9	8[4]	$55,000	$440,000		
		18	717	6.2	8[4]	$55,000	$440,000		
		20[5]	717	6.5	8[4]	$55,000	$440,000		
	41	8[3]	416	5.1 to 6.3	6	$55,000	$330,000	R-62	PL
		10	416	6.2 to 7.7	6	$55,000	$330,000		
		12	416	7.5 to 8.5	6	$55,000	$330,000		
		14	416	8.1 to 8.9	6	$55,000	$330,000		
		16	416	8.6 to 9.3	6	$55,000	$330,000		
	49	6[3]	283	6.6	3	$55,000	$165,000	R-65	PL
		8	283	8.8	3	$55,000	$165,000		
		10	283	10.7	3	$55,000	$165,000		
		12	283	11.7	3	$55,000	$165,000		
		14	283	12.2	3	$55,000	$165,000		
		16	283	12.4	3	$55,000	$165,000		

Table 2.14-12 Total Reasonable Allowance Per Noise Barrier

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Noise Attenuation (dBA)	Number of Benefited Units/ Receptors[1]	Reasonable Allowance Per Unit	Total Reasonable Allowance	Receptor[2]	Noise Barrier Location
2 (Preferred Alternative)	63	6	1,947	5.2 to 8.3	4	$55,000	$220,000	R-100	PL
		8[3]	1,947	5.7 to 8.6	6	$55,000	$330,000		
		10	1,947	6.9 to 9.3	6	$55,000	$330,000		
		12	1,947	5.0 to 9.9	12	$55,000	$660,000		
		14	1,947	5.2 to 10.3	15	$55,000	$825,000		
		16	1,947	5.2 to 10.8	18	$55,000	$990,000		
	79	12[3]	200	5.1	1	$55,000	$55,000	R-103	PL
		14	200	5.2 to 6.1	2	$55,000	$110,000		
		16	200	5.9 to 6.8	2	$55,000	$110,000		
		18	200	6.7 to 7.7	2	$55,000	$110,000		
	83	14[3]	599	5.6	1	$55,000	$55,000	R-109	PL
		16	599	5.2 to 6.7	3	$55,000	$165,000		
		18	599	5.5 to 7.2	3	$55,000	$165,000		
	117	6[3]	1,301	5.9	2	$55,000	$110,000	R-181	PL
		8	1,301	6.7	2	$55,000	$110,000		
		10	1,301	7.3	2	$55,000	$110,000		
		12	1,301	7.8	2	$55,000	$110,000		
		14	1,301	8.0	2	$55,000	$110,000		
		16	1,301	8.6	2	$55,000	$110,000		
	117	6[3]	244	5.9	2	$55,000	$110,000	R-181	PL
		8	244	6.7	2	$55,000	$110,000		
		10	244	7.3	2	$55,000	$110,000		
		12	244	7.8	2	$55,000	$110,000		
		14	244	8.0	2	$55,000	$110,000		
		16	244	8.6	2	$55,000	$110,000		
	141	12	1,315	5.6	3	$55,000	$165,000	R-178	ROW & PL
		14	1,315	5.6 to 6.6	5	$55,000	$275,000		
		16	1,315	6.2 to 7.3	5	$55,000	$275,000		
	115	6[3]	959	8.9	3	$55,000	$165,000	R-123	PL
		8	959	5.2 to 11.6	6	$55,000	$330,000		
		10	959	6.5 to 13.2	9	$55,000	$495,000		
		12	959	7.5 to 14.6	9	$55,000	$495,000		
		14	959	6.0 to 15.8	11	$55,000	$605,000		
		16	959	6.7 to 16.4	11	$55,000	$605,000		

Table 2.14-12 Total Reasonable Allowance Per Noise Barrier

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Noise Attenuation (dBA)	Number of Benefited Units/ Receptors[1]	Reasonable Allowance Per Unit	Total Reasonable Allowance	Receptor[2]	Noise Barrier Location
2 (Preferred Alternative)	121	12	1,336	5.0 to 5.3	3	$55,000	$165,000	R-143	ROW & PL
		14	1,336	5.1 to 5.4	3	$55,000	$165,000		
		16[3]	1,336	6.1 to 7.4	3	$55,000	$165,000		
	121	12	408	5.0 to 5.3	3	$55,000	$165,000	R-143	ROW & PL
		14	408	5.1 to 5.4	3	$55,000	$165,000		
		16[3]	408	6.1 to 7.4	3	$55,000	$165,000		
	175	14	252	5.5	2	$55,000	$110,000	R-217	PL
		16[3]	252	6.1	2	$55,000	$110,000		
		18	252	6.8	2	$55,000	$110,000		
		20	252	7.3	2	$55,000	$110,000		
	19	8	785	5.5	8[4]	$55,000	$440,000	R-47	EOS
		10	785	5.4 to 7.0	8[4]	$55,000	$440,000		
		12	785	6.4 to 8.1	8[4]	$55,000	$440,000		
		14[3]	785	7.1 to 8.9	8[4]	$55,000	$440,000		
		16	785	7.6 to 9.5	8[4]	$55,000	$440,000		
	19a	6	768	5.0	8[4]	$55,000	$440,000	R-47	PL
		8	768	6.8	8[4]	$55,000	$440,000		
		10	768	8.2	8[4]	$55,000	$440,000		
		12[3]	768	5.6 to 9.2	8[4]	$55,000	$440,000		
		14	768	5.8 to 10.1	8[4]	$55,000	$440,000		
		16	768	6.5 to 10.7	8[4]	$55,000	$440,000		
3	676	6[3]	666	7.7	7[4]	$55,000	$385,000	R-12	PL
		8	666	5.4 to 9.2	7[4]	$55,000	$385,000		
		10	666	6.1 to 10.5	7[4]	$55,000	$385,000		
		12	666	6.8 to 11.6	7[4]	$55,000	$385,000		
		14	666	7.4 to 12.4	7[4]	$55,000	$385,000		
		16	666	7.9 to 13.3	7[4]	$55,000	$385,000		
	769	12[3]	124	6.8	2[4]	$55,000	$110,000	R-31	ROW
		14	124	7.2	2[4]	$55,000	$110,000		
		16	124	8.3	2[4]	$55,000	$110,000		
	4	6[3]	543	5.1 to 8.3	5	$55,000	$275,000	R-41	PL
		8	543	5.6 to 9.7	5	$55,000	$275,000		
		10	543	6.3 to 10.8	5	$55,000	$275,000		
		12	543	6.9 to 11.4	5	$55,000	$275,000		

