State Route 85 Express Lanes Project ***NADR***

Noise Abatement Decision Report

Based on the SR 85 Express Lanes Project Noise Study Report
(Illingworth & Rodkin, Inc., August 2012)

Santa Clara County, California

04-SCL-85 PM 0.0/R24.1

04-SCL PM 23.1/28.6

04-SCL-101 PM 47.9/52.0

EA 04-4A7900

August 2012

Caltrans

Noise Abatement Decision Report

Based on the SR 85 Express Lanes Project Noise Study Report
(Illingworth & Rodkin, Inc., August 2012)

Santa Clara County, California
04-SCL-85 PM 0.0/R24.1
04-SCL-101 PM 23.1/28.6
04-SCL-101 PM 47.9/52.0
EA 04-4A7900
August 2012

Submitted By: _____ Date: _____

Chadi Chazbek
Project Manager
URS Corporation
100 West San Fernando Street, Suite 200
San Jose, CA 95113

Reviewed By: _____ Date: _____

Glenn Kinoshita
Branch Chief, Office of Environmental Engineering
Division of Environmental Planning and Engineering
California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612

Approved By: _____ Date: _____

Allen Barader
District Office Chief, Office of Environmental Engineering
Division of Environmental Planning and Engineering
California Department of Transportation, District 4
111 Grand Avenue
Oakland, CA 94612

Table of Contents

Tables

Figures

Appendices

List of Abbreviated Terms

Benefited residence	A dwelling unit expected to receive a noise reducton of at least 5 dBA from the proposed abatement measure
Caltrans	California Department of Transportation
CCTV	Closed Circuit Televisions
Critical design receptor	The design receptor that is impacted and for which the absolute noise levels, build vs. existing noise levels, or achievable noise reduction will be at a maximum where noise abatement is considered
CEQA	California Environmental Quality Act
CFR	Code of Federal Regulations
Date of public knowledge	The date that a project is approved—approval of the final environmental documentation (e.g., Record of Decision) is complete
dB	Decibel; a measure of sound pressure level on a logarithmic scale
dBA	A-weighted decibel
DMS	dynamic message signs
ED	Environmental Document
FHWA	Federal Highway Administration
HOV	high-occupancy vehicle
I.L.	Insertion loss
L_{eq}	Equivalent sound level (energy averaged sound level)
$L_{eq[h]}$	A-weighted, energy average sound level during a 1-hour period
LT	Long-term
NAC	Noise abatement criteria
NADR	Noise Abatement Decision Report
NSR	Noise Study Report
Planned, designed, and programmed	A noise-sensitive land use is considered planned, designed, and programmed when it has received final development approval (generally the issuance of a building permit) from the local agency with jurisdiction
Protocol	Caltrans Traffic Noise Analysis Protocol
Reasonable allowance	A single dollar value—a reasonable allowance per benefited

	residence that embodies five reasonableness factors
ST	Short-term
TNM	Traffic Noise Model
TOS	Traffic Operations Systems
US 101	United States Highway 101

1. Introduction

The Noise Abatement Decision Report (NADR) presents the preliminary noise abatement decision as defined in the Caltrans Traffic Noise Analysis Protocol (Protocol). This report has been approved by a Calfornia licensed professional civil engineer. The project level noise study report (NSR) (Illingworth & Rodkin, Inc., 2012) prepared for this project is hereby incorporated by reference.

1.1. Noise Abatement Assessment Requirements

Title 23, Code of Federal Regulations (CFR), Part 772 of the Federal Highway Administration (FHWA) standards (23 CFR 772) and the Caltrans Traffic Noise Analysis Protocol (Protocol) require that noise abatement be considered for projects that are predicted to result in traffic noise impacts. A traffic noise impact is considered to occur when future predicted design-year noise levels with the project "approach or exceed" Noise Abatement Criteria (NAC) defined in 23 CFR 772 (Table 1-1) or when the predicted design-year noise levels with the project substantially exceed existing noise levels. A predicted design-year noise level is considered to "approach" the NAC when it is within 1 decibel (dB) of the NAC. A substantial increase is defined as being a 12 dB increase above existing conditions.

Table 1-1: Federal Noise Abatement Criteria

Activity Category	Activity $L_{eq[h]}$[1]	Evaluation Location	Description of Activities
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[2]	67	Exterior	Residential.
C[2]	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.

Table 1-1: Federal Noise Abatement Criteria

Activity Category	Activity $L_{eq[h]}$[1]	Evaluation Location	Description of Activities
F			Agriculture, airports, bus yards, emergency services, industrial, logging, maintenance facilities, manufacturing, mining, rail yards, retail facilities, shipyards, utilities (water resources, water treatment, electrical), and warehousing.
G			Undeveloped lands that are not permitted.

Source: Caltrans 2011

[1] The Leq[h] activity criteria values are for impact determination only and are not design standards for noise abatement measures. All values are A-weighted decibels (dBA).

[2] Includes undeveloped lands permitted for this activity category.

23 CFR 772 requires that noise abatement measures that are reasonable and feasible and are likely to be incorporated into the project be identified before adoption of the final environmental document.

The Protocol establishes a process for assessing the reasonableness and feasibility of noise abatement. Before publication of the draft environmental document, a *preliminary noise abatement decision* is made. The preliminary noise abatement decision is based on the *feasibility* of evaluated abatement and the *preliminary reasonableness determination.* Noise abatement is considered to be acoustically feasible if it provides noise reduction of at least 5 A-weighted decibels (dBA) at receptors subject to noise impacts. Other nonacoustical factors relating to geometric standards (e.g., sight distances), safety, maintenance, and security can also affect feasibility. Additionally, the Protocol acoustical design goal states that a noise barrier must provide at least 7 dB of noise reduction at one or more benefited receptors.

The preliminary reasonableness determination is made by calculating an allowance that is considered to be a reasonable amount of money, per benefited residence, to spend on abatement. This *reasonable allowance* is then compared to the engineer's cost estimate for the abatement. If the engineer's cost estimate is less than the allowance, the preliminary determination is that the abatement is reasonable. If the cost estimate is higher than the allowance, the preliminary determination is that abatement is not reasonable.

The NADR presents the preliminary noise abatement decision based on acoustical and nonacoustical feasibility factors and the relationship between noise abatement allowances and the engineer's cost estimate. The NADR does not present the final decision regarding noise abatement; rather, it presents key information on abatement to be considered throughout the environmental review process, based on the best

available information at the time the draft environmental document (ED) is published. The final overall reasonableness decision will take this information into account, along with other reasonableness factors identified during the environmental review process. These factors may include:

- impacts of abatement construction,
- public and local agency input,
- life cycle of abatement measures,
- views/opinions of impacted residents, and
- social, economic, environmental, legal, and technological factors.

At the end of the public review process for the ED, the final noise abatement decision is made and is indicated in the final ED. The preliminary noise abatement decision will become the final noise abatement decision unless compelling information received during the environmental review process indicates that it should be changed.

1.2. Purpose of the Noise Abatement Decision Report

The purpose of the NADR is to:

- summarize the conclusions of the NSR relating to acoustical feasibility and the reasonable allowances for abatement evaluated,
- present the engineer's cost estimate for evaluated abatement,
- present the engineer's evaluation of nonacoustical feasibility issues,
- present the preliminary noise abatement decision, and
- present preliminary information on secondary effects of abatement (impacts on cultural resources, scenic views, hazardous materials, biology, etc.).

The NADR does not address noise barriers or other noise-reducing treatments required as mitigation for significant adverse environmental effects identified under the California Environmental Quality Act (CEQA).

1.3. Project Description

The California Department of Transportation (Department), in cooperation with the Santa Clara Valley Transportation Authority (VTA), proposes to convert the existing High-Occupancy Vehicle (HOV) lanes on State Route 85 (SR 85) to High-Occupancy Toll (HOT) lanes (hereafter known as express lanes). The express lanes would allow HOVs to continue to use the lanes without cost and eligible single-occupant vehicles (SOVs) to pay a toll. The express lanes would be implemented on northbound and southbound SR 85 from United States Highway 101 (US 101) in southern San Jose to US 101 in Mountain View in Santa Clara County (see Figures 1 and 2). The project would include the entire length of SR 85, along with 5.5 miles on US 101 in southern San Jose. Express lane advance notification signage would also be added in a 4.1-mile segment of US 101 in Mountain View, for a total project length of 33.7 miles. Work on the US 101 segments would mainly include striping and signing and would not include widening or change in system or HOV lane access. The project would not require any right-of-way acquisition.

The purpose of the project is to utilize excess capacity in the SR 85 HOV lanes, manage traffic congestion in the most congested HOV segments of the freeway between SR 87 and I-280, and maintain consistency with provisions defined in Assembly Bill 2032 (2004) and Assembly Bill 574 (2007) to implement express lanes in the SR 85 corridor.

1.3.1. Proposed Project

The project would convert the existing single HOV lanes into express lane facilities that would have one lane between US 101 in southern San Jose and SR 87, two lanes between SR 87 and I-280, and one lane between I-280 and US 101 in Mountain View. Conversion of the HOV lanes to express lanes would allow use by SOVs with active FasTrak accounts and transponders. The project would include multiple intermediate access points between the express lanes and the adjacent mixed-flow lanes. The access points would consist of entrance and exit openings in a striped 2-foot-wide buffer zone where traffic can enter and exit the express lane facility.

All work would be done in the existing right-of-way within on both sides of the road and in the median. No work would be done in waterways in or adjacent to the project area.

1.3.2. Construction Activities

In the section between SR 87 and I-280, where the median width is approximately 46 feet, pavement widening would be conducted in the median to accommodate the second express lane. The median would be paved, and the existing three-beam barrier would be replaced with a Type 60 concrete barrier. In the areas where the median width is less than 46 feet, widening would occur in the available median width. No outside widening is currently proposed.

SR 85 bridge decks would be widened at Almaden Expressway (northbound side only), Camden Avenue, Oka Road, Pollard Road, and Saratoga Avenue, as well as at the San Tomas Aquino Creek and Saratoga Creek crossings. The existing gaps between the northbound and southbound bridges at these locations would be closed except at Almaden Expressway, where the northbound bridge would be widened on the inside (toward the median).

Conversion of the HOV lanes into single express lanes on SR 85 between US 101 in southern San Jose and SR 87 and between I-280 and US 101 in Mountain View would include restriping and installation of overhead signs and tolling devices in the median. The single express lane would continue in both directions of US 101 in southern San Jose and would include the installation of overhead signs in the median.

The overhead signs and tolling devices would be mounted on cantilever structures supported on cast-in-drilled-hole or driven piles. The piles for the overhead signs would be from 3 to 6 feet in diameter and extend to approximately 30 feet below ground surface. The piles for the tolling devices would be 1 to 2 feet in diameter and would extend to approximately 10 feet below ground surface. Some Traffic Operations Systems (TOS) equipment such as traffic monitoring stations, Closed Circuit Televisions (CCTVs), cabinets, and controllers would be installed along the outside edge of pavement within the existing right-of-way. Maintenance pullouts would be installed in shoulder areas to allow access to the TOS equipment. The specific locations of these features would be developed during final project design.

During construction, some lane closures could be required, but full freeway closures are not expected to be necessary.

1.3.3. Lane Operation

Static and dynamic overhead signs would advise qualified HOV and SOV users as they approach an express facility entrance point. The signs would display the current toll rates for each destination and exit served by the facility. The signs would be updated as the system is managed for changing speed and traffic density measured at intervals along the express lanes. Vehicles using the facility must have transponders (such as FasTrak) that would be monitored by tolling equipment mounted on an overhead structure at the beginning of the facility. Vehicles in the express lanes without a transponder would activate a signal that would be monitored by enforcement officers, who would observe from a distance whether the indicated vehicle has two or more passengers or is otherwise exempt from tolling.

1.3.4. US 101/SR 85 Direct Connectors

At the south end of the project in southern San Jose, both the northbound and southbound HOV direct connectors from SR 85 to US 101 would be converted to express connectors, allowing single-occupant vehicles with valid FasTrak devices to use the direct connectors. The southern end of the proposed express lanes on US 101 would coincide with the beginning/ending of the double HOV lanes under the Metcalf overcrossing.

At the north end of the project in Mountain View, the buffer-separated express lane facility would end on SR 85 shortly before the US 101/SR 85 interchange. The direct connectors at this location are not proposed to be part of the SR 85 Express Lanes project and would remain as HOV-only connectors. In the northbound direction on SR 85, the express lane would terminate in advance of the direct connectors, allowing enough distance for SOVs to exit the lane and merge across the mixed-flow lanes to use the mixed-flow ramp from northbound SR 85 to northbound US 101. In the southbound direction, the express lane would start shortly after the direct connector terminates on SR 85, allowing enough distance for SOVs entering southbound SR 85 from the mixed-flow ramp to merge across the mixed-flow lanes and enter the express lane.

1.3.5. Utility Work

Trenching would be conducted along the outside edge of pavement for installation of conduits. The depth of trenching would be approximately 3 to 5 feet below the roadway surface. Conduits would be jacked across the freeway to the median where

needed to provide power and communication feeds to the new overhead signage and tolling equipment.

1.4. Affected Land Uses

The existing noise environment throughout the project corridor varies by location, depending on site characteristics such as proximity to SR 85 and other noise sources, the relative highway and local elevations and terrain, and any intervening structures or barriers. Single- and multi-family residences (Category B land uses), active recreational areas (Category C land uses), schools (Activity Category D land uses), churches (Activity Category D land uses), and hospitals (Activity Category D land uses) are located along the project corridor. Churches, schools and hospitals with active outdoor use areas were evaluated under Activity Category C. However, churches, schools and hospitals without active outdoor use areas were evaluated under Activity Category D.

Areas of potential noise impacts with respect to this project extend along SR 85 to the north and south of the roadway throughout the majority of the project area. Regions within the study area where the proposed project could cause noise levels to approach or exceed the NAC under Future Build conditions have been identified. The proposed addition of express lanes as part of this project is not predicted to cause substantial noise increases.

1.4.1. Future Undeveloped Land Uses

Lists of approved and proposed projects in the cities of Palo Alto, Mountain View, Sunnyvale, Cupertino, Saratoga, Los Altos, and San Jose were reviewed to identify undeveloped lands for which development is planned, designed, and programmed so that it may be considered approved prior to project approval. According to the Protocol, future development would be considered planned, designed, and programmed once it has received final development approval. The review focused on projects within approximately 500 feet of the centerline of SR 85 where traffic noise levels from the highway could dominate the noise environment. Projects located beyond this distance were excluded from further analysis.

Palo Alto Future Projects

A review of the City of Palo Alto's new planning applications through February 2012 found no noise-sensitive projects proposed near US 101.

Mountain View Future Projects

A review of the City of Mountain View Planning Division's project list identified one project near SR 85. A residential subdivision is proposed at 1991 Sun Mor Avenue, approximately 530 feet from the center of SR 85 and in an area shielded by an existing noise barrier. Noise levels measured and modeled at ST-7 represent this proposed future project and show that worst-hour noise levels would be 60 dBA $L_{eq[h]}$ or less, below the NAC for Category B residential land uses.

Sunnyvale Future Projects

A review of the City of Sunnyvale's development update list found no noise-sensitive projects proposed near SR 85.

Cupertino Future Projects

The City of Cupertino Community Development Department's Development Activity Report was reviewed to identify projects containing noise-sensitive land uses proposed near SR 85. Two projects were identified during the review: 1) The Oaks Shopping Center Mixed Use Project, and 2) The Cleo Avenue Housing Development. Further discussions with City Staff indicated that a dog park is being considered along Mary Avenue adjacent to SR 85.

The Oaks Shopping Center Mixed Use Project includes a 122-room hotel east of SR 85 and west of Mary Avenue. An outdoor swimming pool is proposed at the northernmost portion of the site in an area shielded by an existing 16-foot noise barrier. Existing noise levels at acoustically equivalent receptors in the vicinity (ST-31 and ST-33) range from 57 to 65 dBA $L_{eq[h]}$, and do not approach or exceed the Category E NAC of 72 dBA $L_{eq[h]}$.

A four-unit residential subdivision is proposed at the terminus of Cleo Avenue adjacent to SR 85. This proposed subdivision is shielded by an existing 10-foot noise barrier. Illingworth & Rodkin, Inc. evaluated exterior noise levels for this project in 2011. Noise levels are projected to be 65 dBA $L_{eq[h]}$ or less in private exterior use

areas shielded by the existing 10-foot noise barrier and the residential unit, and would remain below the NAC for Category B residential land uses.

The Mary Avenue Dog Park project is being considered on a small parcel east of SR 85 and west of Mary Avenue, just south of Lubec Street. The project is in the early planning stages and needs to secure funding to move forward. A 16-foot barrier would shield the park from SR 85 traffic noise. Existing noise levels are 65 dBA $L_{eq[h]}$, and do not approach or exceed the Category C NAC of 67 dBA $L_{eq[h]}$.

Saratoga Future Projects

The City of Saratoga identified one future sensitive land use, a four-unit residential subdivision, proposed south of SR 85 and east of Quito Road. The residential project would be located approximately 200 feet from the southbound edge of SR 85 and would be shielded by intervening topography. Illingworth & Rodkin, Inc. evaluated exterior noise levels for a project proposed at this site this project in 2006. Worst-hour noise levels from SR 85 traffic were 62 dBA $L_{eq[h]}$, below the NAC for Category B residential land uses.

Los Altos Future Projects

There are no noise-sensitive projects proposed near SR 85 in the City of Los Altos. The nearest proposed project is located approximately 2,000 feet from SR 85 near the intersection of Homestead Road and Foothill Expressway.

San Jose Future Projects

A review of the City of San Jose Department of Planning, Building, and Code Enforcement's Development Activity Highlights and Five-Year Forecast (2012-2016) was made to identify projects containing noise-sensitive land uses proposed near SR 85. Three projects were identified during the review, 1) The Lester Property Housing Project, 2) The Hitachi Site Mixed-Use Project, and 3) The iStar Site Housing Project.

The Lester Property Housing Project would be developed on a site currently shielded by a noise barrier. Noise levels measured and modeled at ST-109 represent this proposed future project and show that worst-hour noise levels would be 64 dBA $L_{eq[h]}$ or less, below the NAC for Category B residential land uses.

The Hitachi Site Mixed-Use Project and the iStar Site Housing Project propose Category B residential land uses north of SR 85 and east of Cottle Road. There are no existing noise barriers along northbound SR 85 that would shield proposed sensitive land uses. Illingworth & Rodkin, Inc. evaluated exterior noise levels for these projects in 2004 and 2009. Mitigation measures contained in the CEQA documents require that private or common outdoor use areas be located in shielded areas, set back as far as possible from SR 85, and mitigated to not exceed 60 dBA DNL. Under the City General Plan requirements, noise levels in common outdoor use areas that would experience frequent human use would be required to be maintained at or below 60 dBA DNL. Based on the relationship between worst-hour noise levels and the DNL, noise levels at these use areas, if properly designed and mitigated, are not projected to exceed the NAC.

2. Results of the Noise Study Report

The NSR for this project was prepared by Illingworth & Rodkin, Inc. in August 2012.

Noise measurements were conducted in October and November 2011 and March 2012 to document the noise environment at sensitive uses along the project corridor. Long-term (LT) reference noise measurements were made at 11 locations along the US 101 and SR 85 corridors to quantify the daily trend in noise levels and to establish the peak traffic noise hour.

One hundred forty-one (141) short-term (ST) noise measurements were made along the US 101 and SR 85 corridors in concurrent time intervals with the data collected at the long-term reference measurement sites. This method facilitates a direct comparison between both the short-term and long-term noise measurements and allows for the identification of the worst-hour noise levels at Category B and C land uses in the project vicinity where long-term noise measurements were not made.