Table 2.14-12 Total Reasonable Allowance Per Noise Barrier

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Noise Attenuation (dBA)	Number of Benefited Units/ Receptors[1]	Reasonable Allowance Per Unit	Total Reasonable Allowance	Receptor[2]	Noise Barrier Location
3	4	14	543	7.4 to 12.2	5	$55,000	$275,000	R-41	PL
		16	543	8.3 to 12.5	5	$55,000	$275,000		
	13	8	447	5.8	5[4]	$55,000	$275,000	R-13	EOS
		10	447	6.9	5[4]	$55,000	$275,000		
		12[3]	447	8.1	5[4]	$55,000	$275,000		
		14	447	8.6	5[4]	$55,000	$275,000		
	38	14	717	5.2	8[4]	$55,000	$440,000	R-58b	ROW
		16[3]	717	5.6	8[4]	$55,000	$440,000		
		18	717	5.9	8[4]	$55,000	$440,000		
		20[5]	717	6.2	8[4]	$55,000	$440,000		
	41	6[3]	416	5.0	3	$55,000	$165,000	R-62	PL
		8	416	5.3 to 6.8	6	$55,000	$330,000		
		10	416	6.5 to 8.3	6	$55,000	$330,000		
		12	416	7.8 to 9.1	6	$55,000	$330,000		
		14	416	8.4 to 9.5	6	$55,000	$330,000		
		16	416	9.0 to 9.9	6	$55,000	$330,000		
	49	6[3]	500	5.6 to 6.9	5	$55,000	$275,000	R-65	PL
		8	500	7.6 to 9.2	5	$55,000	$275,000		
		10	500	9.6 to 11.4	5	$55,000	$275,000		
		12	500	10.7 to 12.5	5	$55,000	$275,000		
		14	500	11.8 to 13.0	5	$55,000	$275,000		
		16	500	12.6 to 13.3	5	$55,000	$275,000		
	63	6	1,947	5.5 to 8.1	4	$55,000	$220,000	R-100	PL
		8[3]	1,947	5.8 to 8.5	6	$55,000	$330,000		
		10	1,947	7.2 to 9.1	6	$55,000	$330,000		
		12	1,947	5.1 to 9.8	12	$55,000	$660,000		
		14	1,947	5.3 to 10.2	15	$55,000	$825,000		
		16	1,947	5.3 to 10.7	18	$55,000	$990,000		
	79	12[3]	200	5.3	1	$55,000	$55,000	R-103	PL
		14	200	5.4 to 6.3	2	$55,000	$110,000		
		16	200	6.0 to 7.0	2	$55,000	$110,000		
	83	14[3]	599	5.0 to 5.6	2	$55,000	$110,000	R-109	PL
		16	599	5.3 to 6.6	3	$55,000	$165,000		
		18	599	5.6 to 7.1	3	$55,000	$165,000		

Table 2.14-12 Total Reasonable Allowance Per Noise Barrier

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Noise Attenuation (dBA)	Number of Benefited Units/ Receptors[1]	Reasonable Allowance Per Unit	Total Reasonable Allowance	Receptor[2]	Noise Barrier Location
3	117	6[3]	1,301	5.9	2	$55,000	$110,000	R-181	PL
		8	1,301	6.7	2	$55,000	$110,000		
		10	1,301	7.3	2	$55,000	$110,000		
		12	1,301	7.8	2	$55,000	$110,000		
		14	1,301	8.0	2	$55,000	$110,000		
		16	1,301	8.7	2	$55,000	$110,000		
	117	6[3]	244	5.9	2	$55,000	$110,000	R-181	PL
		8	244	6.7	2	$55,000	$110,000		
		10	244	7.3	2	$55,000	$110,000		
		12	244	7.8	2	$55,000	$110,000		
		14	244	8.0	2	$55,000	$110,000		
		16	244	8.7	2	$55,000	$110,000		
	141	12[3]	1,315	5.4	3	$55,000	$165,000	R-178	ROW & PL
		14	1,315	5.6 to 6.6	5	$55,000	$275,000		
		16	1,315	6.2 to 7.2	5	$55,000	$275,000		
	115	6[3]	959	8.8	3	$55,000	$165,000	R-123	PL
		8	959	5.3 to 11.6	6	$55,000	$330,000		
		10	959	6.1 to 13.3	9	$55,000	$495,000		
		12	959	5.0 to 14.7	11	$55,000	$605,000		
		14	959	6.0 to 15.9	11	$55,000	$605,000		
		16	959	6.5 to 16.5	11	$55,000	$605,000		
	121	12	1,336	5.1 to 5.3	2	$55,000	$110,000	R-143	ROW & PL
		14	1,336	5.1 to 5.4	3	$55,000	$165,000		
		16[3]	1,336	6.0 to 7.2	3	$55,000	$165,000		
	121	12	408	5.1 to 5.3	2	$55,000	$110,000	R-143	ROW & PL
		14	408	5.1 to 5.4	3	$55,000	$165,000		
		16[3]	408	6.0 to 7.2	3	$55,000	$165,000		
	175	14	252	5.4	2	$55,000	$110,000	R-217	PL
		16[3]	252	6.0	2	$55,000	$110,000		
		18	252	6.7	2	$55,000	$110,000		
		20	252	7.3	2	$55,000	$110,000		
	19	8	785	5.5	8[4]	$55,000	$440,000	R-47	EOS
		10	785	6.1 to 6.9	8[4]	$55,000	$440,000		
		12	785	7.1 to 8.0	8[4]	$55,000	$440,000		

Table 2.14-12 Total Reasonable Allowance Per Noise Barrier

Alternative	Noise Barrier No.	Height (ft)	Approximate Length (ft)	Noise Attenuation (dBA)	Number of Benefited Units/ Receptors[1]	Reasonable Allowance Per Unit	Total Reasonable Allowance	Receptor[2]	Noise Barrier Location
3	19	14[3]	785	7.9 to 8.8	8[4]	$55,000	$440,000		
		16	785	8.4 to 9.5	8[4]	$55,000	$440,000		
	19a	8	768	6.6	8[4]	$55,000	$440,000	R-47	PL
		10	768	5.5 to 8.0	8[4]	$55,000	$440,000		
		12[3]	768	6.3 to 9.2	8[4]	$55,000	$440,000		
		14[3]	768	6.5 to 10.0	8[4]	$55,000	$440,000		
		16	768	7.2 to10.6	8[4]	$55,000	$440,000		

Source: LSA Associates, Inc., Noise Study Report (April 2013).

[1] Number of units/receptors that are attenuated by 5 dBA or more by the modeled barrier.

[2] Receptor with the highest noise level reduction.

[3] Denotes the minimum wall height required to break the line of sight between the receptor and truck exhaust stack.

[4] 100 ft frontage units were used to determine the number of benefited receptors for nonresidential land uses.

[5] Noise barriers higher than 20 ft were not evaluated because they would not provide at least a 7 dBA noise reduction at one or more benefited receptor.

dBA = A-weighted decibels
ft = feet

Noise Barrier Reasonableness

The reasonableness of a noise barrier is determined by comparing the estimated cost of the noise barrier construction against the total reasonable allowance. The total reasonable allowance is determined based on the number of benefited residences multiplied by the reasonable allowance per residence. Additionally, in accordance with the Caltrans Traffic Noise Analysis Protocol, each noise barrier must provide at least 7 dBA of noise reduction at one or more benefited receivers to be considered reasonable. Therefore, if the estimated noise barrier construction cost exceeds the total reasonable allowance or was not predicted to provide at least 7 dBA of noise reduction at one or more benefited units/receptors, the noise barrier is determined to be not reasonable. However, if the estimated noise barrier construction cost is within the total reasonable allowance and is predicted to provide at least 7 dBA of noise reduction at one or more benefited receptors, the noise barrier is determined to be reasonable.

The estimated noise barrier construction cost for each barrier under each scenario was developed by the project engineer. A summary of abatement information in Table 2.14-13 lists all the feasible noise barriers, along with their heights, approximate lengths, the number of benefited units/receptors, noise attenuation range, the total reasonable allowance, the estimated noise barrier construction cost with and without the ROW acquisition cost, and whether the barrier is reasonable with and without the ROW acquisition cost. There is a possibility that if ROW is donated then soundwalls could become reasonable. Residents for these walls will be surveyed to determine whether they are willing to donate ROW to allow for construction of the soundwall. As shown in Table 2.14-13, Noise Barrier Nos. 4, 13, 19, 19a, 41, 49, 63, 115, 117, 676, and 769 were determined to be reasonable.

Nonacoustical Factors Relating to Feasibility

Feasibility factors not relating to acoustics were considered for the reasonable noise barriers. These factors include: geometric standards, safety, maintenance, security, geotechnical considerations, and utility relocations. The factors not relating to acoustics for Noise Barrier Nos. 4, 13, 19, 19a, 41, 49, 63, 79, 115, 117, 676, and 769 are addressed below:

- **Geometric Standards:** Per the Caltrans HDM, the noise barriers would not affect applicable geometric standards of adjacent roadways except for NB No. 19. There may be a horizontal sight distance limitation for NB No. 19 that would require the barrier to be set back a little farther from the shoulder.