The measurement locations were chosen to accurately represent areas exposed to potential traffic noise impacts through a review of project mapping, aerial photos, and field reconnaissance. Noise-sensitive Category B, Category C, and Category D land uses border the project corridor. As stated in the Protocol, noise abatement is only considered for Category B and Category C areas of frequent human use that would benefit from a lowered noise level. Accordingly, this impact analysis focuses on locations with defined outdoor activity areas, such as residential outdoor use areas, parks and recreation areas, trails, etc. In situations where no exterior activity areas exist or are far from or shielded from the roadway, the interior NAC limit applies.

Following established methods for a traffic noise study, the short-term and long-term measurements, together with the measured traffic conditions, vehicle mix, and site-specific geographical information, were then used to determine future noise levels in the project area. Calculated and measured noise levels were compared to assess any differences, to calibrate or validate the FHWA's Traffic Noise Model (TNM) for use in determining noise levels with and without the project, and to consider any applicable noise abatement measures.

For purposes of this study, noise barriers that have been committed to as part of other projects but not yet constructed were treated as existing noise barriers. These barriers are identified and discussed in this report.

Existing noise levels were estimated to approach or exceed the NAC at 33 receptor locations.

2.1. Noise Level Predictions

Noise levels were predicted for the 15 segments described below. Noise impacts were identified for outdoor use areas as well by the number of affected units, or receptors. Typical noise increases resulting from the project were calculated to be 0 to 1 dBA $L_{eq[h]}$ higher than Existing noise levels. In some areas, noise increases are predicted to reach 2 to 3 dBA $L_{eq[h]}$, but these larger predicted increases are primarily attributable to the rounding of the modeled results (i.e., 1.5 decibels rounds to 2 dB) or attributable to large increases in traffic volumes expected along some on- and off-ramps, not as a result of traffic expected along the mainline. The noise level increase would not be considered substantial (increase of 12 dBA or more). Some locations are predicted to experience noise levels that approach or exceed the NAC, and the evaluation of noise abatement is described in Chapter 3.

2.1.1. Segment A: US 101 – Oregon Expressway to SR 85

Category B land uses (residences), Category C land uses (Greer Park), and Category D Land uses (Emerson School and the Girls' Middle School), are located southwest of US 101 from Oregon Expressway to San Antonio Road and from Rengstorff Avenue to Shoreline Boulevard. Ten-foot to 16-foot noise barriers currently shield the majority of these land uses. Noise barriers do not shield Greer Park, the Emerson School, or the Girls' Middle School.

Ambient traffic noise levels in the area were documented in April 2008 as part of the US 101 Auxiliary Lanes Project (EA 4A330K). Four short-term noise measurements (ST-a, ST-b, ST-c, and ST-d) were made in December 2011 to update the 2008 data. A comparison of the 2008 and 2011 data show that the data correlates well with one another indicating that existing ambient noise levels have not measurably changed in the three year time period.

Category D land uses in this segment include the Emerson School located at 2800 West Bayshore Avenue and the Girls' Middle School located at 3400 West Bayshore Road. The construction of a noise barrier to benefit a single receptor would not be reasonable based only on cost of construction. Traffic noise modeling results show that exterior noise levels at the façade of the two schools would reach 77 dBA $L_{eq[h]}$

under the Build scenario. Interior noise levels would be expected to be a minimum of 30 dBA lower, or 47 dBA $L_{eq[h]}$, which is at least 5 dBA below the interior criterion of 52 dBA $L_{eq[h]}$. Category D land uses along the segment of US 101 between Oregon Expressway and SR 85 are not impacted as noise levels do not approach or exceed the NAC.

As shown in Table 2-1, noise levels are expected to increase by 0 to 2 dBA $L_{eq[h]}$ throughout the project corridor under future build conditions. The projected noise level increase is not considered substantial as it does not exceed 12 dBA $L_{eq[h]}$.

Table 2-1: Existing and Predicted Noise Levels: US 101 – Oregon Expressway to SR 85

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[3]
	Existing	Future No Build[1]	Future Build[2]			
R20	69	70	70	1	C(67)	A/E
R21	67	69	69	2	C(67)	A/E
R22[4]	76	77	77	1	D(52)	None
R24	78	78	78	0	B(67)	A/E
R25	65	66	66	1	B(67)	A/E
R27	73	74	74	1	B(67)	A/E
R27A	73	74	74	1	B(67)	A/E
R29	67	68	68	1	B(67)	A/E
R34	68	68	68	0	B(67)	A/E
R35	68	68	68	0	B(67)	A/E
R36	67	68	68	1	B(67)	A/E

[1] Assumes construction of US 101 Auxiliary Lanes Project (EA 4A330K.)

[2] Assumes construction of US 101 Auxiliary Lanes Project (EA 4A330K) and SR 85 Express Lanes Project (EA 04-4A7900).

[3] Impact Type: A/E = Approach or Exceed NAC.

[4] Represents exterior façade of Category D land uses.

2.1.2. Segment 1: SR 85 – US 101 to Central Expressway

Category B land uses within this segment of the project are residences located east and west of SR 85. Category C land uses within this segment include Alamo Court Park, Creekside Park, and the outdoor use area of the Church of Scientology at 117 Easy Street. One long-term noise measurement (LT-1) was made at the Central Avenue trail entrance to Stevens Creek Trail. Eight short-term noise measurements

were made in Category B and C land uses within this segment at receptors ST-1 through ST-8. Currently, 14-foot noise barriers shield these Category B and C land uses (ST-7 and LT-1 are partially shielded).

As shown in Table 2-2, the worst-hour noise levels range from 54 to 64 dBA $L_{eq[h]}$ under Existing conditions and from 55 to 65 dBA $L_{eq[h]}$ under Future No Build and Future Build conditions. The Future No Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 1 dBA $L_{eq[h]}$ over Existing conditions as a result of increasing traffic volumes over time. The noise level increase is not considered substantial and all noise sensitive receptors are predicted to experience Future Build noise levels that are more than 1 dB below the NAC.

Table 2-2: Existing and Predicted Noise Levels: SR 85 – US 101 to Central Expressway

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact
	Existing	Future No Build	Future Build			
LT-1	64	65	65	1	C(67)	None
ST-1	54	55	55	1	B(67)	None
ST-2	57	58	58	1	B(67)	None
ST-3	59	59	59	0	B(67)	None
ST-4	55	56	56	1	B(67)	None
ST-5	63	63	63	0	C(67)	None
ST-6	61	62	62	1	B(67), C(67)	None
ST-7	59	60	60	1	B(67)	None
ST-8	64	65	65	1	C(67), D(52)	None

2.1.3. Segment 2: SR 85 – Central Expressway to El Camino Real

Category B land uses within this segment of the project are residences located east and west of SR 85. One Category D land use, the Jehovah's Witness Church on Pioneer Way, is located within this segment. One long-term noise measurement (LT-2) was made in the rear yard of 579 McCarty Avenue. Three short-term noise measurements were made in Category B and D land uses within this segment at receptors ST-9 through ST-11. Currently, a 12-foot noise barrier shields ST-10 and LT-2, and a 16-foot noise barrier shields ST-11.

Receptor ST-9 represents the Kingdom Hall of Jehovah's Witnesses that is located at 120 Pioneer Way. There are no noise barriers currently shielding ST-9. No exterior uses were identified at this land use; therefore the Category D NAC would apply. The results of the measurements indicated that worst-hour noise levels in the sanctuary are 40 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$. As a result, noise abatement was not considered in this area.

As shown in Table 2-3, the worst-hour noise levels were calculated to range from 57 to 68 dBA $L_{eq[h]}$ under Existing conditions, from 58 to 68 dBA $L_{eq[h]}$ under Future No Build conditions, and from 57 to 68 dBA $L_{eq[h]}$ under Future Build conditions. The Future No Build and Future Build conditions are anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 1 dBA $L_{eq[h]}$ over Existing conditions as a result of increasing traffic volumes over time. The noise level increase is not considered substantial. Future Build noise levels are predicted to approach or exceed the NAC at single-family residences located east of SR 85 and north of El Camino Real (ST-11). However, the existing noise barrier at this location is already at the maximum allowable height of 16 feet.

Table 2-3: Existing and Predicted Noise Levels: SR 85 – Central Expressway to El Camino Real

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-2	57	58	57	0	B(67)	None
ST-9[2]	71	72	71	0	D(52)	None
ST-10	61	62	62	1	B(67)	None
ST-11	68	68	68	0	B(67)	A/E

[1] Impact type: A/E – Approaches or exceeds the NAC

[2] Represents exterior façade of Category D land use.

2.1.4. Segment 3: SR 85 – El Camino Real to Fremont Avenue

Category B land uses within this segment of the project are residences located east and west of SR 85. Category C land uses within this segment include Steven's Creek

Trail, Franklin Avenue Park, and Alta Vista High School. One long-term noise measurement (LT-3) was made in the rear yard of 1105 Remington Court. Twelve short-term noise measurements were made in Category B, C, and D land uses within this segment at receptors ST-12, ST-12a, ST-12b, and ST-13 through ST-21. Currently, a 16-foot noise barrier shields ST-16 and ST-19; a 12-foot barrier shields ST-20; and a 16-foot noise barrier shields ST-13, ST-15, ST-17 and ST-18. There are no noise barriers currently shielding ST-12, ST-12a, ST-12b, ST-14, or ST-21.

Alta Vista High School, located at 1325 Bryant Avenue, was identified as a Category D land use in this segment. A 16-foot noise barrier currently shields this Category D land use. Traffic noise modeling results show that exterior noise levels at the façade of the school would reach 69 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be 44 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

As shown in Table 2-4, the worst-hour noise levels for the Existing, Future No build, and Future Build conditions range from 57 to 71 dBA $L_{eq[h]}$. Worst-hour noise levels under Future Build and Future No Build conditions are not anticipated to change from Existing levels. Future Build noise levels are predicted to approach or exceed the NAC at four modeled receptor locations in this segment, including the Stevens Creek Trail (ST-12a), Alta Vista High School and residences located to the west of SR 85 and north of West Fremont Avenue (ST-19 and ST-20), and at the Sunnyvale Healthcare Center located east of SR 85, just north of West Fremont Avenue (ST-21). Some of these impacted receptors, represented by ST-19, ST-20, and ST-21, are located behind existing noise barriers. Noise abatement in the form of new and replacement sound walls was considered throughout this area.

Table 2-4: Existing and Predicted Noise Levels: SR 85 – El Camino Real to Fremont Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-3	64	64	64	0	B(67)	None
ST-12	64	64	64	0	B(67)	None
ST-12a	71	71	71	0	C(67)	A/E
ST-12b	59	59	59	0	B(67)	None
ST-13	57	57	57	0	B(67)	None
ST-14	62	62	62	0	C(67)	None

Table 2-4: Existing and Predicted Noise Levels: SR 85 – El Camino Real to Fremont Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
ST-15	64	64	64	0	B(67)	None
ST-16	63	63	63	0	B(67)	None
ST-17	63	63	63	0	B(67)	None
ST-18	64	64	64	0	B(67)	None
ST-19	69	69	69	0	B(67), C(67), D(52)	A/E
ST-20	66	66	66	0	B(67)	A/E
ST-21	71	71	71	0	B(67)	A/E

[1] Impact type: A/E – Approaches or exceeds the NAC

2.1.5. Segment 4: SR 85 – West Fremont Avenue to Interstate 280

Category B land uses within this segment of the project are residences located east and west of SR 85. Eight short-term noise measurements were made in Category B land uses within this segment at receptors ST-22 through ST-29. Currently, a 12- to 16-foot noise barrier shields ST-23 through ST-25; a 16-foot noise barrier shields ST-22 and ST-26; a 12.5-foot noise barrier shields ST-27 and ST-29; and a 14-foot noise barrier shields ST-28.

Cupertino Middle School, located at 1650 South Bernardo Avenue, was identified as a Category D land use in this segment. A 16-foot noise barrier currently shields this Category D land use. Traffic noise modeling results show that exterior noise levels at the façade of the school would reach 69 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be 44 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

As shown in Table 2-5, worst-hour for the Existing, Future No Build, and Future Build conditions range from 59 to 69 dBA $L_{eq[h]}$. Future Build noise levels are predicted to approach or exceed the NAC at three receptor locations in this segment (ST-23, ST-24, and ST-25), representing single-family residences located west of SR 85 between West Fremont Avenue and Homestead Road. An existing barrier that ranges from 12 to 16 feet in height currently shields these receptors. Noise abatement in the form of replacement noise barriers of increased height was considered in this area.

Table 2-5: Existing and Predicted Noise Levels: SR 85 – Fremont Avenue to Interstate 280

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
ST-22	65	65	65	0	B(67)	None
ST-23	66	66	66	0	B(67)	A/E
ST-24	68	68	68	0	B(67)	A/E
ST-25[2]	69	69	69	0	B(67), D(52)	A/E
ST-26	62	62	62	0	B(67)	None
ST-27	64	64	64	0	B(67)	None
ST-28	65	65	65	0	B(67)	None
ST-29	59	59	59	0	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC
[2] Represents exterior façade of Category D land use.

2.1.6. Segment 5: SR 85 – Interstate 280 to South De Anza Boulevard

Category B land uses within this segment of the project are residences located east and west of SR 85. Category C land uses within this segment include Mary Avenue Park, De Anza College, the Child Development Center at the south end of Campus Drive, and the Orogrande Place Park. One Category D land use, the Home of Christ Church, is located within this segment. One long-term noise measurement (LT-4) was made in the rear yard of 10480 Stokes Avenue. Fourteen short-term noise measurements were made in Category B, C and D land uses within this segment at receptors ST-31 through ST-42, ST-44 and ST-45. In addition, ST-36a was added to the model as a non-measurement receptor in the vicinity of ST-36 at the Child Development Center outdoor use area. Currently, a 16-foot noise barrier shields ST-32 and LT-4; a 12- to 14-foot noise barrier shields ST-37 through ST-39; a 12-foot noise barrier shields ST-42 and ST-44; a 16-foot noise barrier shields ST-31 and ST-33; a 10.5- to 12-foot barrier shields ST-40; and a 12-foot noise barrier shields ST-41 and ST-45. No noise barriers currently shield ST-34 through ST-36 or ST-36a.

ST-35 represents the Home of Christ Church located at 10340 Bubb Road. No exterior uses were identified at this land use; therefore the Category D NAC would apply. The results of the measurements indicated that worst-hour noise levels in the sanctuary are 40 dBA $L_{eq[h]}$ or less. Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

As shown in Table 2-6, the worst-hour noise levels range from 57 to 74 dBA $L_{eq[h]}$ under Existing conditions and Future No Build conditions, and from 58 to 76 dBA $L_{eq[h]}$ under Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 2 dBA $L_{eq[h]}$ over Existing conditions. This increase in noise levels is the result of the additional capacity from the second express lane in part of this segment. The noise level increase is not considered substantial. Future build noise levels are predicted to approach or exceed the NAC at eight modeled receptor locations in this segment, including first-row single and multi-family residences located east of SR 85 between Interstate 280 and Stevens Creek Boulevard (ST-31), De Anza College (ST-34 and ST-36), first-row single family residences located north of South Stelling Road to the east (ST-40) and west (ST-38 and ST-39) of SR 85, and first-row single and multi-family homes located west of SR 85 and north of South De Anza Boulevard (ST-42 and ST-44). With the exception of De Anza College, most of these impacted receptors are located behind existing barriers that range in height from 12 to 16 feet. Noise abatement in the form of new and replacement sound walls was considered throughout this area.

Table 2-6: Existing and Predicted Noise Levels: SR 85 – Interstate 280 to South De Anza Boulevard

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-4	62	62	63	1	B(67)	None
ST-31	65	65	66	1	C(67)	A/E
ST-32	63	63	63	0	B(67)	None
ST-33	57	57	58	1	B(67)	None
ST-34	69	69	70	1	C(67), D(52)	A/E
ST-35	74	74	76	2	D(52)	--
ST-36	74	74	75	1	C(67), D(52)	A/E
ST-36a	60	60	60	0	C(67), D(52)	None
ST-37	64	64	65	1	B(67)	None
ST-38	67	67	68	1	B(67)	A/E
ST-39	68	68	68	0	C(67)	A/E
ST-40	67	67	68	1	B(67)	A/E
ST-41	63	63	64	1	B(67)	None
ST-42	68	68	69	1	B(67)	A/E
ST-44	66	66	67	1	B(67)	A/E
ST-45	64	64	65	1	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC

2.1.7. Segment 6: SR 85 – South De Anza Boulevard to Saratoga Avenue

Category B land uses within this segment of the project are residences located east and west of SR 85. Two Category C land uses, Kevin Moran Park and Congress Springs Park, are also located within this segment. One long-term noise measurement (LT-5) was made at Congress Springs Park. Twelve short-term noise measurements were made in Category B and C land uses within this segment at Receptors ST-43, and ST-46 through ST-56. Currently, 12-foot noise barriers shield ST-43, and ST-46 through ST-56; and a 14-foot noise barrier shields LT-5.

As shown in Table 2-7, the worst-hour noise levels range from 56 to 67 dBA $L_{eq[h]}$ under Existing conditions, and from 57 to 67 dBA $L_{eq[h]}$ under Future No Build and Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 1 dBA $L_{eq[h]}$ over Existing conditions, resulting from the additional capacity due to the double express lanes in this segment. The noise level increase is not considered substantial. Future Build noise levels are predicted to approach or exceed the NAC at four modeled receptors in this segment, including some first-row receptors located east of SR 85 between Prospect Road and Saratoga Avenue (LT-5, ST-53, and ST-55) and first-row receptors located east of SR 85 between South De Anza Boulevard and Prospect Road (ST-43). These receptors are all located behind existing 12-foot-high noise barriers. Noise abatement in the form of replacement sound walls of increased height was considered in this area.

Table 2-7: Existing and Predicted Noise Levels: SR 85 – South De Anza Boulevard to Saratoga Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-5	65	65	66	1	C(67)	A/E
ST-43	66	66	67	1	B(67)	A/E
ST-46	62	62	63	1	B(67)	None
ST-47	64	64	65	1	B(67)	None
ST-48	56	57	57	1	B(67)	None
ST-49	60	60	61	1	B(67)	None
ST-50	64	64	65	1	B(67)	None
ST-51	61	61	62	1	B(67)	None
ST-52	63	63	64	1	C(67)	None
ST-53	65	65	66	1	B(67)	A/E

Table 2-7: Existing and Predicted Noise Levels: SR 85 – South De Anza Boulevard to Saratoga Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
ST-54	61	61	62	1	B(67)	None
ST-55	67	67	68	1	B(67)	A/E
ST-56	62	62	63	1	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC

2.1.8. Segment 7: SR 85 – Saratoga Avenue to Winchester Boulevard

Category B land uses within this segment of the project are residences located north and south of SR 85. One Category C land use, Bellgrove Circle Park, is located within this segment. Fifteen short-term noise measurements were made in Category B and C land uses within this segment at receptors ST-57 through ST-71. Currently, 14-foot noise barriers shield ST-57, ST-59, ST-61, and ST-63; a 6-foot noise barrier on an 8-foot berm shields ST-64 and ST-66; a 16-foot noise barrier shields ST-68; 12-foot noise barriers shield ST-67; a 14- to 16-foot noise barrier shields ST-58 and ST-60; a 10-foot noise barrier shields ST-62; a 10- to 12-foot noise barrier shields ST-65 and ST-71; and an 8-foot noise barrier and a 6-foot property barrier shield ST-70. An 8-foot to 10-foot berm shields ST-69.

As shown in Table 2-8, the worst-hour noise levels range from 51 to 62 dBA $L_{eq[h]}$ under Existing conditions, from 51 to 62 dBA $L_{eq[h]}$ under Future No Build conditions, and from 52 to 62 dBA $L_{eq[h]}$ under Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 3 dBA $L_{eq[h]}$ over Existing conditions, resulting from the increased traffic volumes due to the double express lanes in this segment. Noise level increases are not considered substantial at noise sensitive receptors in this segment and none of the noise sensitive receptors are predicted to experience future build noise levels that approach or exceed the NAC. As a result, noise abatement was not considered in this area.

Table 2-8: Existing and Predicted Noise Levels: SR 85 – Saratoga Avenue to Winchester Boulevard

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact
	Existing	Future No Build	Future Build			
ST-57	55	55	56	1	B(67)	None
ST-58	62	62	62	0	C(67)	None
ST-59	58	58	59	1	B(67)	None
ST-60	59	59	60	1	B(67)	None
ST-61	51	51	52	1	B(67)	None
ST-62	58	58	59	1	B(67)	None
ST-63	59	59	60	1	B(67)	None
ST-64	59	59	60	1	B(67)	None
ST-65	59	59	62	3	B(67)	None
ST-66	60	60	62	2	B(67)	None
ST-67	56	56	57	1	B(67)	None
ST-68	58	58	59	1	B(67)	None
ST-69	58	58	59	1	B(67)	None
ST-70	60	60	61	1	B(67)	None
ST-71	60	60	61	1	B(67)	None

2.1.9. Segment 8: SR 85 – Winchester Boulevard to Union Avenue

Category B land uses within this segment of the project are residences located north and south of SR 85. Category C land uses within this segment include the Los Gatos Swim and Racquet Club and Hendy Lane Park. One Category D land use, Good Samaritan Hospital, is also located within this segment. Eleven short-term noise measurements were made in Category B and C land uses within this segment at receptors ST-72 through ST-82. Currently, a 10-foot noise barrier and the 15-foot mobile home park wall shield ST-73 (the 10-foot noise barrier partially shields ST-74a); 14-foot noise barriers shield ST-76 and ST-80; 15.5-foot noise barriers shield ST-82 and partially shield ST-79; 10-foot noise barriers partially shield ST-75; a 16-foot noise barrier shields ST-77; and 12-foot noise barriers shield ST-78 and ST-81. There are no noise barriers currently shielding ST-72.

Good Samaritan Hospital is located at 2425 Samaritan Drive and is represented by receptor ST-79. No exterior uses were identified at this land use; therefore the Category D NAC would apply. Traffic noise modeling results show that exterior noise levels at the façade of the hospital would reach 70 dBA $L_{eq[h]}$ under the Build scenario. Interior noise levels would be expected to be 40 dBA $L_{eq[h]}$ or less.

Interior noise levels at this Category D land use do not approach or exceed the NAC of 52 dBA $L_{eq[h]}$.

As shown in Table 2-9, the worst-hour noise levels representative of outdoor use areas range from 54 to 69 dBA $L_{eq[h]}$ under Existing conditions, from 54 to 69 dBA $L_{eq[h]}$ under Future No Build conditions, and from 54 to 70 dBA $L_{eq[h]}$ under Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 2 dBA $L_{eq[h]}$ over Existing conditions, resulting from the increased traffic volumes due to the double express lanes in this segment. This increase in noise levels is the result of additional traffic volumes resulting in this segment from the double express lanes in this segment. The noise level increase is not considered substantial. Future build noise levels are predicted to approach or exceed the NAC at the Los Gatos Swim and Racquet Club, represented by receptors ST-74 and ST-74a and located southwest of the SR 85 and SR 17 interchange. Noise abatement in the form of a new sound wall for the Los Gatos Swim and Racquet Club was considered in this area.

Table 2-9: Existing and Predicted Noise Levels: SR 85 – Winchester Boulevard to Union Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
ST-72	57	57	59	2	B(67)	None
ST-73	56	56	57	1	B(67)	None
ST-74	65	65	66	1	C(67)	A/E
ST-74a	64	64	65	1	C(67)	None
ST-75	54	54	54	0	B(67)	None
ST-76	57	57	57	0	B(67)	None
ST-77	56	56	57	1	B(67)	None
ST-78	61	61	62	1	B(67)	None
ST-79[2]	69	69	70	1	D(52)	--
ST-80	62	62	63	1	B(67)	None
ST-81	59	59	60	1	B(67)	None
ST-82	59	59	60	1	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC
[2] Represents exterior façade of Category D land use.

2.1.10. Segment 9: SR 85 – Union Avenue to Camden Avenue

Category B land uses within this segment of the project are residences located north and south of SR 85. One long-term noise measurement (LT-6) was made at 1860 Little Branham Lane. Four short-term noise measurements were made in Category B land uses within this segment at receptors ST-83 through ST-86. Currently, a 10-foot noise barrier shields ST-83; 10- to 14-foot noise barriers shield ST-85, ST-86 and LT-6; and a 5-foot noise barrier shields ST-84.

As shown in Table 2-10, the worst-hour noise levels range from 57 to 65 dBA $L_{eq[h]}$ under Existing conditions, from 57 to 65 dBA $L_{eq[h]}$ under Future No Build conditions, and from 58 to 66 dBA $L_{eq[h]}$ under Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 1 dBA $L_{eq[h]}$ over Existing conditions. This increase in noise levels is the result of the additional traffic volume resulting from the double express lanes in this segment. The noise level increase is not considered substantial. Future build noise levels are predicted to approach or exceed the NAC at one receptor in this segment (ST-83), representing first-row residences located south of SR 85 between Union Avenue and Leigh Avenue. These receptors are located behind an existing 10-foot high noise barrier. Noise abatement in the form of a replacement noise barrier was considered at this location.

Table 2-10: Existing and Predicted Noise Levels: SR 85 – Union Avenue to Camden Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-6	59	59	60	1	B(67)	None
ST-83	65	65	66	1	B(67)	A/E
ST-84	57	57	58	1	B(67)	None
ST-85	61	61	62	1	B(67)	None
ST-86	64	64	65	1	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC

2.1.11. Segment 10: SR 85 – Camden Avenue to Almaden Avenue

Category B land uses within this segment of the project are residences located north and south of SR 85. Category C land uses within this segment include the Appleseed School field, Almaden Elementary School, and Russo Park. One long-term noise measurement (LT-7) was made at 5071 Las Cruces Court. Ten short-term noise measurements were made in Category B and C land uses within this segment at receptors ST-87 through ST-95, and ST-99. Currently, a 10- to 12-foot noise barrier shields ST-88 and ST-90; and 10- to 14-foot noise barriers shield ST-87, ST-89, ST-91 through ST-95, ST-99 and LT-7.

As shown in Table 2-11, the worst-hour noise levels range from 54 to 68 dBA $L_{eq[h]}$ under Existing conditions, from 54 to 68 dBA $L_{eq[h]}$ under Future No Build conditions, and from 55 to 68 dBA $L_{eq[h]}$ under Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 2 dBA $L_{eq[h]}$ over Existing conditions, as a result of the increased traffic volumes from the double express lanes in most of this segment. The noise level increase is not considered substantial. Future build noise levels are predicted to approach or exceed the NAC at three modeled receptors in this segment (LT-7, ST-91, and ST-95), representing first-row single-family residences located north of SR 85 between Meridian Avenue and Almaden Expressway. These receptors are located behind an existing noise barrier, which ranges in height from 10 to 14 feet. Noise abatement in the form of a replacement noise barrier was considered for this area.

Table 2-11: Existing and Predicted Noise Levels: SR 85 – Camden Avenue to Almaden Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-7	66	66	67	1	B(67)	A/E
ST-87	64	64	65	1	B(67)	None
ST-88	64	64	65	1	B(67)	None
ST-89	59	59	61	2	B(67)	None
ST-90	58	58	59	1	C(67)	None
ST-91	65	65	66	1	B(67)	A/E
ST-92	62	62	63	1	B(67)	None
ST-93	54	54	55	1	B(67)	None
ST-94	58	58	59	1	C(67)	None
ST-95	68	68	68	0	B(67)	A/E
ST-99	62	62	63	1	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC

2.1.12. Segment 11: SR 85 – Almaden Avenue to Blossom Hill Road

Category B land uses within this segment of the project are residences located north and south of SR 85. Category C land uses within this segment include Gunderson High School sports fields and Kinderwood Children's Center. One long-term noise measurement (LT-8) was made in the rear yard of 5464 Chesbro Avenue. Fifteen short-term noise measurements were made in Category B and C land uses within this segment at receptors ST-96 through ST-98, and ST-100 through ST-111. In addition, ST-102a, ST-102b and ST-102c were added to the model as non-measurement receptors in the vicinity of ST-102 at additional outdoor use areas (sports fields) associated with Gunderson High School. Currently, 6-foot parapets shield ST-96 through ST-98, and ST-100; a 14- to 16-foot noise barrier shields ST-101, ST-103 and ST-105; and 12-foot noise barriers shield ST-104, ST-106, ST-107, ST-108, ST-111 and LT-8 (ST-109, ST-110 and ST-102b are partially shielded). There are no noise barriers currently shielding ST-102, ST-102a or ST-102c.

As shown in Table 2-12, the worst-hour noise levels range from 55 to 71 dBA $L_{eq[h]}$ under Existing conditions, Future No Build conditions, and Future Build conditions. The Future Build condition is anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 2 dBA $L_{eq[h]}$ over Existing conditions. Future build noise levels are predicted to approach or exceed the NAC at four modeled receptor locations in this segment. The four modeled receptor locations represent multifamily residences located southeast of the interchange between SR 85 and Almaden Expressway (ST-97), first-row single family homes located north of SR 85 between Almaden Expressway and Santa Teresa Boulevard (ST-98), playfields at Gunderson High School (ST-102b), and some first-row single family residences located south of SR 85 between Santa Teresa Boulevard and Blossom Hill Road, near Dunsburry Way (ST-107). With the exception of Gunderson High School, most of these impacted receptors are located behind existing barriers that range in height from 6 to 16 feet. Noise abatement in the form of new and replacement sound walls was considered throughout this area.

Table 2-12: Existing and Predicted Noise Levels: SR 85 – Almaden Avenue to Blossom Hill Road

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-8	59	59	59	0	B(67)	None
ST-96	62	62	64	2	B(67)	None
ST-97	65	65	67	2	B(67)	A/E
ST-98	65	65	67	2	B(67)	A/E
ST-100	58	59	60	2	B(67)	None
ST-101	60	60	60	0	B(67)	None
ST-102	64	64	64	0	C(67)	None
ST-102a	59	59	60	1	B(67)	None
ST-102b	71	71	71	0	B(67)	A/E
ST-102c	64	64	65	1	B(67)	None
ST-103	57	57	57	0	B(67)	None
ST-104	61	61	61	0	B(67)	None
ST-105	64	64	64	0	B(67)	None
ST-106	62	62	62	0	B(67)	None
ST-107	66	66	66	0	B(67)	A/E
ST-108	61	61	61	0	B(67)	None
ST-109	64	64	64	0	B(67)	None
ST-110	60	60	60	0	B(67)	None
ST-111	55	55	55	0	C(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC

2.1.13. Segment 12: SR 85 – Blossom Hill Road to Cottle Road

Category B land uses within this segment of the project are residences located north and south of State Route 85. One long-term noise measurement (LT-9) was made at 218 Herlong Avenue. Eleven short-term noise measurements were made in Category B land uses within this segment at Receptors ST-112 through ST-122. Currently, a 12-foot barrier shields ST-112 and ST-113; and 14-foot barriers shield ST-114 through ST-122, and LT-9.

As shown in Table 2-13, the worst-hour noise levels range from 56 to 64 dBA $L_{eq[h]}$ under Existing conditions, and from 56 to 65 dBA $L_{eq[h]}$ under Future No Build and Future Build conditions. The Future No Build and Future Build conditions are anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 1 dBA $L_{eq[h]}$ over Existing conditions as a result of traffic volume increases over time. The noise level increase is not considered substantial and all noise sensitive receptors are

predicted to experience Future Build noise levels that are more than 1 dB below the NAC of 67 dBA. As a result, noise abatement was not considered in this area

Table 2-13: Existing and Predicted Noise Levels: SR 85 – Blossom Hill Road to Cottle Road

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact
	Existing	Future No Build	Future Build			
LT-9	63	63	63	0	B(67)	None
ST-112	56	56	56	0	B(67)	None
ST-113	64	64	65	1	B(67)	None
ST-114	57	57	57	0	B(67)	None
ST-115	62	63	63	1	B(67)	None
ST-116	63	63	63	0	B(67)	None
ST-117	64	65	65	1	B(67)	None
ST-118	62	62	62	0	B(67)	None
ST-119	63	64	64	1	B(67)	None
ST-120	63	63	63	0	B(67)	None
ST-121	62	62	62	0	B(67)	None
ST-122	61	62	62	1	B(67)	None

2.1.14. Segment 13: SR 85 – Cottle Road to US 101

Category B land uses within this segment of the project are residences located south of State Route 85 and northwest of the SR 85/US 101 interchange. Category C land uses within this segment include Kaiser Permanente picnic areas. One long-term reference noise measurement (LT-10) was made at the Monterey Grove apartment complex. Six short-term noise measurements were made in Category B and C land uses within this segment at receptors ST-123 through ST-128. Currently, a 12-foot noise barrier shields ST-123 and ST-124; 16-foot noise barriers shield ST-125, ST-127 and LT-10; an 8-foot barrier shields ST-126; and a 14-foot noise barrier shields ST-128.

As shown in Table 2-14, the worst-hour noise levels at short-term measurement sites range from 54 to 63 dBA $L_{eq[h]}$ under Existing conditions, and from 55 to 64 dBA $L_{eq[h]}$ under Future No Build and Future Build conditions. The Future Build conditions are anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 1 dBA $L_{eq[h]}$ over Existing conditions as a result of traffic volume increases over time. Noise level increases are not considered substantial at noise sensitive receptors in this segment. Future build noise levels are not predicted to approach or exceed the

NAC at any noise sensitive receptors located in this segment. As a result, noise abatement was not considered in this area.

Table 2-14: Existing and Predicted Noise Levels: SR 85 – Cottle Road to US 101

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact
	Existing	Future No Build	Future Build			
ST-123	59	60	60	1	C(67)	None
ST-124	63	64	64	1	C(67)	None
ST-125	62	63	63	1	B(67)	None
ST -126	54	55	55	1	B(67)	None
ST-127	62	62	63	1	B(67)	None
ST-128	62	62	63	1	B(67)	None

2.1.15. Segment B: US 101 – South of SR 85/US 101 Interchange to Bailey Avenue

Category B land uses (residences) in this segment are primarily on the east side of US 101 along Basking Ridge Avenue. A few rural residences are also located off of Malech Road, east of US 101, and one residence is located between the freeway and Coyote Ranch Road, west of US 101. Category C land uses include the Coyote Creek Trail, Coyote Creek Park, and Metcalf Park. Large areas east of US 101 in this segment are undeveloped. One long-term reference noise measurement (LT-11) was made in the rear yard of 251 Crestridge Lane. Eight short-term noise measurements were made in Category B and C land uses within this segment at receptors ST-129 through ST-136. In addition, ST-136a, ST-136b, and ST-136c were added to the model as non-measurement receptors at residences in the vicinity of ST-136. Receptor ST-137 was also added to the model as a non-measurement receptor to represent the residence west of US 101 between the highway and Coyote Creek Road. Noise barriers in the form of berms shield the residences off of Malech Road and Coyote Ranch Road. The trail and park areas are not shielded by noise barriers.

As shown in Table 2-15, the worst-hour noise levels range from 56 to 69 dBA $L_{eq[h]}$ under Existing conditions, from 56 to 69 dBA $L_{eq[h]}$ under Future No Build conditions, and from 56 to 70 dBA $L_{eq[h]}$ under Future Build conditions. The Future Build conditions are anticipated to increase the worst-hour $L_{eq[h]}$ noise levels in this segment by 0 to 1 dBA $L_{eq[h]}$ over Existing conditions as a result of traffic volume

increases over time. Noise level increases are not considered substantial at noise sensitive receptors in this segment. Under Future Build conditions, noise levels are predicted to approach or exceed the NAC at three modeled receptor locations in this segment. The three modeled receptor locations represent single-family residences located along Malech Road, northeast of the US 101/Bailey Avenue interchange (ST-136a, ST-136b, and ST-136c). Noise abatement in the form of a new sound wall was considered for these receptors.

Table 2-15: Existing and Predicted Noise Levels: US 101 – South of SR 85/US 101 Interchange to Bailey Avenue

Receptor ID	Worst-Hour Noise Levels, $L_{eq[h]}$ dBA			Noise Increase	Type of Development	Impact[1]
	Existing	Future No Build	Future Build			
LT-11	64	64	64	0	B(67)	None
ST-129	56	56	56	0	B(67)	None
ST-130	61	61	61	0	B(67)	None
ST-131	64	64	65	1	B(67)	None
ST-132	60	60	61	1	B(67)	None
ST-133	62	62	63	1	C(67)	None
ST-134	62	62	63	1	C(67)	None
ST-135	64	64	65	1	C(67)	None
ST-136[2]	69	69	70	1	G	None
ST-136a	66	66	67	1	B(67)	A/E
ST-136b	67	67	68	1	B(67)	A/E
ST-136c	66	66	67	1	B(67)	A/E
ST-137	63	63	64	1	B(67)	None

[1] Impact Type: A/E = Approach or Exceed NAC
[2] Used as calibration point for ST-136a, ST-136b, and ST-136c.

2.2. Assessment of Noise Impacts and Abatement Options

Potential abatement measures were considered for receptors with noise levels that exceed state or federal thresholds and areas of frequent human use where a lowered noise level would be of benefit. According to the Protocol, noise abatement must be predicted to provide at least a 5 dB minimum reduction to be considered feasible. Additionally, the Protocol acoustical design goal states that the noise barrier must provide at least 7 dB of noise reduction at one or more benefited receptors. Noise abatement measures that provide noise reduction of more than 5 dB are encouraged as long as they meet the reasonableness guidelines. Reasonableness is determined based on whether a proposed noise abatement measure is acceptable to the benefited receptors and the cost per benefited receptor. The cost is based on the current

allowance per benefited receptor of $55,000, which is set by the Protocol. Potential noise abatement measures identified in the Protocol include:

- Avoiding the project impact by using design alternatives, such as altering the horizontal and vertical alignment of the project;
- Constructing noise barriers;
- Using traffic management measures to regulate types of vehicles and speeds;
- Acquiring property to serve as a buffer zone; and/or
- Acoustically insulating Activity Category D land uses (such as auditoriums, day care centers, hospitals, and libraries)

The chosen abatement type for this project would be the construction of noise barriers. A preliminary noise abatement analysis was conducted that identified the feasibility of constructing or replacing noise barriers to reduce traffic noise levels.

Traffic noise modeling and impact assessment was conducted only at land uses where frequent human usage occurs and a lowered noise level would be of benefit. The primary focus of this study is on NAC activity Category B land uses that are not protected by Caltrans noise barriers. The noise barriers within the State right-of-way are typically constructed to meet the criteria in Chapter 1100 of the Highway Design Manual. The manual states that noise barriers should not be higher than 14 feet above the pavement when located within 15 feet of the edge of traveled way and 16 feet above ground when located more than 15 feet from the edge of traveled way.

Noise barriers were evaluated at the most acoustically effective location within the State right-of-way (Table 2-16). Where SR 85 is at, or elevated above receptors, the most acoustically effective location for a barrier is near the edge of shoulder, either on structure or at the top of slope. Where SR 85 is located in a cut-section, the most acoustically effective location for a barrier is typically at the right-of-way. In many locations, receptors located behind existing noise barriers currently experience, or would experience in the future, worst-hour noise levels that approach or exceed the NAC. Increasing the height of the existing barriers (or replacement with larger noise barriers) was assessed in this analysis. Because all existing walls within the project area are structurally in fair or good condition, a replacement wall of equal height to the existing wall would not be anticipated to change the noise environment behind the wall. Therefore, the insertion loss (I.L) for these sound walls was calculated based on wall height increases over the existing wall height.