- **Safety:** None of the barriers would affect sight distance for vehicular or pedestrian traffic. Noise Barrier Nos. 13, 19, and 769 would be located on the State ROW/private property line. Noise Barrier Nos. 4, 19a, 41, 49, 63, 79, 115, 117, and 676 would be located outside of State ROW, along private property lines. All barriers, except for Noise Barrier Nos. 13, 19, and 769, are outside of the Clear Recovery Zone, which is the area beyond the travel lane that needs to be kept clear of potential fixed-object hazards. A 10 ft shoulder is provided adjacent to Noise Barrier Nos. 13, 19, and 769, which is sufficient since they are only reasonable up to 14 ft. Additionally, because of their proximity to the travel lanes, they would be proposed to be built on a concrete barrier.
- **Maintenance:** For Noise Barrier Nos. 13, 19, and 769, no special maintenance considerations would be required. Noise Barrier Nos. 4, 19a, 41, 49, 63, 79, 115, 117, and 676 would be located along private property lines. Therefore, 100 percent of the property owners must support the noise barrier in order for it to be constructed. In addition, the property owners must enter into contracts with Caltrans to accept aesthetic maintenance responsibility for their respective portion of the barrier upon completion. Caltrans would be responsible for the structural integrity for the useful life of Noise Barrier Nos. 4, 19a, 41, 49, 63, 79, 115, 117, and 676. The noise barriers would receive vine planting, anti-graffiti coating, or architectural aesthetic treatment, where feasible or reasonable, to discourage graffiti.
- **Security:** The noise barriers would not create potential security risks by providing cover for people or articles trying to remain out of sight.
- **Drainage:** The noise barriers do not require a change to the existing flow patterns. Drainage system improvements are proposed to collect and convey flows from the Study Area, incorporating existing drainage systems as much as possible.
- **Geotechnical Considerations:** All barriers would be constructed at existing grade in native soil. The noise barriers would be constructed on soils with the potential for effects from seismic ground shaking, liquefaction, and slope instability. Design and construction of the noise barriers would be conducted in accordance with standard design and construction practices. Geotechnical conditions for the noise barriers would be explored during final design and considered during design of the noise barrier.

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
2 (Preferred Alternative)	676	PL	6[3]	666	7[4]	7.9	$385,000	$576,000	No	$183,000	Yes
			8	666	7[4]	5.5 to 9.4	$385,000	$611,000	No	$218,000	Yes
			10	666	7[4]	6.2 to 10.7	$385,000	$648,000	No	$255,000	Yes
			12	666	7[4]	6.9 to 11.8	$385,000	$690,000	No	$297,000	Yes
			14	666	7[4]	7.5 to 12.6	$385,000	$732,000	No	$339,000	Yes
			16	666	7[4]	8 to 13.5	$385,000	$783,000	No	$390,000	No
	769	ROW	12[3]	124	2[4]	6.5	$110,000	--[5]	No	--	No
			14	124	2[4]	6.9	$110,000	--	No	--	No
			16	124	2[4]	7.8	$110,000	$91,000	Yes	$58,000	Yes
	4	PL	6[3]	543	5	5.0 to 8.4	$275,000	$330,000	No	$150,000	Yes
			8	543	5	5.4 to 9.8	$275,000	$358,000	No	$178,000	Yes
			10	543	5	6.0 to 10.8	$275,000	$388,000	No	$208,000	Yes
			12	543	5	6.7 to 11.4	$275,000	$422,000	No	$242,000	Yes
			14	543	5	7.2 to 12.1	$275,000	$457,000	No	$277,000	No
			16	543	5	8.0 to 12.5	$275,000	$498,000	No	$318,000	No
	13	EOS	8	447	5[4]	5.7	$275,000	--	No	--	No
			10	447	5[4]	6.6	$275,000	--	No	--	No
			12[3]	447	5[4]	7.8	$275,000	$200,000	Yes	$200,000	Yes
			14	447	5[4]	8.4	$275,000	$228,000	Yes	$228,000	Yes
	38	ROW	14	717	8[4]	5.4	$440,000	--	No	--	No
			16[3]	717	8[4]	5.9	$440,000	--	No	--	No
			18	717	8[4]	6.2	$440,000	--	No	--	No
			20[6]	717	8[4]	6.5	$440,000	--	No	--	No
	41	PL	8	416	6	5.1 to 6.3	$330,000	--	No	--	No
			10	416	6	6.2 to 7.7	$330,000	$428,000	No	$159,000	Yes
			12	416	6	7.5 to 8.5	$330,000	$455,000	No	$186,000	Yes
			14	416	6	8.1 to 8.9	$330,000	$481,000	No	$212,000	Yes
			16	416	6	8.6 to 9.3	$330,000	$513,000	No	$244,000	Yes