Table 2-16: Summary of Barrier Evaluation from Noise Study Report

Sound Wall ID	Station	Height (feet)	Acoustically Feasible?	Number of Benefited Receptors	Reasonable Allowance per Residence	Total Reasonableness Allowance
101-SW1	SB 51+00 to 59+00	12	Yes	4	$55,000	$220,000
		14	Yes	4	$55,000	$220,000
		16	Yes	4	$55,000	$220,000
101-SW3	SB 169+50 to 177+50	10	Yes	4	$55,000	$220,000
		12	Yes	4	$55,000	$220,000
		14	Yes	4	$55,000	$220,000
		16	Yes	4	$55,000	$220,000
SW1	SB ROW El Camino Real to Existing Noise Barrier (2,925 feet)	10	Yes	29	$55,000	$1,595,000
		12	Yes	43	$55,000	$2,365,000
		14	Yes	43	$55,000	$2,365,000
		16	Yes	43	$55,000	$2,365,000
SW2	NB On-Ramp Fremont Avenue to Existing Noise Barrier (450 feet)	16	Yes	1	$55,000	$55,000
SW5	NB ROW McClellan Road to Stevens Creek Boulevard (2,490 feet)	10	Yes	1	$55,000	$55,000
		12	Yes	2	$55,000	$110,000
		14	Yes	2	$55,000	$110,000
		16	Yes	2	$55,000	$110,000
SW17	NB ROW SR 85 to SR 87 Connector (1,675 feet)	10	Yes	20	$55,000	$1,100,000
		12	Yes	21	$55,000	$1,155,000
		14	Yes	21	$55,000	$1,155,000
		16	Yes	21	$55,000	$1,155,000

Note: Sound wall locations are shown in Appendix A for US 101 and Appendix B for SR 85.

Potential noise barriers are discussed below in detail by study area segment. Once a noise barrier achieved the minimum of a 5 dB reduction at a given receptor and achieved the 7 dB noise reduction design goal for at least one receptor, the reasonableness allowance was determined. Tables 2-17 through 2-40 show the insertion loss (I.L.) for each barrier at various design heights. Feasible barrier locations, as well as measured and modeled receptor locations, are shown in Appendix A for receptors along the US 101 corridor and Appendix B for receptors along the SR 85 corridor.

2.2.1. Segment A: US 101 – Oregon Expressway to SR 85

Five noise barriers (SW1-SW5) were evaluated in 2008 to abate noise impacts as part of the US 101 Auxiliary Lanes Project NSR (EA 4A330K). These same five noise barriers have been re-labeled for clarification purposes (101-SW1 through 101-SW5). The noise barriers were calculated to reduce noise levels by 0 to 12 decibels at noise-impacted receptors. Tables 2-17 to 2-21 show the Build worst-hour noise levels and I.L. for each barrier at various design heights.

Sound Wall 101-SW1: 101-SW1 would be located along the southbound US 101 right-of-way from approximately Station 51+00 to 59+00. This wall would feasibly abate traffic noise for Greer Park (4 benefited receptors), represented by receptors R20 and R21. A minimum barrier height of 10 feet would be necessary to be considered feasible, and a minimum height of 12 feet would be required to also meet the noise reduction design goal of 7 dBA for at least one receptor. The reasonable allowance calculated for barriers of 12, 14, and 16 feet is $220,000. Sheet 4 in Appendix A shows the location of this wall.

Table 2-17: 101-SW1 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
R20	70	67	3	65	5	64	6	63	7	63	7
R21	69	65	4	64	5	62	7	61	8	61	8

Sound Wall 101-SW2: A 14-foot sound wall (Barrier D) was constructed as part of the Classics at Sterling Park Residential Development along the southbound right-of-way for US 101, extending from approximately Station 77+50 to 89+25. As a result, the Existing, Future No Build, and Future Build conditions would have noise levels of 66 dBA $L_{eq[h]}$ for R24 and 61 dBA $L_{eq[h]}$ for R25. Even with construction of Barrier D, some receptors behind the wall are calculated to experience noise levels that would approach or exceed the NAC. 101-SW2 analyzes increasing the height of this sound wall to provide a feasible noise reduction. Traffic noise modeling indicates that increasing the wall height from 14 to 16 feet would not further reduce noise levels. 101-SW2 would not achieve a feasible noise reduction. Sheet 3 in Appendix A shows the location of this wall.

Table 2-18: 101-SW2 Insertion Loss

Receptor ID	Noise Level with Planned Wall H=14 feet	With Wall H=16 feet	
		$L_{eq[h]}$	I.L.
R24	66	66	0
R25	61	61	0

Sound Wall 101-SW3: 101-SW3 would be located along the southbound US 101 right-of-way south of N. Rengstorff Avenue from approximately Station 169+50 to 177+50. This wall would feasibly abate traffic noise for four single-family homes represented by receptors R27 and R27A. A minimum barrier height of 8 feet would be required to achieve a feasible noise reduction. A 10-foot barrier would provide at least 7 dBA of noise reduction, meeting the reasonableness design goal. The reasonable allowance calculated for barrier heights of 10 to 16 feet in height is $220,000. Sheet 2 in Appendix A shows the location of this wall.

Table 2-19: 101-SW3 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
R27	74	68	6	67	7	65	9	64	10	63	11
R27A	74	68	6	66	8	65	9	64	10	63	11

Sound Wall 101-SW4: 101-SW4 would be located at the southbound US 101 right-of-way south of N. Rengstorff Avenue from approximately Station 183+50 to 188+50. An existing 12-foot wall (Barrier E) shields multi-family residences. Receptors behind the existing wall experience noise levels that exceed the NAC; therefore increasing the height of this wall was studied. It was determined that an increase in height would only reduce noise levels by up to 2 dB; consequently this barrier was not considered to be feasible. Sheet 6 in Appendix A shows the location of this wall.

Table 2-20: 101-SW4 Insertion Loss

Receptor ID	Noise Level With Existing Wall H=12 feet	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
R29	68	67	1	66	2

Sound Wall 101-SW5: 101-SW5 would be located at the right-of-way along the SB US 101 on-ramp from Old Middlefield Road from approximately Station 195+00 to 214+00. An existing 10-foot barrier (Barrier F) shields a residential neighborhood. Receptors behind the existing wall experience noise levels that exceed the NAC; therefore increasing the height of this wall was studied. It was determined that an increase in the height of the barrier would reduce noise levels by up to an additional 4 dB. Consequently, 101-SW5 was not considered to be feasible. Sheet 7 in Appendix A shows the location of this wall.

Table 2-21: 101-SW5 Insertion Loss

Receptor ID	Noise Level With Existing Wall H=10 feet	With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
R30	60	58	2	57	3	56	4
R31	60	58	2	57	3	56	4
R32	62	60	2	59	3	59	3
R33	65	64	1	62	3	61	4
R34	68	66	2	65	3	64	4
R35	68	66	2	65	3	64	4
R36	68	67	1	65	3	64	4
R37	57	57	0	56	1	56	1
R38	58	57	1	57	1	56	2
R39	60	60	0	59	1	59	1
R40	60	60	0	60	0	60	0
R41	64	63	1	62	2	61	3

2.2.2. Segment 1: SR 85 – US 101 to Central Expressway

Existing barriers shield noise sensitive receptors throughout this segment. Noise level increases are not considered substantial at noise sensitive receptors in this segment and all noise sensitive receptors are predicted to experience future build noise levels that do not approach or exceed the NAC. As a result, noise abatement was not considered in this area.

2.2.3. Segment 2: SR 85 – Central Expressway to El Camino Real

There are two existing barriers in this segment. Noise level increases are not considered substantial at noise sensitive receptors in this segment. Future build noise

levels are predicted to approach or exceed the NAC at single-family residences located east of SR 85 and north of El Camino Real (ST-11). However, the existing noise barrier at this location is already at the maximum allowable height of 16 feet. As a result, noise abatement was not considered in this area.

2.2.4. Segment 3: SR 85 – El Camino Real to West Fremont Avenue

There are five existing barriers within this segment. Future build noise levels are predicted to approach or exceed the NAC at four modeled receptor locations, including the Stevens Creek Trail (ST-12a), Alta Vista High School and residences located to the west of SR 85 and north of W. Fremont Avenue (ST-19 and ST-20), and at the Sunnyvale Healthcare Center located east of SR 85, just north of West Fremont Avenue (ST-21). Two new barriers, SW1 and SW2, were assessed to abate noise impacts at ST-12a and ST-21. Wall height increases were assessed for the existing 12-foot barrier located along the southbound off-ramp to West Fremont Avenue, SW3, which provides shielding for residences represented by ST-20. The existing noise barrier adjacent to Alta Vista High School and adjacent residences is already constructed to the maximum allowable height of 16 feet. As a result, noise abatement was not considered for receptors represented by ST-19 and ST-20.

Based on preliminary design data, the barriers analyzed would reduce noise levels by 0 to 11 dB at affected receptors. Tables 2-22 to 2-24 show the Future Build worst-hour noise levels and insertion loss for each barrier at various design heights.

Sound Wall SW1: Stevens Creek Trail, the Sahara Mobile Home Park, and single-family residential receptors in the vicinity of Kentmere Court are located west of SR 85 and are not shielded by a noise barrier. Worst-hour noise levels are predicted to exceed the Noise Abatement Criteria along Stevens Creek Trail, but not at the residential receptors located further west. A noise barrier was tested for feasibility at the right-of-way line along the western side of the on-ramp from El Camino Real to southbound SR 85 meeting up with the existing barrier located along the southbound right-of-way in this segment.

SW1 would feasibly abate traffic noise levels along the Stevens Creek Trail, represented by ST-12a, and up to 42 first-row single-family residences represented by ST-12 and ST-14. The noise reduction design goal would be met at a minimum height of 10 feet. The noise barrier would not provide a feasible noise reduction at second-row residences represented by ST-12b. The reasonableness allowance

calculated for a 10-foot noise barrier is $1,595,000. The reasonableness allowance calculated for barriers ranging from 12 to 16 feet in height is $2,365,000. Sheets 2 and 3 in Appendix B show the location of this wall.

Table 2-22: SWI Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-12	64	58	6	58	6	57	7	56	8	55	9
ST-12a	71	65	6	64	7	62	9	61	10	60	11
ST-12b	59	59	0	58	1	57	2	56	3	55	4
ST-14	62	58	4	58	4	56	6	55	7	54	8

Sound Wall SW2: The Sunnyvale Healthcare Center, an assisted living and skilled nursing facility, is located east of SR 85 and north of Fremont Avenue and is not shielded by an existing noise barrier. This facility has one common outdoor use area, represented by noise measurement ST-21, located on the west side of the building facing SR 85. Worst-hour noise levels are predicted to exceed the Noise Abatement Criteria at this outdoor use area. A noise barrier was tested for feasibility along the eastern side of the on-ramp from Fremont Avenue to northbound SR 85.

SW2 would feasibly abate traffic noise at the outdoor use area represented by ST-21 and would meet the 7 dB noise reduction design goal at a minimum height of 16 feet. The reasonableness allowance calculated for a 16-foot noise barrier is $55,000. A barrier was also tested along the northbound SR 85 mainline, but was not found to be feasible, as it would not achieve the noise reduction design goal. Sheet 4 in Appendix B shows the location of this wall.

Table 2-23: SW2 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-21	71	70	1	67	4	66	5	65	6	64	7

Sound Wall SW3: SW3 is an existing 12-foot noise barrier located along the southbound SR 85 off-ramp to West Fremont Avenue. Some receptors behind the wall still experience noise levels that approach or exceed the NAC of 67 dBA. SW3

analyzes increasing the height of this sound wall. However, increasing the height of this wall would only reduce noise levels by up to 3 dB; therefore, this barrier is not considered to be feasible. Sheet 4 in Appendix B shows the location of this wall.

Table 2-24: SW3 Insertion Loss

Receptor ID	Noise Level w/12 foot Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-20	66	65	1	63	3

2.2.5. Segment 4: SR 85 – West Fremont Avenue to Interstate 280

There are five existing barriers in this segment. Future build noise levels are predicted to approach or exceed the NAC at three modeled receptor locations in this segment (ST-23, ST-24, and ST-25), representing single-family residences located west of SR 85 between West Fremont Avenue and Homestead Road. These receptors are currently shielded by an existing barrier that ranges from 12 to 16 feet in height. Wall increases were assessed for barrier SW4 bringing the entire barrier up to the maximum allowable sound wall height of 16 feet.

Based on preliminary design data, the barrier analyzed would reduce noise levels by 0 to 2 decibels at affected receptors. Table 2-25 shows the Future Build worst-hour noise levels and insertion loss for SW4 at the maximum design height of 16 feet.

Sound Wall SW4: SW4 is an existing barrier along the southbound SR 85 right-of-way between West Fremont Avenue and Homestead Road that ranges from 12 to 16 feet in height. Some receptors behind the wall experience noise levels that approach or exceed the NAC of 67 dBA. SW4 was analyzed for a homogeneous increase in height up to the maximum allowable sound wall height of 16 feet. Increasing the height of this wall would only reduce noise levels by up to 3 dB. As a result, this barrier is not considered to be feasible. Sheets 4 and 5 in Appendix B show the location of this wall.

Table 2-25: SW4 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=16 feet	
		$L_{eq[h]}$	I.L.
ST-23	66	63	3
ST-24	68	68	0
ST-25	69	68	1

2.2.6. Segment 5: SR 85 – Interstate 280 to South De Anza Boulevard

There are seven existing barriers within this segment. In addition, land uses located south of Steven Creek Boulevard are shielded from SR 85 by an earth berm. Future build noise levels are predicted to approach or exceed the NAC at eight modeled receptor locations in this segment, including first-row single and multi-family residences located east of SR 85 between Interstate 280 and Stevens Creek Boulevard (ST-31), De Anza College (ST-34 and ST-36), first-row single family residences located north of South Stelling Road to the east (ST-40) and west (ST-38 and ST-39) of SR 85, and first-row single and multi-family homes located west of SR 85 and north of South De Anza Boulevard (ST-42 and ST-44). Most of these impacted receptors are located behind existing barriers that range in height from 12 to 16 feet. One new barrier, SW5, was assessed to mitigate noise impacts for De Anza College (ST-34 and ST-36). Sound wall height increases were assessed for three additional barriers, SW6 SW7, and SW8 in locations where the existing barrier was below the allowable sound wall height of 14 or 16 feet, depending on its proximity to the edge of traveled way.

Based on preliminary design data, the barriers analyzed would reduce noise levels by 1 to 11 decibels at affected receptors. Tables 2-26 through 2-29 show the Future Build worst-hour noise levels and insertion loss for each barrier at various design heights.

Sound Wall SW5: De Anza College is located east of SR 85, between Stevens Creek Boulevard and McClellan Road. The noise monitoring survey identified two outdoor use areas that could benefit from a lowered noise level. The first outdoor use area was a student area represented by ST-34. The second outdoor use area was at a childcare facility represented by ST-36a, which is located behind a 6-foot fence. Receptor location ST-36 was located adjacent to ST-36a, but was not shielded by the

fence and is therefore not representative of the noise environment at the childcare center outdoor use area. Worst-hour noise levels are predicted to exceed the Noise Abatement Criteria at the student area, but not at the outdoor use area for the childcare facility.

SW5 was tested for feasibility along the northbound SR 85 right-of-way between Stevens Creek Boulevard and McClellan Road and was found to feasibly abate traffic noise at the two outdoor use areas represented by ST-34 and ST-36a. The 7 dB noise reduction design goal would be met at a minimum height of 10 feet. Additional indoor classroom uses (Category D) may require additional analysis if exterior noise abatement is not found to be feasible and/or reasonable. The reasonableness allowance calculated for barrier heights of 10 to 16 feet ranges from $55,000 to $110,000. Sheet 4 in Appendix B shows the location of this wall.

Table 2-26: SW5 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-34	70	64	6	63	7	63	7	62	8	61	9
ST-36	75	70	5	68	7	66	9	65	10	64	11
ST-36a	60	57	3	56	4	55	5	55	5	54	6

Sound Wall SW6: SW6 is an existing 14-foot noise barrier located along the southbound SR 85 right-of-way between McClellan Road and South Stelling Road. Even with the shielding provided by SW6, first-row receptors behind the wall, represented by ST-38 and ST-39, would experience noise levels that approach or exceed the NAC of 67 dBA. However, increasing the height of SW6 is calculated to only reduce noise levels by up to 2 dB. Therefore, this barrier is not considered to be feasible. Sheets 6 and 7 in Appendix B show the location of this wall.

Table 2-27: SW6 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=16 feet	
		$L_{eq[h]}$	I.L.
ST-38	68	66	2
ST-39	68	68	0

Sound Wall SW7: SW7 is an existing 11- to 12-foot noise barrier located along the northbound SR 85 right-of-way between McClellan Road and South Stelling Road. Even with the shielding provided by SW7, first-row receptors behind the wall, represented by ST-40, would experience noise levels that approach or exceed the NAC of 67 dBA. However, increasing the height of SW7 is calculated to only reduce noise levels by up to 2 dB. Therefore, this barrier is not considered to be feasible. Sheets 6 and 7 in Appendix B show the location of this wall.

Table 2-28: SW7 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-40	68	67	1	66	2

Sound Wall SW8: SW8 is an existing 12-foot noise barrier located along the southbound SR 85 right-of-way between South Stelling Road and South De Anza Boulevard. Some first-row receptors located behind the existing wall, represented by ST-42 and ST-44, are predicted to experience noise levels that approach or exceed the NAC of 67 dBA. SW8 was analyzed for increases in barrier height, but was calculated to only reduce noise levels by up to 2 dB. As a result, this barrier is not considered to be feasible. Sheets 7 and 8 in Appendix B show the location of this wall.

Table 2-29: SW8 Insertion Loss

Receptor ID	Noise Level w/12 foot Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-42	69	68	1	67	2
ST-44	67	66	1	65	2

2.2.7. Segment 6: SR 85 –South De Anza Boulevard to Saratoga Avenue

Sixteen existing barriers are in this segment. Future build noise levels are predicted to approach or exceed the NAC at four modeled receptors in this segment, including

some first-row receptors located east of SR 85 between Prospect Road and Saratoga Avenue (LT-5, ST-53, and ST-55) and first-row receptors located east of SR 85 between South De Anza Boulevard and Prospect Road. These receptors are all located behind existing 12-foot high barriers. Sound wall height increases were assessed for three barriers, SW9, SW10, and SW11, for sound wall heights of 14 and 16 feet.

Based on preliminary design data, the barriers analyzed would reduce noise levels by up to 3 decibels at the affected receptors. Tables 2-30 through 2-32 show the Future Build worst-hour noise levels and insertion loss for each barrier at the various barrier heights.

Sound Wall SW9: SW9 is an existing 12-foot noise barrier located along the northbound SR 85 right-of-way between South De Anza Boulevard and Prospect Road. First-row receptors located behind the existing wall and represented by ST-43 are predicted to experience noise levels that approach or exceed the NAC of 67 dBA. SW9 was analyzed by increasing the barrier height to 14 and 16 feet. Barrier height increases for SW9 were calculated to only reduce noise levels by up to 2 dB. As a result, this barrier is not considered to be feasible. Sheet 8 in Appendix B shows the location of this wall.