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
2 (Preferred Alternative)	49	PL	6[3]	283	3	6.6	$165,000	--	No	--	No
			8	283	3	8.8	$165,000	$297,000	No	$93,000	Yes
			10	283	3	10.7	$165,000	$313,000	No	$109,000	Yes
			12	283	3	11.7	$165,000	$331,000	No	$127,000	Yes
			14	283	3	12.2	$165,000	$348,000	No	$144,000	Yes
			16	283	3	12.4	$165,000	$370,000	No	$166,000	No
	63	PL	6	1,947	4	5.2 to 8.3	$220,000	$1,259,000	No	$535,000	No
			8[3]	1,947	6	5.7 to 8.6	$330,000	$1,360,000	No	$636,000	No
			10	1,947	6	6.9 to 9.3	$330,000	$1,469,000	No	$745,000	No
			12	1,947	12	5.0 to 9.9	$660,000	$1,592,000	No	$868,000	No
			14	1,947	15	5.2 to 10.3	$825,000	$1,715,000	No	$991,000	No
			16	1,947	18	5.2 to 10.8	$990,000	$1,864,000	No	$1,140,000	No
	63	PL	6	1,303	2	8.3	$110,000	$889,000	No	$358,000	No
			8[3]	1,303	4	5.7 to 8.6	$220,000	$957,000	No	$426,000	No
			10	1,303	4	7.2 to 9.3	$220,000	$1,029,000	No	$498,000	No
			12	1,303	10	5.0 to 9.9	$550,000	$1,112,000	No	$581,000	No
			14	1,303	13	5.2 to 10.3	$715,000	$1,194,000	No	$663,000	Yes
			16	1,303	16	5.2 to 10.8	$880,000	$1,294,000	No	$763,000	Yes
	79	PL	12[3]	200	1	5.1	$55,000	--	No	--	No
			14	200	2	5.2 to 6.1	$110,000	--	No	--	No
			16	200	2	5.9 to 6.8	$110,000	--	No	--	No
			18	200	2	6.7 to 7.7	$110,000	$189,000[6]	No	$118,000[6]	No
	83	PL	14[3]	599	1	5.6	$55,000	--	No	--	No
			16	599	3	5.2 to 6.7	$165,000	--	No	--	No
			18	599	3	5.5 to 7.2	$165,000	$606,000[6]	No	$351,000[6]	No
	117	PL	6[3]	1,301	2	5.9	$110,000	$831,000	No	$358,000	No
			8	1,301	2	6.7	$110,000	$898,000	No	$425,000	No
			10	1,301	2	7.3	$110,000	$971,000	No	$498,000	No
			12	1,301	2	7.8	$110,000	$1,053,000	No	$580,000	No
			14	1,301	2	8.0	$110,000	$1,135,000	No	$662,000	No
			16	1,301	2	8.6	$110,000	$1,235,000	No	$762,000	No

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
2 (Preferred Alternative)	117	PL	6[3]	244	2	5.9	$110,000	--	No	--	No
			8	244	2	6.7	$110,000	--	No	--	No
			10	244	2	7.3	$110,000	$222,000	No	$94,000	Yes
			12	244	2	7.8	$110,000	$237,000	No	$109,000	Yes
			14	244	2	8.0	$110,000	$253,000	No	$125,000	No
			16	244	2	8.6	$110,000	$271,000	No	$143,000	No
	141	ROW & PL	12	1,315	3	5.6	$165,000	--	No	--	No
			14	1,315	5	5.6 to 6.6	$275,000	--	No	--	No
			16	1,315	5	6.2 to 7.3	$275,000	$1,031,000	No	$770,000	No
	115	PL	6[3]	959	3	8.9	$165,000	$539,000	No	$264,000	No
			8	959	6	5.2 to 11.6	$330,000	$589,000	No	$314,000	Yes
			10	959	9	6.5 to 13.2	$495,000	$642,000	No	$367,000	Yes
			12	959	9	7.5 to 14.6	$495,000	$703,000	No	$428,000	Yes
			14	959	11	6.0 to 15.8	$605,000	$763,000	No	$488,000	Yes
			16	959	11	6.7 to 16.4	$605,000	$837,000	No	$562,000	Yes
	121	ROW & PL	12	1,336	3	5.0 to 5.3	$165,000	--	No	--	No
			14	1,336	3	5.1 to 5.4	$165,000	--	No	--	No
			16[3]	1,336	3	6.1 to 7.4	$165,000	$837,000	No	$783,000	No
	121	ROW & PL	12	408	3	5.0 to 5.3	$165,000	--	No	--	No
			14	408	3	5.1 to 5.4	$165,000	--	No	--	No
			16[3]	408	3	6.1 to 7.4	$165,000	$293,000	No	$239,000	No
	175	PL	14	252	2	5.5	$110,000	--	No	--	No
			16[3]	252	2	6.1	$110,000	--	No	--	No
			18	252	2	6.8	$110,000	--	No	--	No
			20	252	2	7.3	$110,000	$189,000[6]	No	$128,000[6]	No
	19	EOS	8	785	8[4]	5.5	$440,000	--	No	--	No
			10	785	8[4]	5.4 to 7.0	$440,000	$300,000	Yes	$300,000	Yes
			12	785	8[4]	6.4 to 8.1	$440,000	$350,000	Yes	$350,000	Yes
			14[3]	785	8[4]	7.1 to 8.9	$440,000	$400,000	Yes	$400,000	Yes
			16	785	8[4]	7.6 to 9.5	$440,000	$460,000	No	$460,000	No
	19a	PL	6	768	8[4]	5.0	$440,000	--	No	--	No