Table 2-30: SW9 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-43	67	67	0	66	1
ST-48	57	56	1	55	2

Sound Wall SW10: SW10 is an existing 12-foot high noise barrier that provides shielding to receptors located west of SR 85 between Prospect Road and Cox Avenue. Some first-row receptors located behind the existing wall, represented by ST-53 and ST-55, are calculated to experience noise levels that approach or exceed the NAC of 67 dBA. SW10 was analyzed for increases in barrier height, bringing the barrier up to heights of 14 and 16 feet. However, SW10 was calculated to only reduce noise

levels by up to 3 dB. As a result, this barrier is not considered to be feasible. Sheets 8 and 9 in Appendix B show the location of this wall.

Table 2-31: SW10 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-51	62	62	0	62	0
ST-53	66	64	2	63	3
ST-55	68	67	1	66	2

Sound Wall SW11: SW11 is an existing 12-foot noise barrier located along the southbound SR 85 right-of-way between Cox Avenue and Saratoga Avenue. This existing barrier provides shielding to single family homes and Congress Springs Park. First-row single-family homes and Congress Springs Park, represented by LT-5, are predicted to experience noise levels that approach the NAC of 67 dBA. SW11 was analyzed by increasing the existing barrier height to 14 and 16 feet. Barrier height increases for SW11 were calculated to only reduce noise levels by 1 to 2 dB. As a result, this barrier is not considered to be feasible. Sheet 9 in Appendix B shows the location of this wall.

Table 2-32: SW11 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
LT-5	66	65	1	64	2

2.2.8. Segment 7: SR 85 – Saratoga Avenue to Winchester Boulevard

Existing barriers shield noise sensitive receptors throughout this segment. Noise level increases are not considered substantial at noise sensitive receptors and none of the noise sensitive receptors are predicted to experience future build noise levels that approach or exceed the NAC. As a result, noise abatement was not considered in this area.

2.2.9. Segment 8: SR 85 – Winchester Boulevard to Union Avenue

This segment contains 11 existing barriers, which shield most of the noise-sensitive receptors in this area. Future build noise levels are predicted to approach or exceed the NAC at the Los Gatos Swim and Racquet Club, located southwest of the SR 85 and SR 17 interchange, represented by ST-74 and ST-74a. A new barrier (SW12) was assessed to abate noise impacts. Based on preliminary design data, the barrier analyzed would reduce noise levels by 3 to 6 dB at affected receptors. Table 2-33 shows the Future Build worst-hour noise levels and insertion loss for barrier SW12 at various design heights.

Sound Wall SW12: Worst-hour noise levels at the Los Gatos Swim and Racquet Club are calculated to exceed the Noise Abatement Criteria requiring the consideration of noise abatement. An extension of an existing noise barrier along the southbound SR 85 to southbound SR 17 connector ramp was modeled and found to provide 5 to 6 dB of noise reduction at six tennis courts. The modeling showed that the Caltrans 7 dB noise reduction design goal would not be met at any of the modeled receptors, thus failing the test for reasonableness. Sheet 14 in Appendix B shows the location of this wall.

Table 2-33: SW12 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-74	66	62	4	61	5	61	5	60	6	60	6
ST-74a	65	62	3	62	3	61	4	61	4	61	4

2.2.10. Segment 9: SR 85 – Union Avenue to Camden Avenue

Noise sensitive receptors are shielded behind eight existing barriers within this segment. Future build noise levels are predicted to approach or exceed the NAC at one modeled receptor (ST-83), representing first-row residences located south of SR 85 between Union Avenue and Leigh Avenue. These receptors are located behind an existing 10-foot barrier, SW13. Sound wall height increases were assessed for this barrier for heights up to 16 feet.

Based on preliminary design data, the barrier analyzed would reduce noise levels by 1 to 2 dB at the affected receptor. Table 2-34 shows the Future Build worst-hour noise levels and insertion loss for barrier SW13 at various design heights.

Sound Wall SW13: SW13 is an existing 10-foot noise barrier located along the southbound SR 85 right-of-way between Union Avenue and Leigh Avenue. Some first-row receptors located behind the existing wall, represented by ST-83, are predicted to experience noise levels that approach or exceed the NAC of 67 dBA. SW13 was analyzed for increases in barrier height, but was calculated to only reduce noise levels by up to 2 dB. As a result, this barrier is not considered to be feasible. Sheet 15 in Appendix B shows the location of this wall.

Table 2-34: SW13 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-83	66	65	1	65	1	64	2

2.2.11. Segment 10: SR 85 – Camden Avenue to Almaden Expressway

There are six existing barriers within this segment. Future build noise levels are predicted to approach or exceed the NAC at three modeled receptors (LT-7, ST-91, and ST-95), representing first-row single-family residences located north of SR 85 between Meridian Avenue and Almaden Expressway. These receptors are located behind an existing barrier, SW14, which ranges in height from 10 to 14 feet. Sound wall height increases were assessed for this barrier, bringing the entire barrier up to a height of 16 feet.

Based on preliminary design data, the barrier analyzed would reduce noise levels by up to 2 decibels at the affected receptors. Table 2-35 shows the Future Build worst-hour noise levels and insertion loss barrier SW14 at the maximum allowable height of 16 feet.

Sound Wall SW14: SW14 is an existing 10 to 14-foot high noise barrier located along the northbound SR 85 right-of-way between Meridian Avenue and Almaden Expressway. Some first-row receptors located behind the existing wall and

represented by LT-7, ST-91, and ST-95, are predicted to experience noise levels that approach or exceed the NAC of 67 dBA. SW14 was analyzed for an increase in the barrier height bringing the entire barrier up to a height of 16 feet. Barrier height increases for SW14 were calculated to only reduce noise levels by up to 2 dB. As a result, this barrier is not considered to be feasible. Sheet 17 in Appendix B shows the location of this wall.

Table 2-35: SW14 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=16 feet	
		$L_{eq[h]}$	I.L.
LT-7	67	65	2
ST-91	66	64	2
ST-93	55	55	0
ST-95	68	68	0

2.2.12. Segment 11: SR 85 – Almaden Expressway to Blossom Hill Road

There are eight existing barriers within this segment. Future build noise levels are predicted to approach or exceed the NAC at four modeled receptor locations in this segment, including multifamily residences located southeast of the interchange between SR 85 and Almaden Expressway (ST-97) first-row single family homes located north of SR 85 between Almaden Expressway and Santa Teresa Boulevard (ST-98), Gunderson High School (ST-102b), and some first-row single family residences located south of SR 85 between Santa Teresa Boulevard and Blossom Hill Road, near Dunsburry Way (ST-107). Most of these impacted receptors are located behind existing barriers that range in height from 6 to 16 feet. One new barrier, SW17, was assessed to mitigate noise impacts for Gunderson High School (ST-102, ST-102a, ST-102b, and ST-102c). Sound wall height increases were assessed for three additional barriers, SW15, SW16 and SW18, in locations where the existing barrier was below the allowable sound wall height of 14 or 16 feet, depending on its proximity to the edge of traveled way.

Based on preliminary design data, the barriers analyzed would reduce noise levels by 0 to 10 decibels at affected receptors. Tables 2-36 through 2-39 show the Future

Build worst-hour noise levels and insertion loss for each barrier at various design heights.

Sound Wall SW15: SW15 is an existing 6-foot high noise barrier located south of SR 85 and east of Almaden Expressway, on structure and at the edge of the roadway shoulder. First-row multifamily receptors, represented by ST-96, receive shielding by the SR 85 bridge structure and would be exposed to noise levels below the NAC. Some second row receptors, represented by ST-97, do not receive as much acoustical shielding as the first-row receptors and are predicted to experience noise levels that approach or exceed the NAC of 67 dBA. SW15 was analyzed for increases in barrier height from 8 to 16 feet, but was not calculated to provide any additional reduction in noise levels. As a result, this barrier is not considered to be feasible. Sheet 18 in Appendix B shows the location of this wall.

Table 2-36: SW15 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-96	64	63	1	63	1	63	1	63	1	63	1
ST-97	67	67	0	67	0	67	0	67	0	67	0

Sound Wall SW16: SW16 is an existing 6-foot high noise barrier located north of SR 85 and extending, on structure, from the off-ramp to Almaden Expressway along the SR 85 mainline and along the SR 85 on-ramp from Santa Teresa Boulevard. Some first-row multifamily receptors, represented by ST-98 are calculated to experience noise levels that approach or exceed the NAC of 67 dBA. SW16 was analyzed for increases in barrier height from 8 to 16 feet and was calculated to reduce noise levels by up to 1 dB. Therefore, this barrier is not considered to be feasible. Sheet 18 in Appendix B shows the location of this wall.

Table 2-37: SW16 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-98	67	67	0	67	0	67	0	67	0	67	0
ST-100	60	59	1	59	1	59	1	59	1	59	1

Sound Wall SW17: Gunderson High School, located northeast of the SR 85/SR 87 interchange, includes several outdoor playfields that adjoin SR 85. Worst-hour noise levels modeled at ST-102b indicate that the Noise Abatement Criteria would be exceeded in the large playfield directly adjacent to SR 85, requiring the consideration of noise abatement.

A noise barrier was tested for feasibility along the right-of-way of the northbound SR 85 connector to northbound SR 87. The proposed barrier would feasibly abate traffic noise for three baseball fields (represented by ST-102 and ST-102a), a large playfield (represented by ST-102b), eight tennis courts, and 10 basketball courts (represented by ST-102c). The 7 dB noise reduction design goal would be met at a minimum height of 10 feet. The reasonableness allowance calculated for barrier heights of 10 to 16 feet ranges from $1,100,000 to $1,155,000. Sheets 18 and 19 in Appendix B show the location of this wall.

Table 2-38: SW17 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-102	64	60	4	60	4	59	5	59	5	59	5
ST-102a	60	56	4	56	4	56	4	56	4	56	4
ST-102b	71	65	6	64	7	63	8	62	9	61	10
ST-102c	65	60	5	60	5	59	6	59	6	58	7

Sound Wall SW18: Noise sensitive receptors located south of SR 85, between Santa Teresa Boulevard and Blossom Hill Road, are shielded from SR 85 by existing barriers that range in height from 12 to 16 feet. Many of these receptors are calculated to experience noise levels below the NAC of 67 dBA. However, some first-row single-family residences, located behind the 12-foot high barrier segment and represented by ST-107, are calculated to experience noise levels that approach or exceed the NAC. SW18 was analyzed for increases in barrier height from 14 to 16 feet, but was calculated to only reduce noise levels by up to 2 dB. As a result, this barrier is not considered to be feasible. Sheet 19 in Appendix B shows the location of this wall.

Table 2-39: SW18 Insertion Loss

Receptor ID	Noise Level w/ Existing Wall	With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-107	66	65	1	64	2
ST-108	61	60	1	59	2
LT-8	59	58	1	58	1

2.2.13. Segment 12: SR 85 – Blossom Hill Road to Cottle Road

Existing barriers shield noise sensitive receptors throughout this segment. Noise level increases are not considered substantial at sensitive receptors, and future build noise levels are not predicted to experience that approach or exceed the NAC at noise sensitive receptors. As a result, noise abatement was not considered in this area.

2.2.14. Segment 13: SR 85 – Cottle Road to US 101

Existing barriers shield noise sensitive receptors throughout this segment. Noise level increases are not considered substantial and future build noise levels are not predicted to approach or exceed the NAC at any noise sensitive receptors. As a result, noise abatement was not considered in this area.

2.2.15. Segment B: US 101 – South of SR 85/US 101 Interchange to Bailey Avenue

Noise barriers in the form of berms shield the residences off of Malech Road and Coyote Ranch Road. Three residences along Malech Road, northeast of the US 101/Bailey Avenue interchange, are calculated to experience noise levels that approach or exceed the NAC of 67 dBA. The residences are represented by ST-136a, ST-136b, and ST-136c. A sound wall was tested for feasibility. Table 2-40 shows the insertion loss for the sound wall at various design heights.

Sound Wall 101-SW6: 101-SW6 would be located along the northbound US 101 right-of-way from approximately Station 461+85 to 477+70 101-SW6 was analyzed for barrier heights from 8 to 16 feet, but was calculated to only reduce noise levels by

up to 4 dB. Therefore, this barrier is not considered to be feasible. Sheets 25 and 26 in Appendix A show the location of this wall.

Table 2-40: 101-SW6 Insertion Loss

Receptor ID	Noise Level w/o Wall	With Wall H=8 feet		With Wall H=10 feet		With Wall H=12 feet		With Wall H=14 feet		With Wall H=16 feet	
		$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.	$L_{eq[h]}$	I.L.
ST-136a	67	65	2	65	2	64	3	64	3	64	3
ST-136b	68	65	3	65	3	65	3	64	4	64	4
ST-136c	67	65	2	64	3	63	4	63	4	63	4

3. Preliminary Noise Abatement Decision

3.1. Summary of Key Information

A preliminary noise abatement analysis was conducted that identified the feasibility of constructing or replacing noise barriers along SR 85 to reduce traffic noise levels. Noise barriers were evaluated at the most acoustically effective location within the State right-of-way.

Table 3-1 lists the potential barriers that met the Protocol acoustical design goal (at least 7 dB of noise reduction at one or more benefited receptors) in areas where the NAC was approached or exceeded. Table 3-1 also identifies the total reasonableness allowance for each barrier and the estimated barrier construction cost. The total reasonableness allowance for each feasible barrier ranged from $55,000 to $2,365,000 depending on the barrier height and number of benefited receptors. In all cases, the estimated construction costs of the walls well exceeded the combined reasonableness allowance for the benefited receptors. None of the barriers evaluated meet both the feasibility and reasonableness criteria described in Section 1.1.

Table 3-1: Summary of Key Abatement Information

Sound Wall ID	Height (feet)	Acoustically Feasible?	Number of Benefited Receptors	Total Reasonableness Allowance	Estimated Construction Cost	Cost Less than Allowance?
101-SW1	12	Yes	4	$220,000	$960,000	No
	14	Yes	4	$220,000	$1,120,000	No
	16	Yes	4	$220,000	$1,280,000	No
101-SW3	10	Yes	4	$220,000	$800,000	No
	12	Yes	4	$220,000	$960,000	No
	14	Yes	4	$220,000	$1,120,000	No
	16	Yes	4	$220,000	$1,280,000	No
SW1	10	Yes	29	$1,595,000	$2,925,000	No
	12	Yes	43	$2,365,000	$3,510,000	No
	14	Yes	43	$2,365,000	$4,095,000	No
	16	Yes	43	$2,365,000	$4,680,000	No
SW2	16	Yes	1	$55,000	$720,000	No

Table 3-1: Summary of Key Abatement Information

Sound Wall ID	Height (feet)	Acoustically Feasible?	Number of Benefited Receptors	Total Reasonableness Allowance	Estimated Construction Cost	Cost Less than Allowance?
SW5	10	Yes	1	$55,000	$2,490,000	No
	12	Yes	2	$110,000	$2,988,000	No
	14	Yes	2	$110,000	$3,486,000	No
	16	Yes	2	$110,000	$3,984,000	No
SW17	10	Yes	20	$1,100,000	$1,675,000	No
	12	Yes	21	$1,155,000	$2,010,000	No
	14	Yes	21	$1,155,000	$2,345,000	No
	16	Yes	21	$1,155,000	$2,680,000	No

Note: Total reasonableness allowance was calculated based on the allowance of $55,000 per benefited receptor, which is set by the Protocol. **Estimated construction cost** was calculated based on the square footage of the analyzed wall multiplied by an estimated construction cost of $100 per square foot. The estimated construction cost ranges based on the length and height of the analyzed wall.

3.2. Preliminary Recommendation and Decision

As none of the barriers evaluated meet the feasibility and reasonableness criteria established by 23 CFR 772, no noise abatement is proposed.

The preliminary noise abatement decision presented in this report is based on preliminary project alignments and profiles, which may be subject to change. In addition, other projects have identifed commitments to construct noise barriers, as described in this report, and the conclusions in this NADR assume that those barriers will be completed independent of the SR 85 Express Lanes Project. As such, the physical characteristics of noise abatement described herein also may be subject to change. If pertinent parameters change substantially during the final project design, the preliminary noise abatement decision may be changed or eliminated from the final project design. A final decision to construct noise abatement will be made upon completion of the project design.

The preliminary noise abatement decision presented here will be included in the draft environmental document, which will be circulated for public review.

4. Secondary Effects of Abatement

No noise abatement is recommended in the preliminary noise abatement decision. Therefore, no secondary effects on cultural resources, scenic views, hazardous materials, biology, or other resources would occur.

5. References

California Department of Transportation (Caltrans). 2011. Traffic Noise Analysis Protocol for New Highway Construction, Reconstruction, and Retrofit Barrier Projects. May 2011

Illingworth and Rodkin, Inc. 2012. Noise Study Report. SR 85 Express Lanes Project, Santa Clara County. District 4, US 101 PM 23.1/28.6; SR 85 PM 0.0/R24.1; US 101 PM 47.9/52.0, EA 04-0G190K. Prepared for Caltrans under subcontract to URS. August.

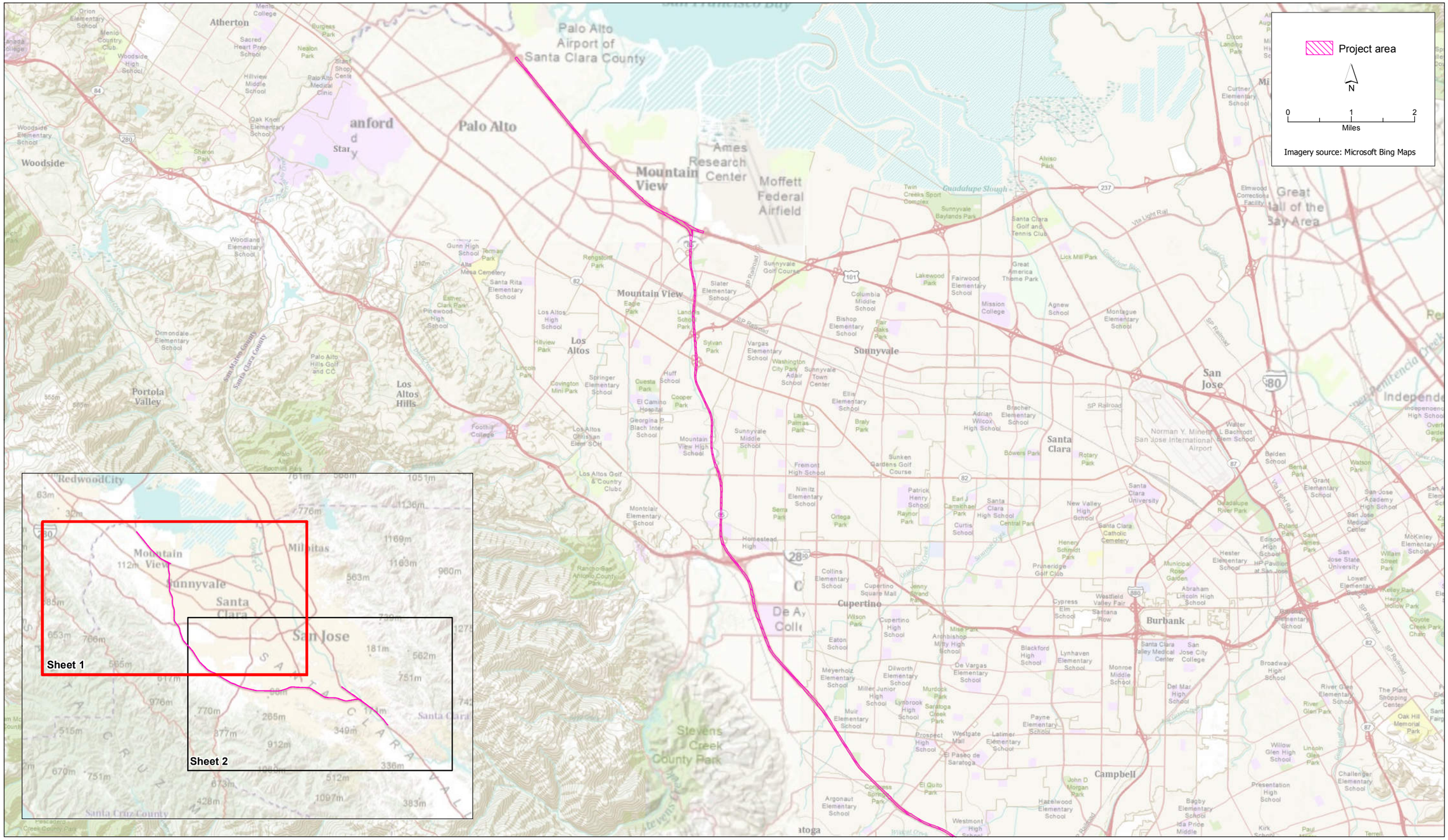
Figures

URS Corp - Oakland CA - F:\Bashir Path: L:\Projects\Caltrans_SR_85_Express_Lanes_28645170\Maps\MXT\Figure 1_8x11_Project_Location.mxd