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
2 (Preferred Alternative)	19a	PL	8	768	8[4]	6.8	$440,000	--	No	--	No
			10	768	8[4]	8.2	$440,000	$484,000	No	$294,000	Yes
			12	768	8[4]	5.6 to 9.2	$440,000	$533,000	No	$343,000	Yes
			14[3]	768	8[4]	5.8 to 10.1	$440,000	$581,000	No	$391,000	Yes
			16	768	8[4]	6.5 to 10.7	$440,000	$640,000	No	$450,000	No
3	676	PL	6[3]	666	7[4]	7.7	$385,000	$576,000	No	$183,000	Yes
			8	666	7[4]	5.4 to 9.2	$385,000	$611,000	No	$218,000	Yes
			10	666	7[4]	6.1 to 10.5	$385,000	$648,000	No	$255,000	Yes
			12	666	7[4]	6.8 to 11.6	$385,000	$690,000	No	$297,000	Yes
			14	666	7[4]	7.4 to 12.4	$385,000	$732,000	No	$339,000	Yes
			16	666	7[4]	7.9 to 13.3	$385,000	$783,000	No	$390,000	No
	769	ROW	12[3]	124	2[4]	6.8	$110,000	--	No	--	No
			14	124	2[4]	7.2	$110,000	$85,000	Yes	$52,000	Yes
			16	124	2[4]	8.3	$110,000	$91,000	Yes	$58,000	Yes
	4	PL	6[3]	543	5	5.1 to 8.3	$275,000	$330,000	No	$150,000	Yes
			8	543	5	5.6 to 9.7	$275,000	$358,000	No	$178,000	Yes
			10	543	5	6.3 to 10.8	$275,000	$388,000	No	$208,000	Yes
			12	543	5	6.9 to 11.4	$275,000	$422,000	No	$242,000	Yes
			14	543	5	7.4 to 12.2	$275,000	$457,000	No	$277,000	No
			16	543	5	8.3 to 12.5	$275,000	$498,000	No	$318,000	No
	13	EOS	8	447	5[4]	5.8	$275,000	--	No	--	No
			10	447	5[4]	6.9	$275,000	--	No	--	No
			12[3]	447	5[4]	8.1	$275,000	$200,000	Yes	$200,000	Yes
			14	447	5[4]	8.6	$275,000	$228,000	Yes	$228,000	Yes
	38	ROW	14	717	8[4]	5.2	$440,000	--	No	--	No
			16[3]	717	8[4]	5.6	$440,000	--	No	--	No
			18	717	8[4]	5.9	$440,000	--	No	--	No
			20[6]	717	8[4]	6.2	$440,000	--	No	--	No
	41	PL	6[3]	416	3	5.0	$165,000	--	No	--	No
			8	416	6	5.3 to 6.8	$330,000	--	No	--	No
			10	416	6	6.5 to 8.3	$330,000	$428,000	No	$159,000	Yes

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
3	41	PL	12	416	6	7.8 to 9.1	$330,000	$455,000	No	$186,000	Yes
			14	416	6	8.4 to 9.5	$330,000	$481,000	No	$212,000	Yes
			16	416	6	9.0 to 9.9	$330,000	$513,000	No	$244,000	Yes
	49	PL	6[3]	500	5	5.6 to 6.9	$275,000	--	No	--	No
			8	500	5	7.6 to 9.2	$275,000	$368,000	No	$164,000	Yes
			10	500	5	9.6 to 11.4	$275,000	$396,000	No	$192,000	Yes
			12	500	5	10.7 to 12.5	$275,000	$427,000	No	$223,000	Yes
			14	500	5	11.8 to 13.0	$275,000	$459,000	No	$255,000	Yes
			16	500	5	12.6 to 13.3	$275,000	$497,000	No	$293,000	No
	63	PL	6	1,947	4	5.5 to 8.1	$220,000	$1,259,000	No	$535,000	No
			8[3]	1,947	6	5.8 to 8.5	$330,000	$1,360,000	No	$636,000	No
			10	1,947	6	7.2 to 9.1	$330,000	$1,469,000	No	$745,000	No
			12	1,947	12	5.1 to 9.8	$660,000	$1,592,000	No	$868,000	No
			14	1,947	15	5.3 to 10.2	$825,000	$1,715,000	No	$991,000	No
	63	PL	16	1,947	18	5.3 to 10.7	$990,000	$1,864,000	No	$1,140,000	No
			6	1,303	2	8.1	$110,000	$889,000	No	$358,000	No
			8[3]	1,303	4	5.8 to 8.5	$220,000	$957,000	No	$426,000	No
			10	1,303	4	7.3 to 9.1	$220,000	$1,029,000	No	$498,000	No
			12	1,303	10	5.1 to 9.8	$550,000	$1,112,000	No	$581,000	No
			14	1,303	13	5.3 to 10.2	$715,000	$1,194,000	No	$663,000	Yes
			16	1,303	16	5.3 to 10.7	$880,000	$1,294,000	No	$763,000	Yes
	79	PL	12[3]	200	1	5.3	$55,000	--	No	--	No
			14	200	2	5.4 to 6.3	$110,000	--	No	--	No
			16	200	2	6.0 to 7.0	$110,000	$189,000	No	$118,000	No
	83	PL	14[3]	599	2	5.0 to 5.6	$110,000	--	No	--	No
			16	599	3	5.3 to 6.6	$165,000	--	No	--	No
			18	599	3	5.6 to 7.1	$165,000	$606,000[5]	No	$351,000[5]	No
	117	PL	6[3]	1,301	2	5.9	$110,000	--	No	--	No
			8	1,301	2	6.7	$110,000	--	No	--	No
			10	1,301	2	7.3	$110,000	$971,000	No	$498,000	No
			12	1,301	2	7.8	$110,000	$1,053,000	No	$580,000	No
	117	PL	14	1,301	2	8.0	$110,000	$1,135,000	No	$662,000	No