URS

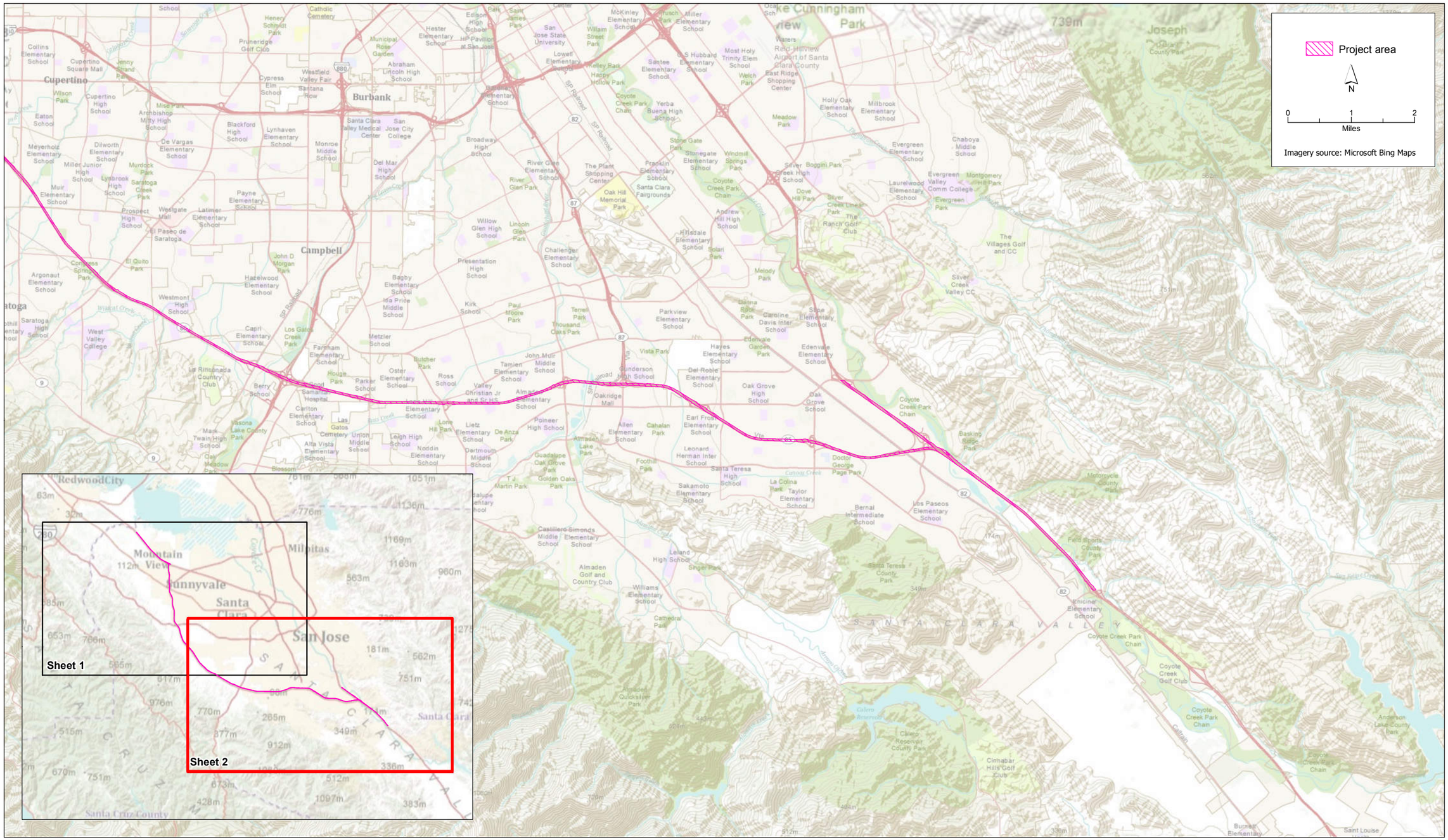
Caltrans
State Route 85 Express Lanes

Figure 1
Project Location and Regional Setting



URS Caltrans
State Route 85 Express Lanes

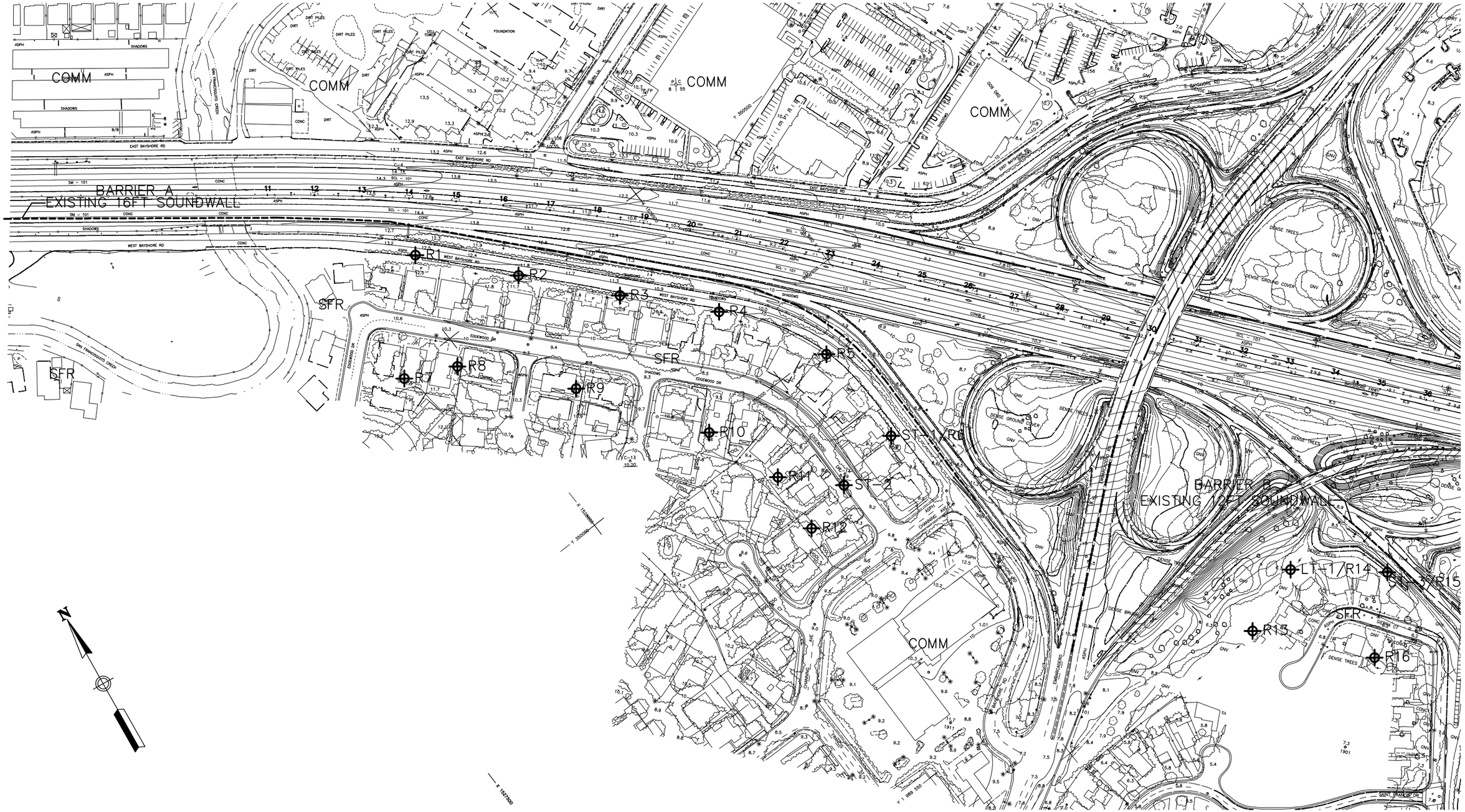
Figure 2,Sheet 1
Project area



URS Caltrans
State Route 85 Express Lanes

Figure 2,Sheet 2
Project area

Appendix A
US 101 Receptor Locations and Noise Barriers



LEGEND

- RECIEVER LOCATION
- FEASIBLE SOUNDWALL
- EXISTING SOUNDWALL

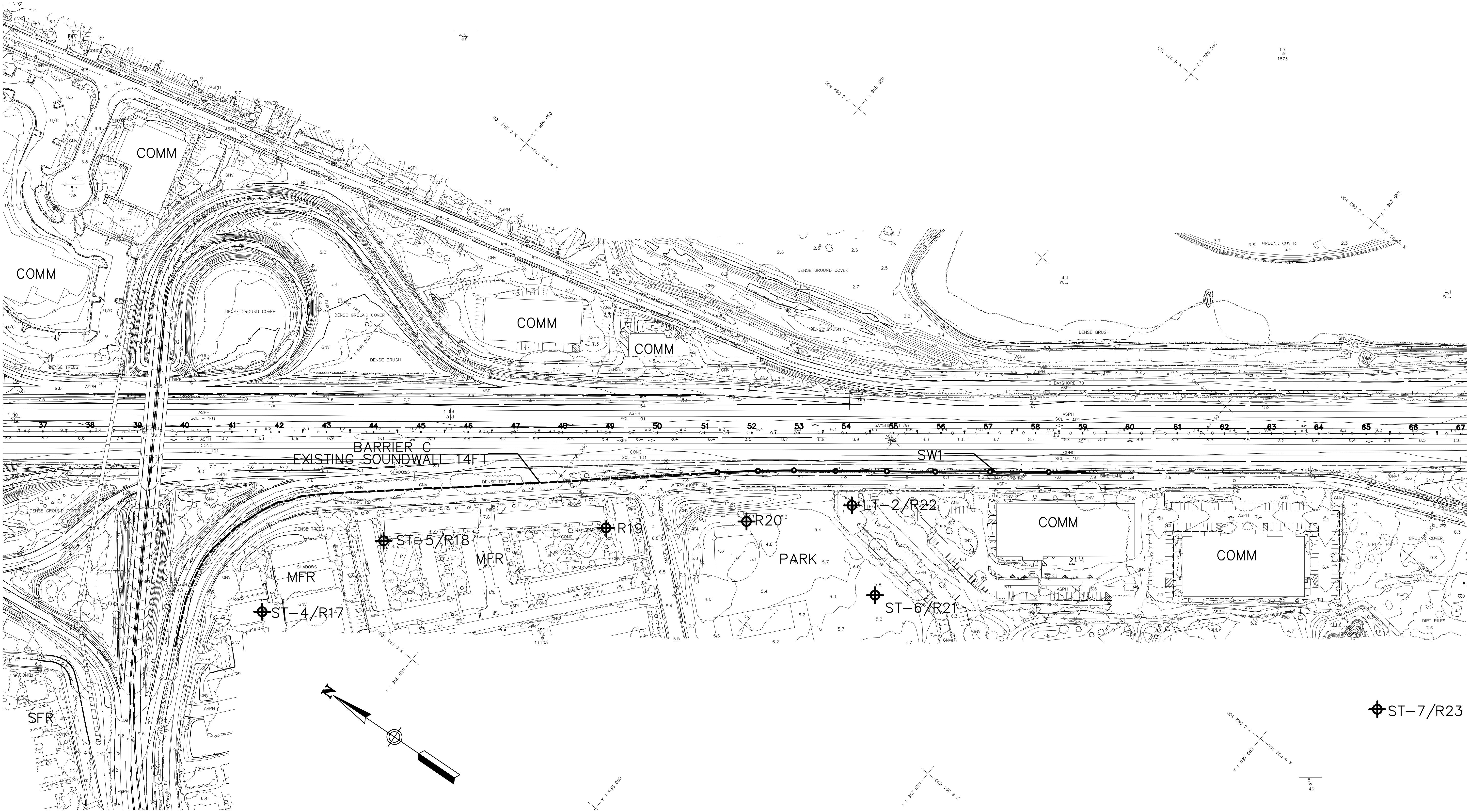
SFR —SINGLE FAMILY RESIDENCE
MFR —MULTI—FAMILY RESIDENCE
COMM —COMMERCIAL

1:200
FEET

0 FT 200FT 400FT 800FT

U.S. 101 AUXILIARY LANES
SENSITIVE RECEIVER & NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



LEGEND

⌖	RECIEVER LOCATION	SFR	-SINGLE FAMILY RESIDENCE
—o—	FEASIBLE SOUNDWALL	MFR	-MULTI-FAMILY RESIDENCE
— —	EXISTING SOUNDWALL	COMM	-COMMERCIAL

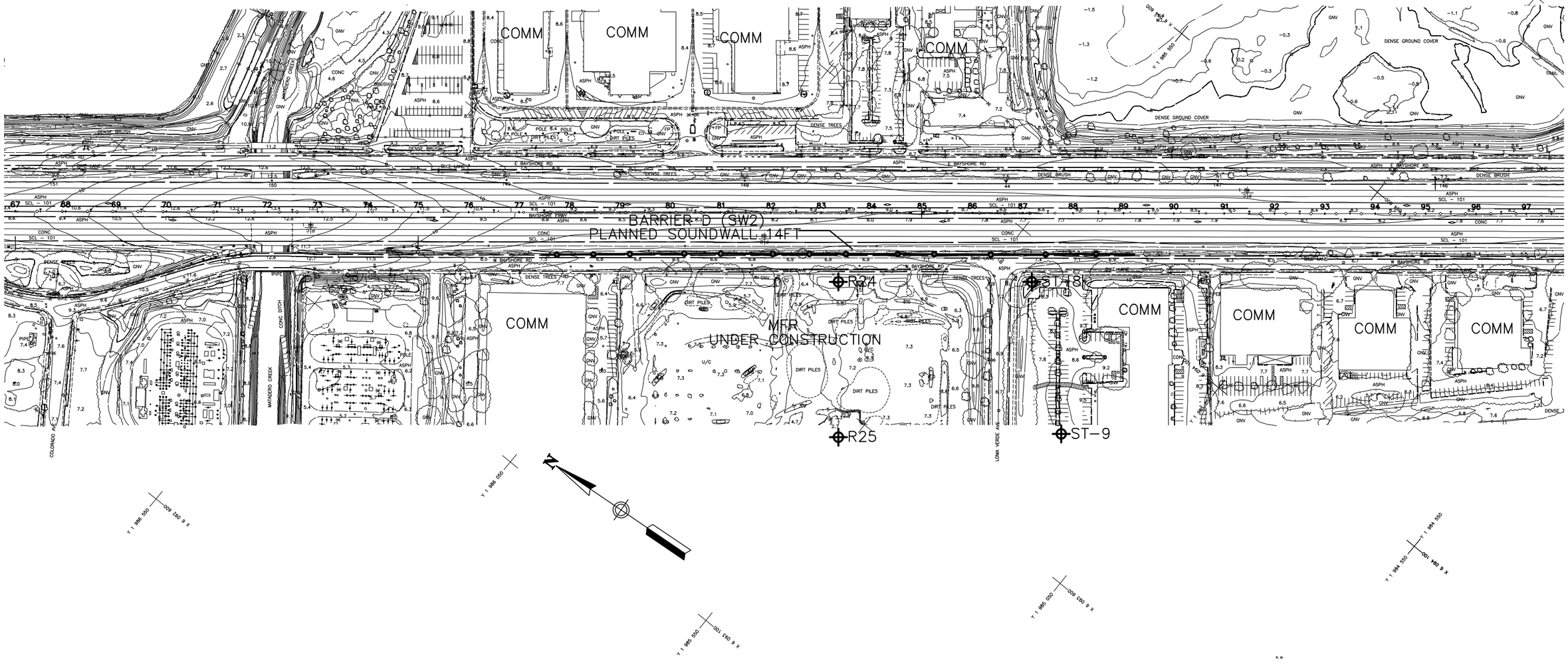
1:200
FEET

0 FT 200FT 400FT 800FT

U.S. 101 AUXILIARY LANES
SENSITIVE RECEIVER &
NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 2 OF 7



LEGEND

- RECIEVER LOCATION
- FEASIBLE SOUNDWALL
- EXISTING SOUNDWALL

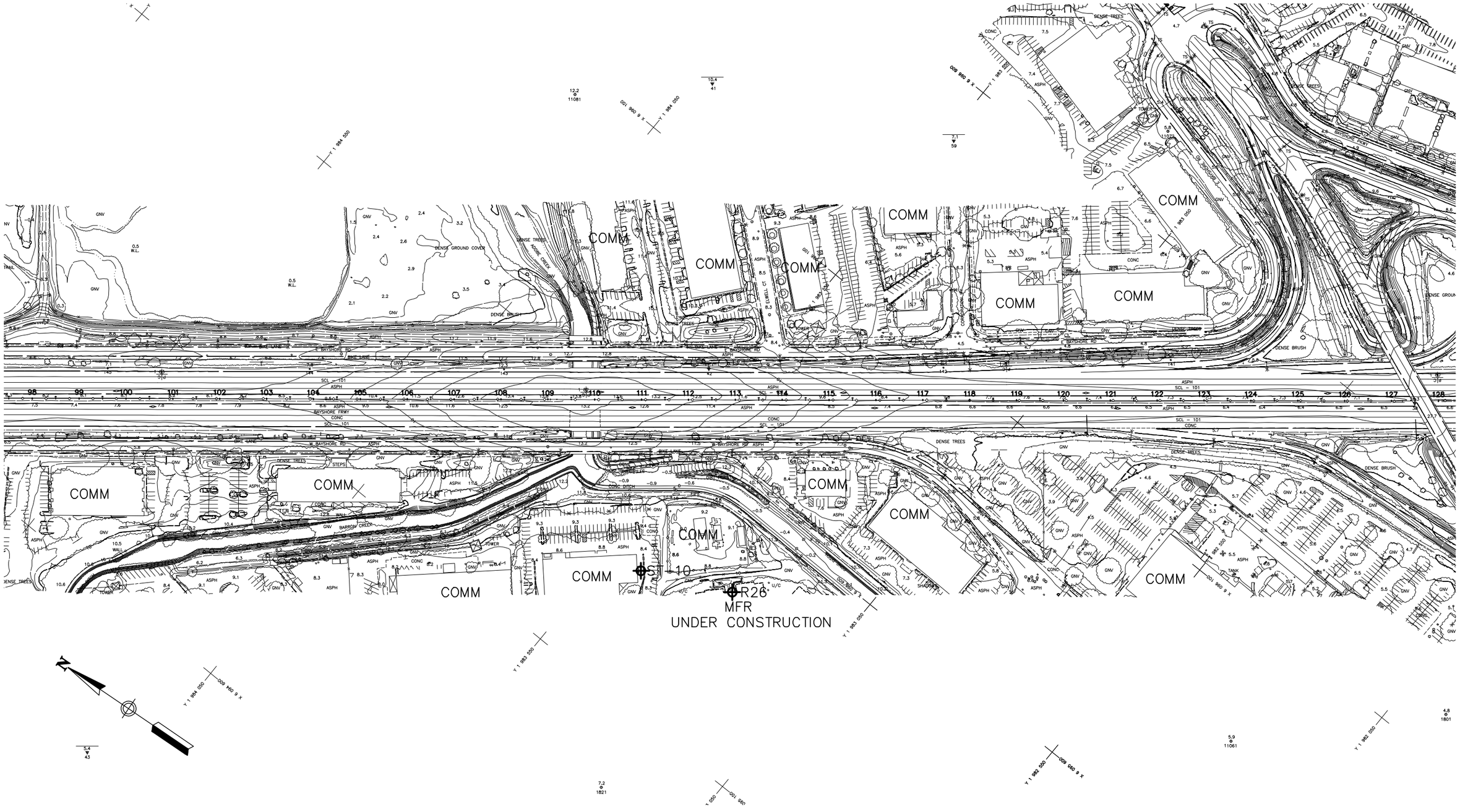
SFR —SINGLE FAMILY RESIDENCE
MFR —MULTI—FAMILY RESIDENCE
COMM —COMMERCIAL

1: 200
FEET

0 FT 200FT 400FT 800FT

U.S. 101 AUXILIARY LANES SENSITIVE RECEIVER & NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



LEGEND

- RECIEVER LOCATION
- FEASIBLE SOUNDWALL
- EXISTING SOUNDWALL

SFR —SINGLE FAMILY RESIDENCE

MFR —MULTI—FAMILY RESIDENCE

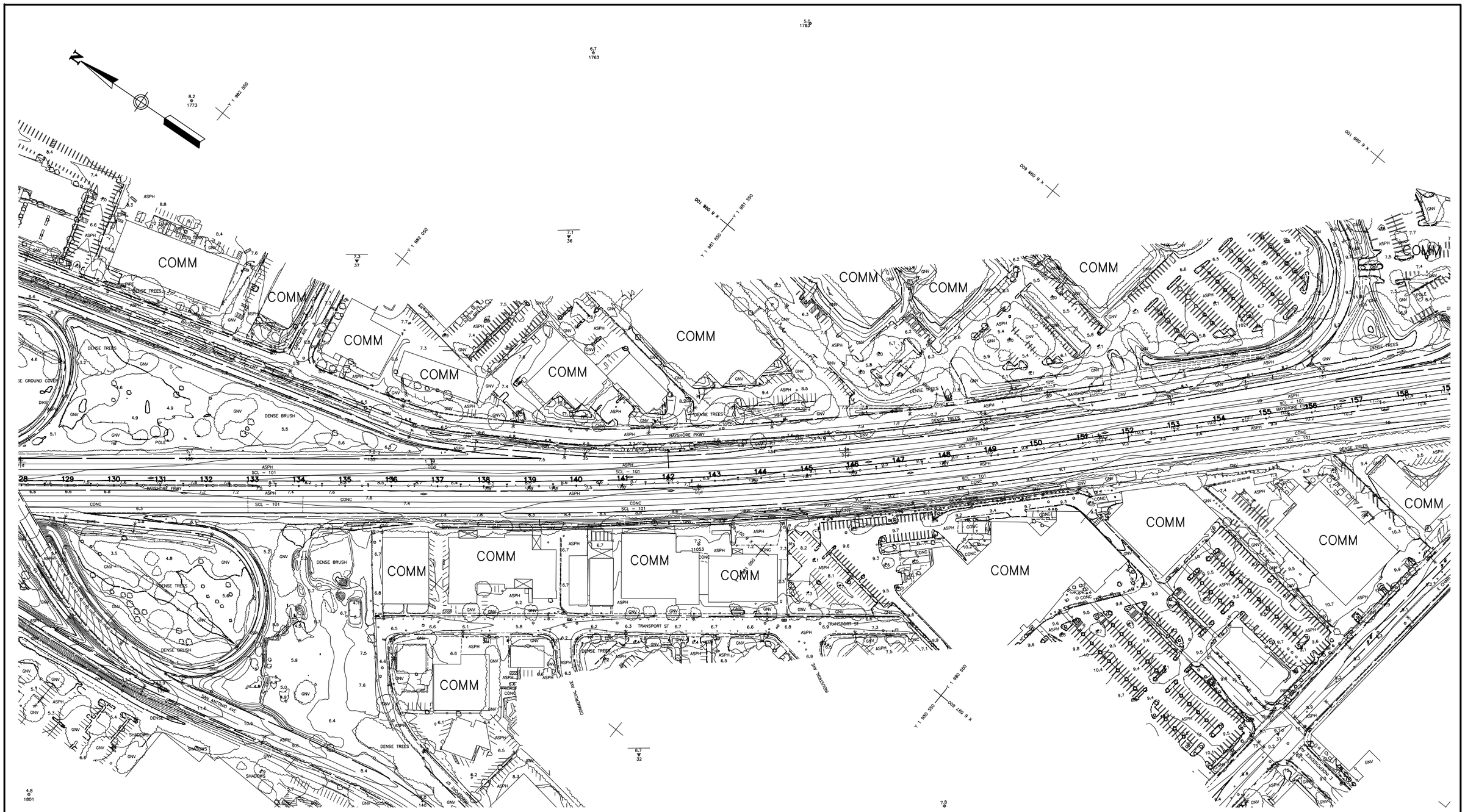
COMM —COMMERCIAL

1:200
FEET

0 FT 200FT 400FT 800FT

U.S. 101 AUXILIARY LANES SENSITIVE RECEIVER & NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



LEGEND

- RECIEVER LOCATION
- FEASIBLE SOUNDWALL
- EXISTING SOUNDWALL

SFR —SINGLE FAMILY RESIDENCE

MFR —MULTI–FAMILY RESIDENCE

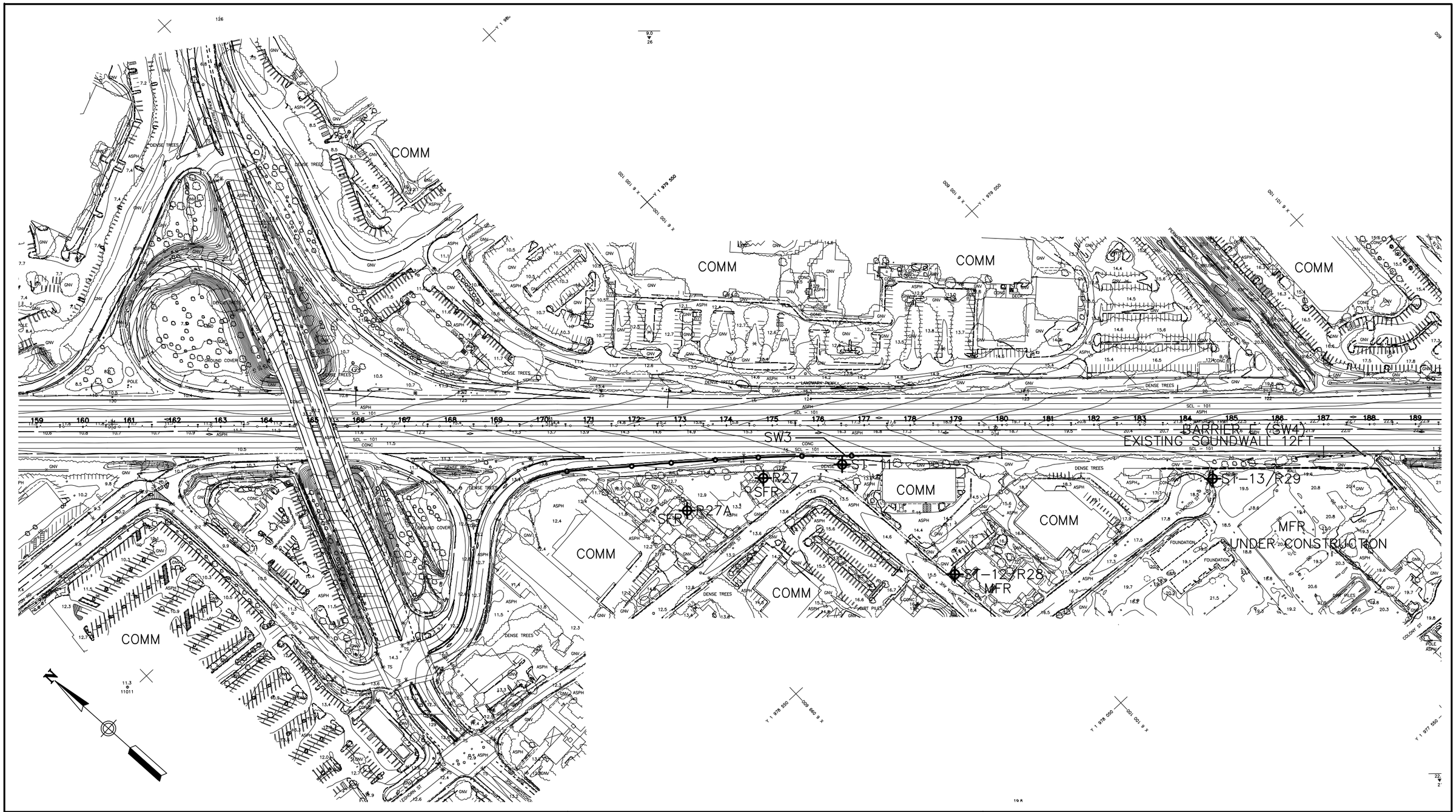
COMM —COMMERCIAL

1:200
FEET

0 FT 200FT 400FT 800FT

U.S. 101 AUXILARY LANES SENSITIVE RECEIVER & NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



LEGEND

- RECIEVER LOCATION
- FEASIBLE SOUNDWALL
- EXISTING SOUNDWALL

SFR —SINGLE FAMILY RESIDENCE

MFR —MULTI—FAMILY RESIDENCE

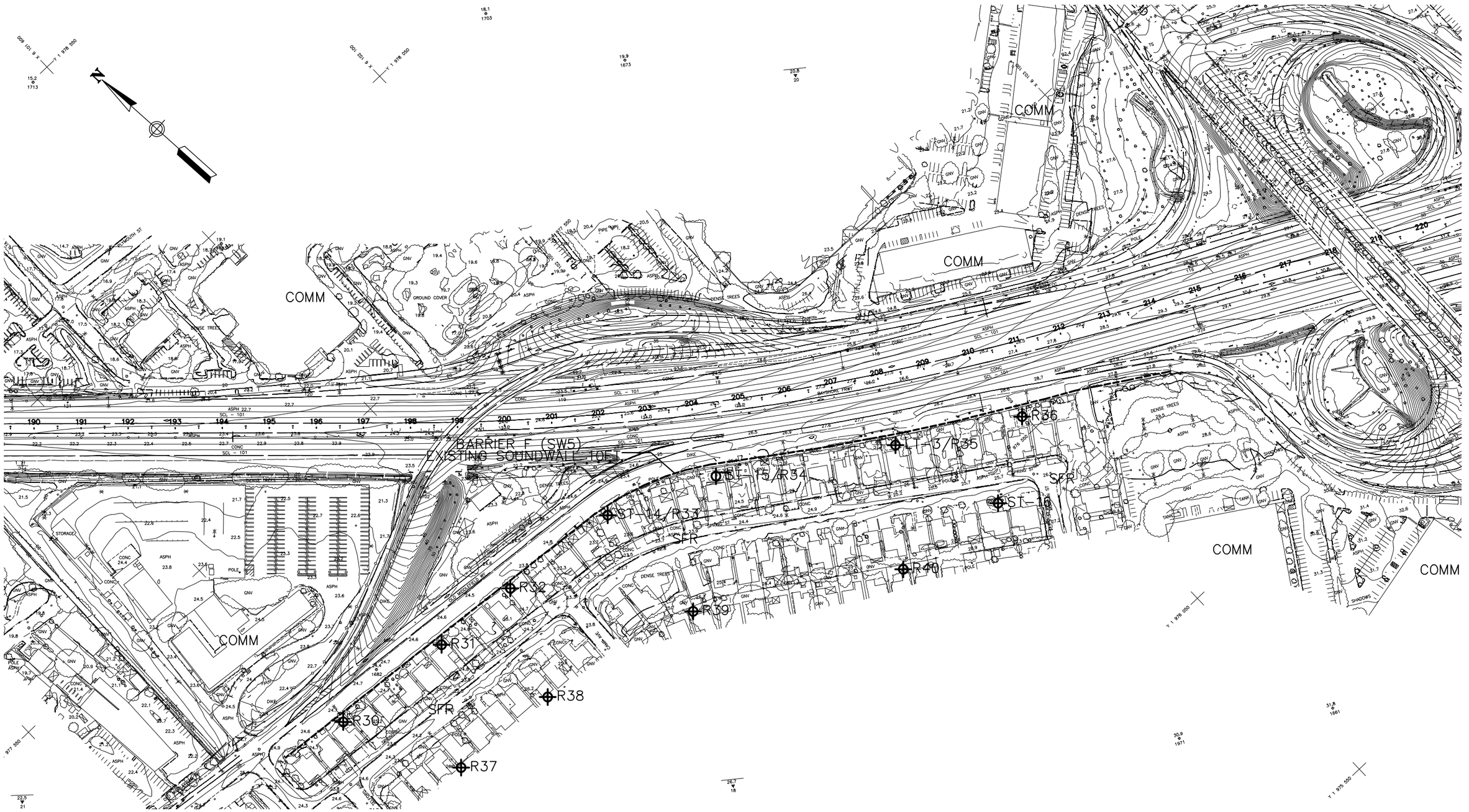
COMM —COMMERCIAL

1:200
FEET

0 FT 200FT 400FT 800FT

U.S. 101 AUXILARY LANES SENSITIVE RECEIVER & NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



LEGEND

- RECIEVER LOCATION
- FEASIBLE SOUNDWALL
- EXISTING SOUNDWALL

SFR —SINGLE FAMILY RESIDENCE
MFR —MULTI-FAMILY RESIDENCE
COMM —COMMERCIAL

1:200
FEET

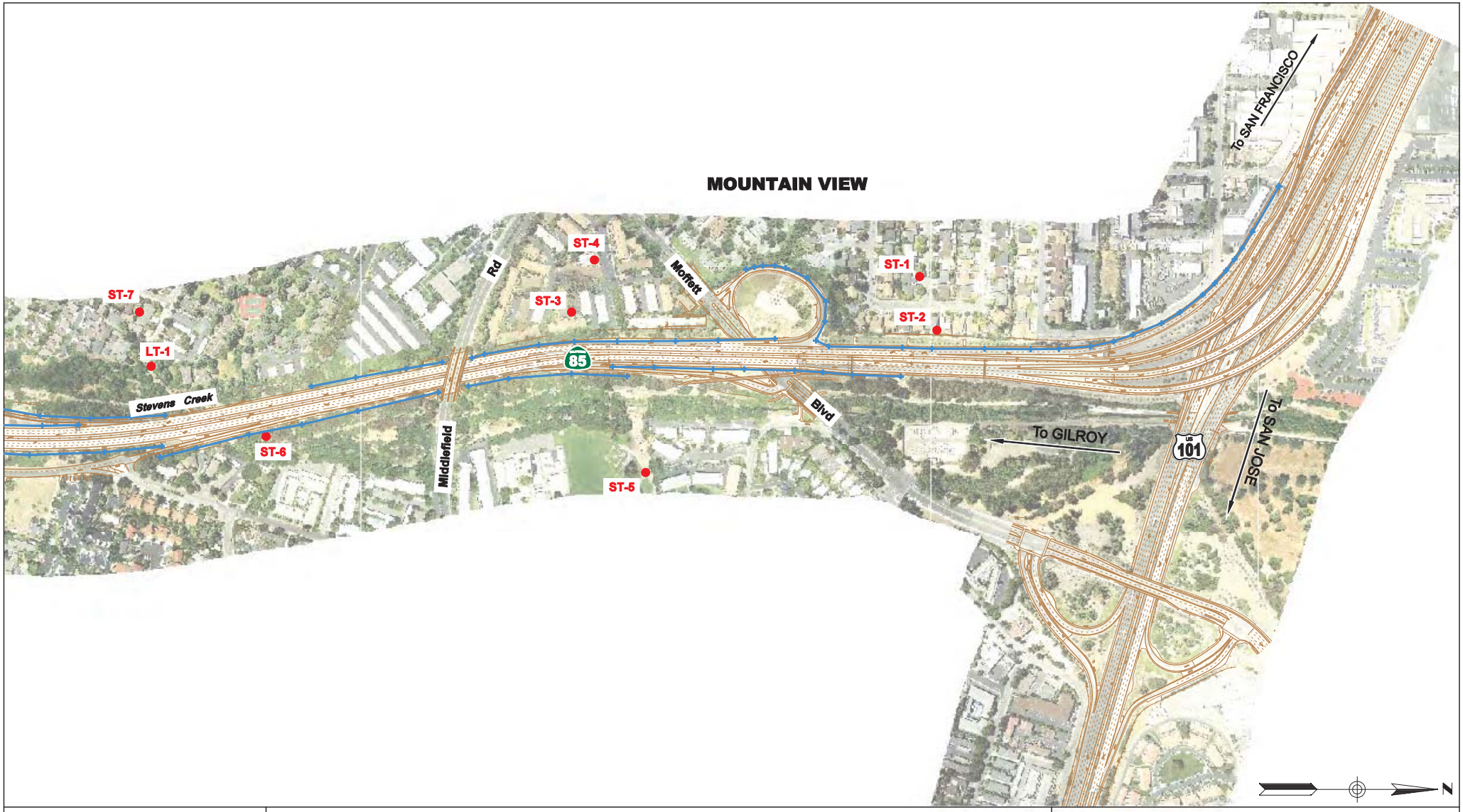
0 FT 200FT 400FT 800FT

U.S. 101 AUXILARY LANES
SENSITIVE RECEIVER & NOISE BARRIER LOCATIONS

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 7 OF 7

Appendix B
SR 85 Receptor Locations and Noise Barriers



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400 FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC. Acoustics • Air Quality