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
3			16	1,301	2	8.7	$110,000	$1,235,000	No	$762,000	No
	117	PL	6[3]	244	2	5.9	$110,000	--	No	--	No
			8	244	2	6.7	$110,000	--	No	--	No
			10	244	2	7.3	$110,000	$222.000	No	$94,000	Yes
			12	244	2	7.8	$110,000	$237,000	No	$109,000	Yes
			14	244	2	8.0	$110,000	$253,000	No	$125,000	No
			16	244	2	8.7	$110,000	$271,000	No	$143,000	No
	141	ROW & PL	12[3]	1,315	3	5.4	$165,000	--	No	--	No
			14	1,315	5	5.6 to 6.6	$275,000	--	No	--	No
			16	1,315	5	6.2 to 7.2	$275,000	$1,031,000	No	$770,000	No
	115	PL	6[3]	959	3	8.8	$165,000	$539,000	No	$264,000	No
			8	959	6	5.3 to 11.6	$330,000	$589,000	No	$314,000	Yes
			10	959	9	6.1 to 13.3	$495,000	$642,000	No	$367,000	Yes
			12	959	11	5.0 to 14.7	$605,000	$703,000	No	$428,000	Yes
			14	959	11	6.0 to 15.9	$605,000	$763,000	No	$488,000	Yes
			16	959	11	6.5 to 16.5	$605,000	$837,000	No	$562,000	Yes
	121	ROW & PL	12	1,336	2	5.1 to 5.3	$110,000	--	No	--	No
			14	1,336	3	5.1 to 5.4	$165,000	--	No	--	No
			16[3]	1,336	3	6.0 to 7.2	$165,000	$837,000	No	$783,000	No
	121	ROW & PL	12	408	2	5.1 to 5.3	$110,000	--	No	--	No
			14	408	3	5.0 to 5.4	$165,000	--	No	--	No
			16[3]	408	3	6.0 to 7.2	$165,000	$293,000	No	$239,000	No
	175	PL	14	252	2	5.4	$110,000	--	No	--	No
			16[3]	252	2	6.0	$110,000	--	No	--	No
			18	252	2	6.7	$110,000	--	No	--	No
			20	252	2	7.3	$110,000	$189,000[6]	No	$128,000[6]	No
	19	EOS	8	785	8[4]	5.5	$440,000	--	No	--	No
			10	785	8[4]	6.1 to 6.9	$440,000	--	No	--	No
			12	785	8[4]	7.1 to 8.0	$440,000	$350,000	Yes	$350,000	Yes
			14[3]	785	8[4]	7.9 to 8.8	$440,000	$400,000	Yes	$400,000	Yes
	19	EOS	16	785	8[4]	8.4 to 9.5	$440,000	$460,000	No	$460,000	No
			8	768	8[4]	6.6	$440,000	--	No	--	No

Table 2.14-13 Summary of Reasonable Noise Barriers

Alternative	Noise Barrier No.	Noise Barrier Location	Height (ft)	Approximate Length (ft)	Number of Benefited Units/ Receptors[1]	Noise Attenuation Range (dBA)	Total Reasonable Allowance	Without ROW Donated		With ROW Donated	
								Estimated Construction Cost[2]	Reasonable?	Estimated Construction Cost[2]	Reasonable?
3	19a	PL	10	768	8[4]	5.5 to 8.0	$440,000	$484,000	No	$294,000	Yes
			12	768	8[4]	6.3 to 9.2	$440,000	$533,000	No	$343,000	Yes
			14[3]	768	8[4]	6.5 to 10.0	$440,000	$581,000	No	$391,000	Yes
			16	768	8[4]	7.2 to10.6	$440,000	$640,000	No	$450,000	No

Source: LSA Associates, Inc., Noise Abatement Decision Report (April 2013).

[1] Number of residences that are attenuated 5 dBA or more by the modeled barrier.

[2] The estimated noise barrier construction cost information was provided by TranSystems (September 2012).

[3] The minimum wall height required for noise barriers to break the line-of-sight between the receptor and truck exhaust stack.

[4] Frontage units of 100 ft were used to determine the number of benefited receptors for non-residential land uses.

[5] Shaded area represents barrier heights that have been determined to be not reasonable because the barrier would not reduce noise levels by 7 dBA or more.

[6] The estimated construction cost for a 16 ft high barrier was used because there is no standard design at this height.

dBA = A-weighted decibels
EOS = edge of shoulder
ft = feet
PL = Property Line
ROW = right of way

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- **Utility Relocations:** The noise barriers would require no special utility relocations and would not interfere with any existing or planned utilities. Noise Barrier Nos. 4, 115, and 117 would cross existing water pipes. At Noise Barrier No. 4, an existing Moulton Niguel Water District (MNWD) 10-inch potable water line would cross the noise barrier. At Noise Barrier No. 115, an existing MNWD 8-inch water line would cross the noise barrier. At Noise Barrier No. 117, an existing El Toro Water District (ETWD) 6-inch sewer would cross the noise barrier. Although the existing water pipes would cross these noise barriers, construction of the noise barriers would not damage or interfere with the existing utilities. Additionally, for noise barriers located along private property lines, modifications to existing irrigation systems within private properties are anticipated.

Noise barrier surveys were sent to the benefited receptors for the feasible and reasonable noise barriers identified in the Noise Study Report (NSR) and Noise Abatement Decision Report (NADR). Based on the Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects (May 2011) for abatement located within State ROW, if more than 50 percent of the votes from responding benefited receptors oppose the abatement, the abatement will not be considered reasonable. Votes from property owners and non-owner occupants of benefited receptors were surveyed. For owner-occupied dwelling units, the property owner gets one vote. For non-owner-occupied dwelling units, the renter gets 10 percent of one vote and the owner get 90 percent of one vote. Noise Barrier Nos. 13 and 19 are proposed within State ROW.

For noise abatement to occur on private property, 100 percent of owners of property upon which the abatement is to be placed must support the proposed abatement. In the case of proposed noise abatement on private property, no response from a property owner, after a reasonable number of attempts, is considered a “no” vote. Noise Barrier Nos. 4, 19a, 41, 49, 63, 115, 117, 676, and 769 are proposed on private property.

On September 6, 2013, a sound wall survey letter was sent by FedEx to the residents potentially benefitted by Noise Barrier Nos. 4, 13, 19/19a, 41, 49, 63, 115, 117, 676, and 769. This survey requested each owner’s opinion on whether or not they are in favor of a sound wall, and, for Noise Barrier Nos. 4, 19a, 41, 49a, 49b, 63, 115, 117, and 676, whether they would be willing to donate their ROW in order to make the sound wall reasonable. Residents were asked to respond by October 7, 2013 and informed that surveys not received by the due date would be counted as a “no” vote.

Following the due date from the initial survey, the responses were tallied for each of the sound walls. Because responses were not received from all residents, a follow-up letter was sent on October 28, 2013 to the non-responding property owners, which included a cover letter explaining the intention of the follow-up letter and the original letter package (original cover letter, survey response, and exhibit). Residents were asked to respond by November 18, 2013.

Following the second due date, several responses still were not received, so the Cities of Laguna Hills and Mission Viejo requested the noise abatement decision be delayed so that they could contact residents within their respective cities that had not submitted a response. Their outreach effort continued through the end of February 2014.

As a result of responses collected for these surveys following the two letters, using the voting criteria, it was determined that Noise Barrier Nos. 4, 19, 41, 49, 676, and 769 will not be built, and Noise Barrier No. 13, 19a, 63, 115, and 117 will be considered for construction.

For those barriers proposed on private property (Noise Barriers No. 19a, 63, 115, and 117), per the Caltrans Traffic Noise Analysis Protocol, owners of property where barriers will be placed are required to enter into a contract with Caltrans that allows for construction of barrier and periodic inspection or structural repair. This contract also requires the property owners to agree to accept aesthetic maintenance responsibility and agree not to remove the barrier without consent of all property owners and Caltrans. These contract provisions will be a permanent burden on the property involved. Coordination will continue with the owners for barriers proposed on private property during the final design phase, which will include review of the required contract provisions.

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change during the design phase. As such, the physical characteristics of noise abatement measures described herein may also be subject to change. The final decision regarding noise abatement measures is made during final design. The public will be notified of the final location and height of noise abatement measures during final design.

2.14.4 Avoidance, Minimization, and/or Mitigation Measures

Based on the results of the NSR and NADR, Caltrans intends to consider noise abatement measures in the form of barriers. The list of feasible noise barriers for both Alternatives 2 and 3 is shown in Table 2.14-13. Of the 25 noise barriers evaluated for each alternative,

17 noise barriers were determined to be feasible under both Alternatives 2 and 3. As shown in Table 2.14-12, the total reasonable allowance for all feasible barriers ranges between $55,000 and $990,000 for both Alternatives 2 and 3. The feasible barrier heights range between 6 and 20 ft for both Alternatives 2 and 3. In addition, of the 17 feasible sound barriers, 11 barriers were determined to be preliminarily reasonable. The design of noise barriers presented in this report is preliminary and has been conducted at a level appropriate for environmental review and not for final design of the proposed project. If pertinent parameters change substantially during the final project design, preliminary noise barrier designs may be modified or eliminated from the final project. A final decision on construction of the noise abatement would be made upon completion of the public involvement process and the final project design process.

Measure N-1 would avoid and/or minimize effects related to construction noise. Measure N-2 would avoid and/or minimize operational noise effects.

N-1 The control of noise from construction activities will conform to the California Department of Transportation (Caltrans) Standard Specifications, Section 14-8.02, "Noise Control." The nighttime noise level from the contractor's operations, between the hours of 9:00 p.m. and 6:00 a.m., will not exceed 86 A-weighted decibels (dBA) one-hour A-weighted equivalent continuous sound level ($L_{eq}(h)$) at a distance of 50 feet. In addition, the contractor would equip all internal combustion engines with a manufacturer-recommended muffler and will not operate any internal combustion engine on the job site without the appropriate muffler.

N-2 Noise Barriers 13, 19a, 63, 115, and 117 were determined to be feasible and reasonable and were preferred by affected homeowners and residents. Noise Barrier**s** 13, 19a, 63, 115, and 117 will, therefore, be considered for construction. The final decision on construction of the noise barriers will be made during final design. Additionally, it is the California Department of Transportation's (Caltrans) current standard practice (based on Caltrans Traffic Noise Analysis Protocol, May 2011) to provide walls with an acoustically absorptive material for the walls when receptors on the opposite side have a direct line of sight to the wall.

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