SHEET NO. 1 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

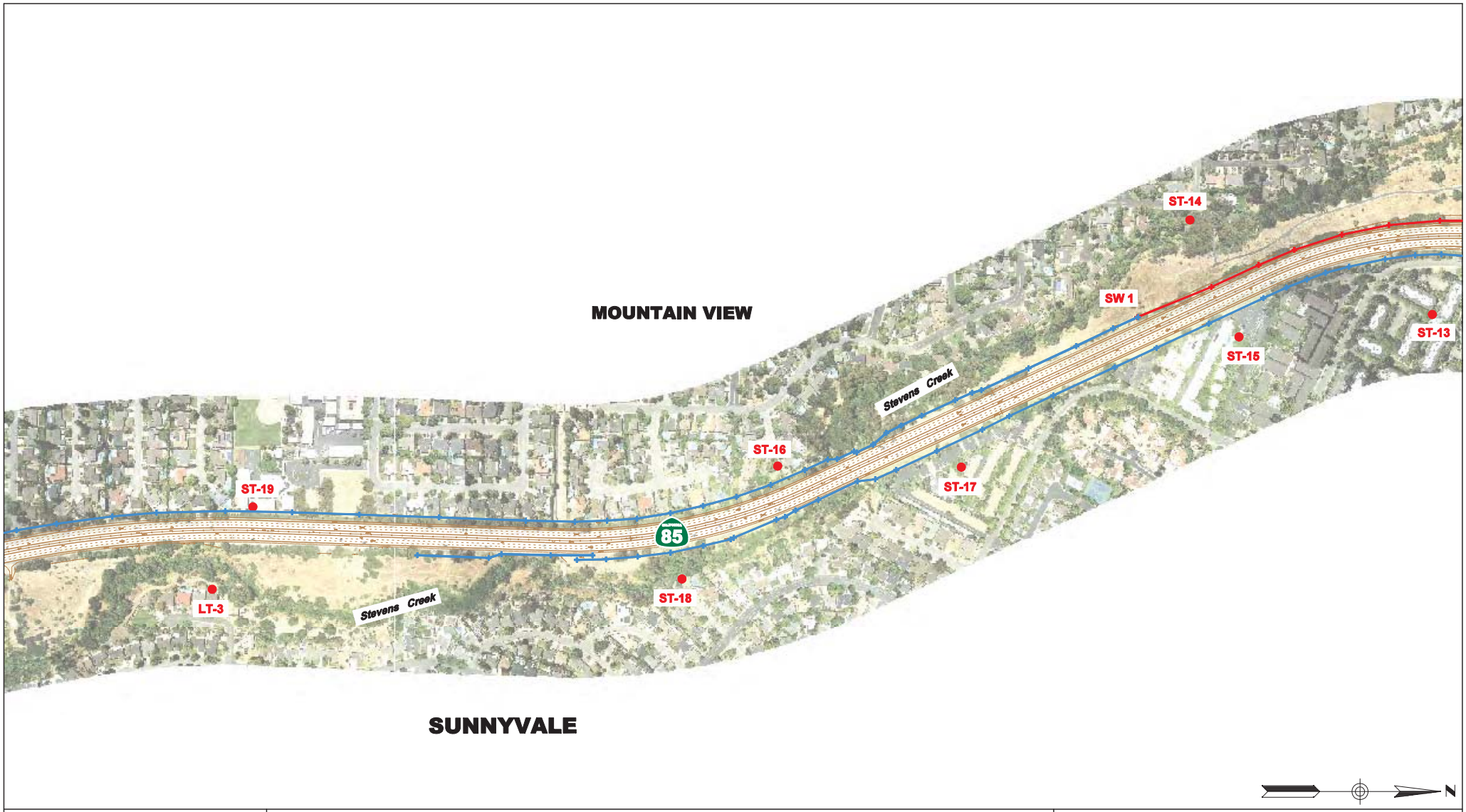
1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

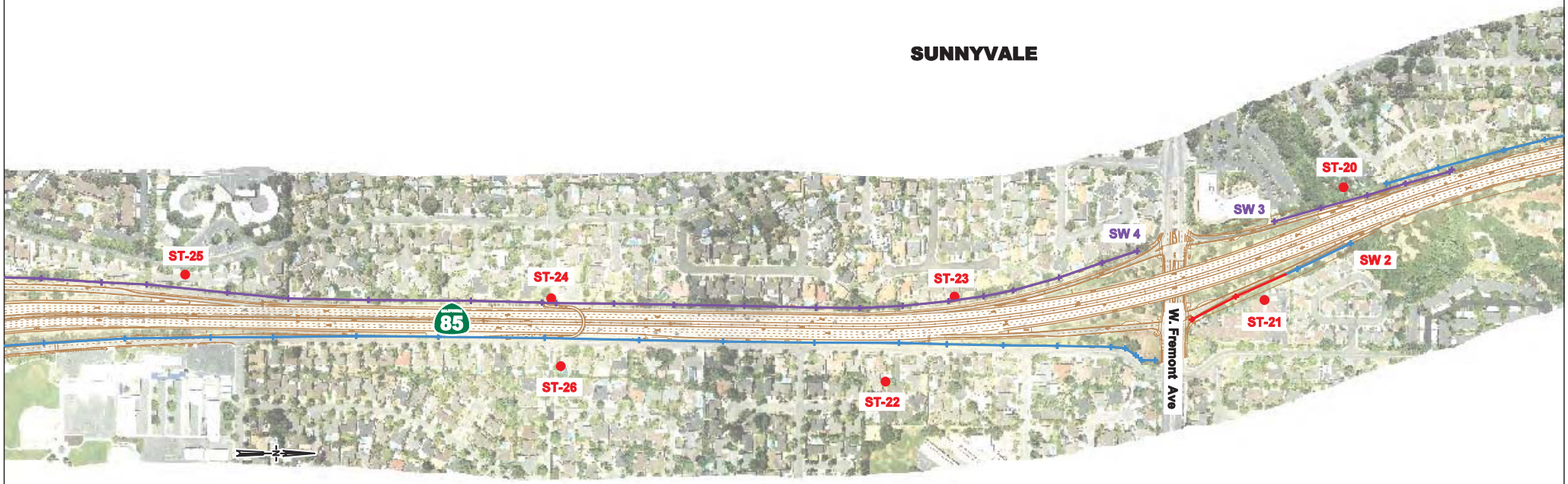
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 3 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

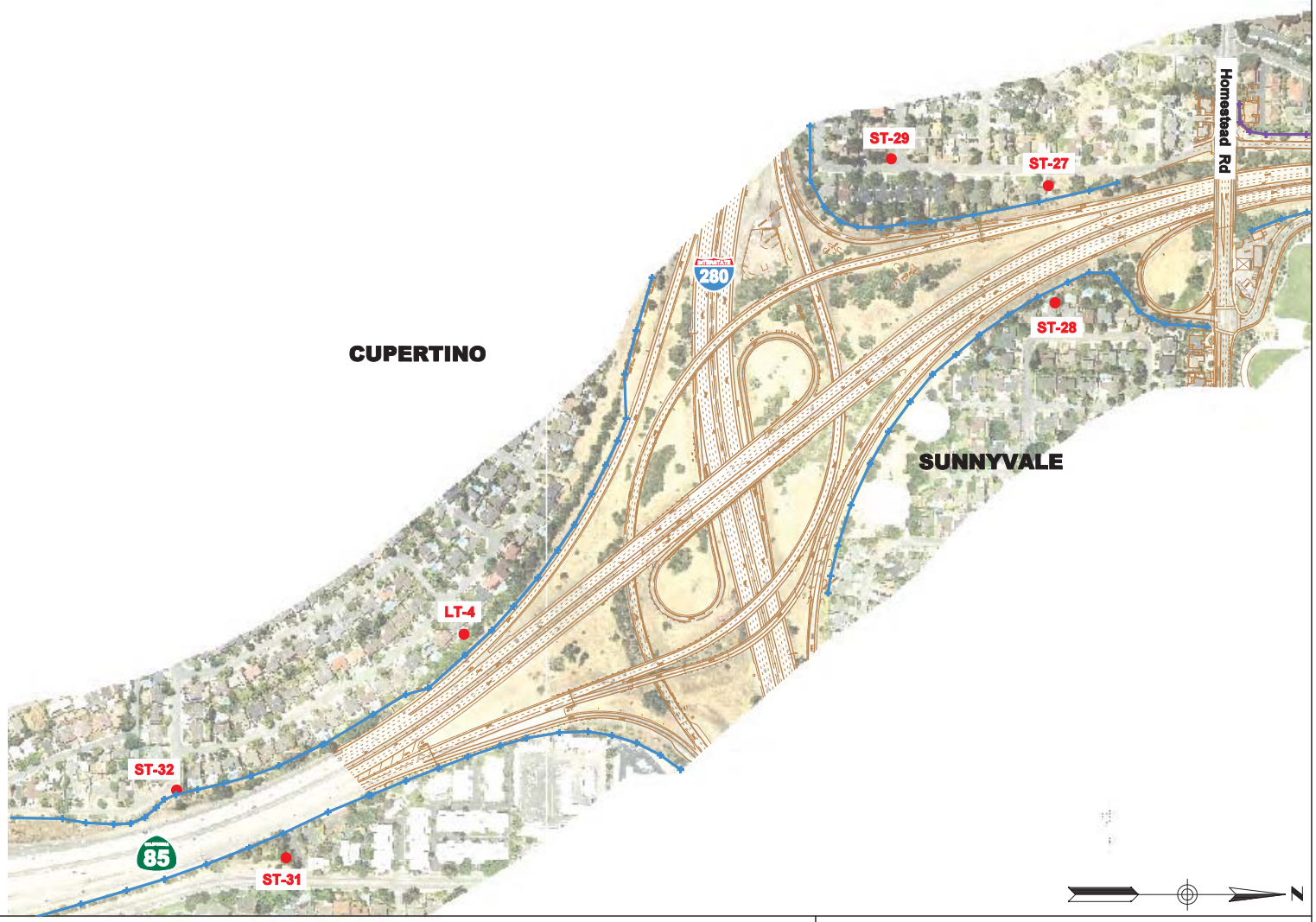
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 4 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

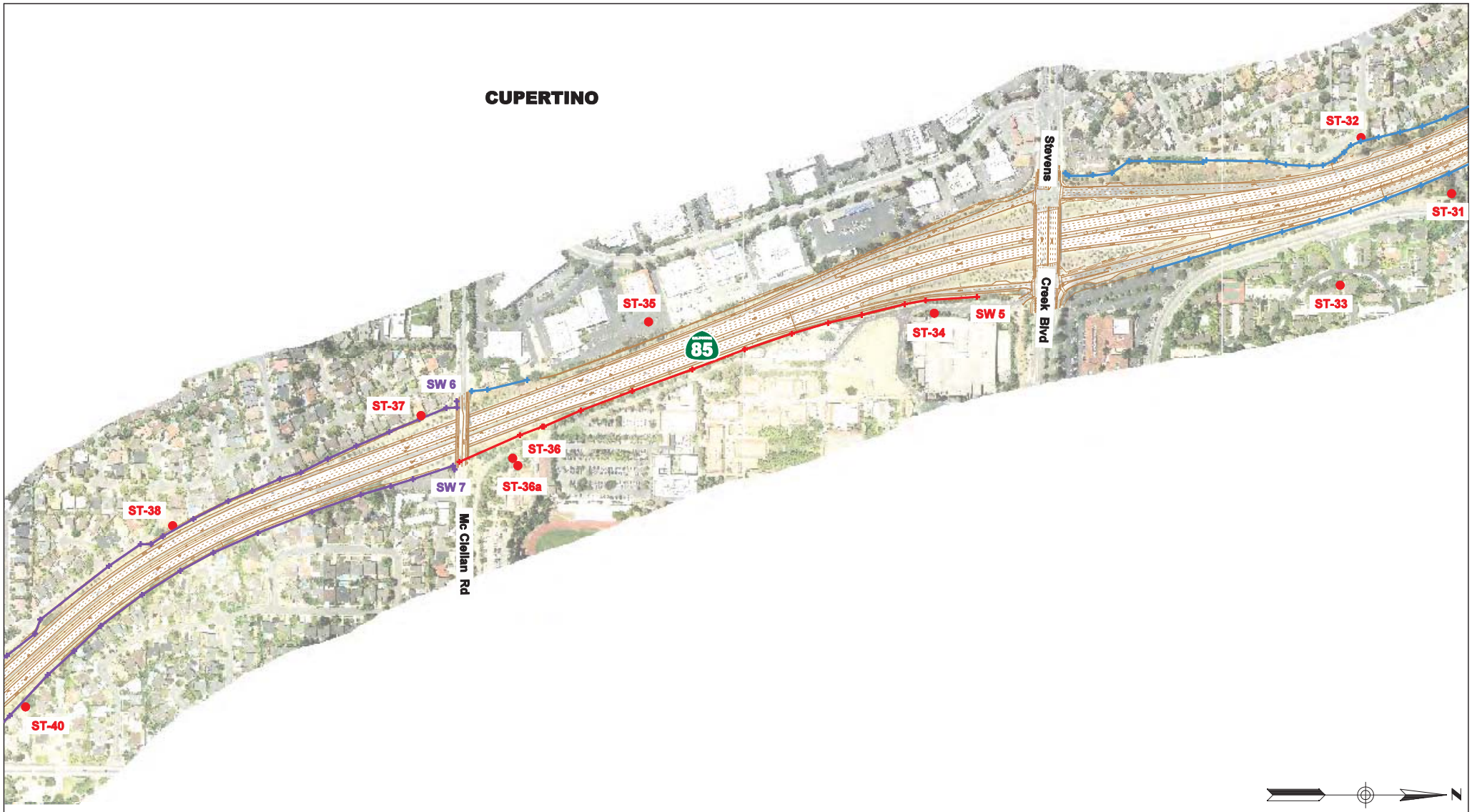
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 5 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

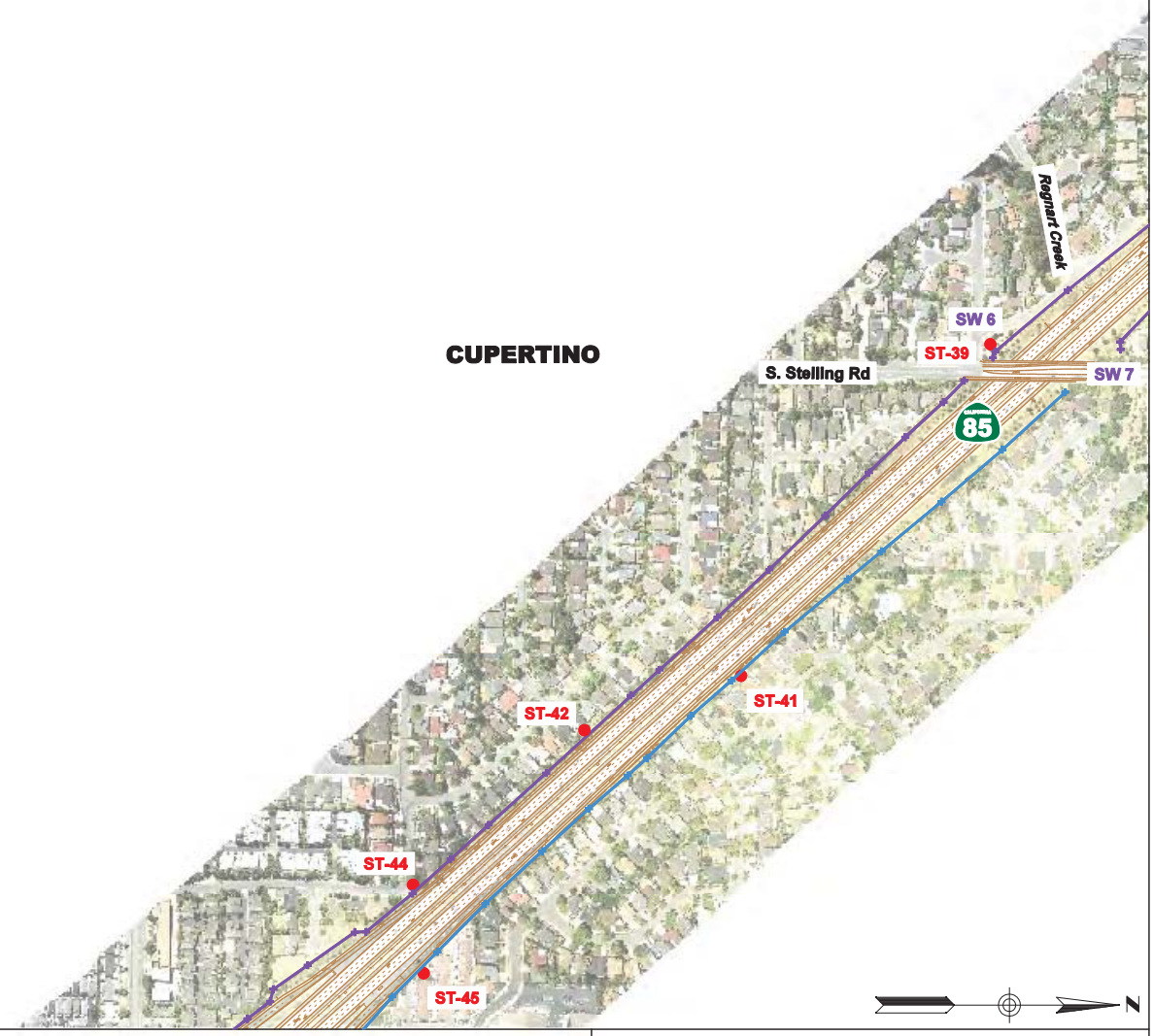
1: 400 FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC. Acoustics • Air Quality



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400 FEET

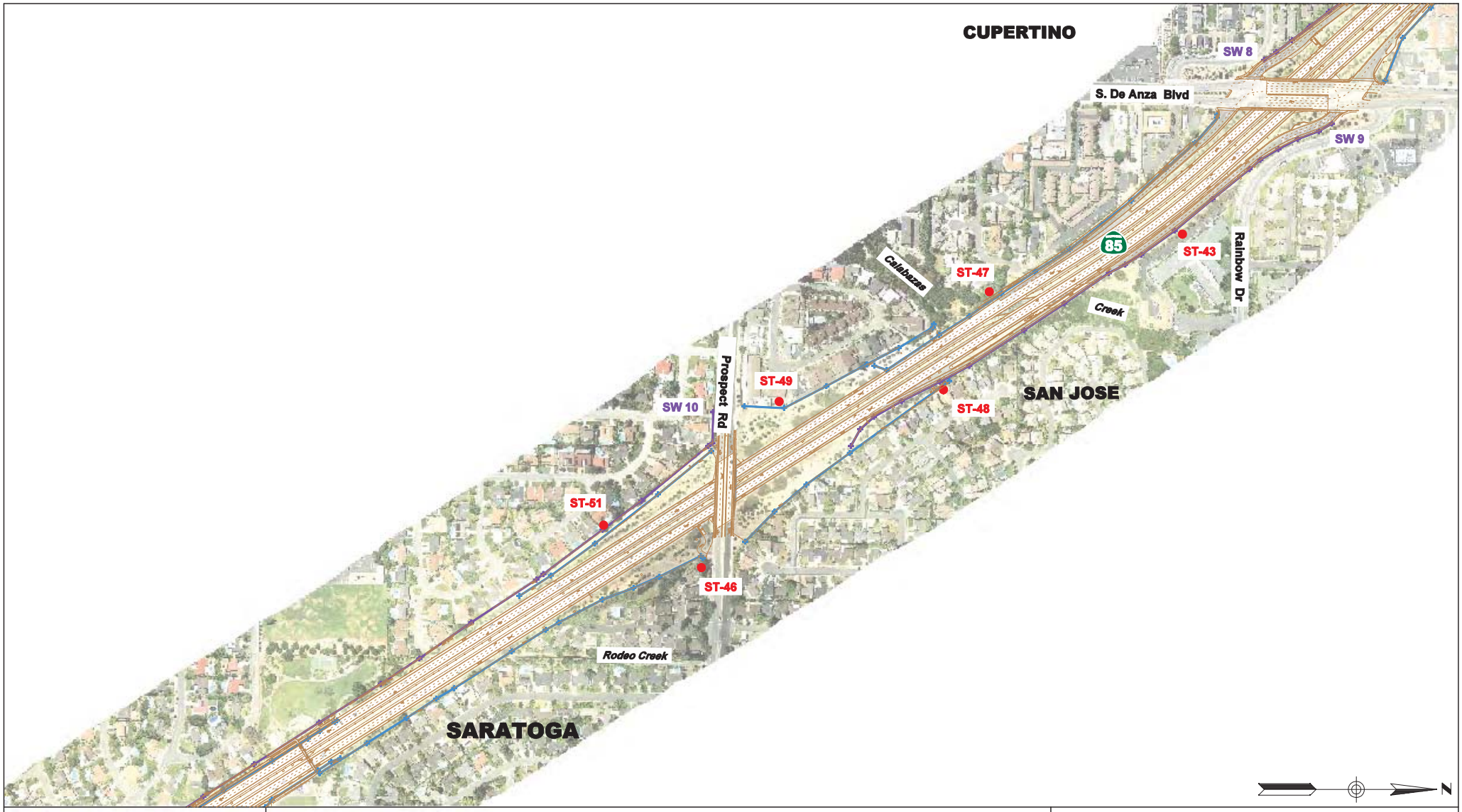
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 7 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

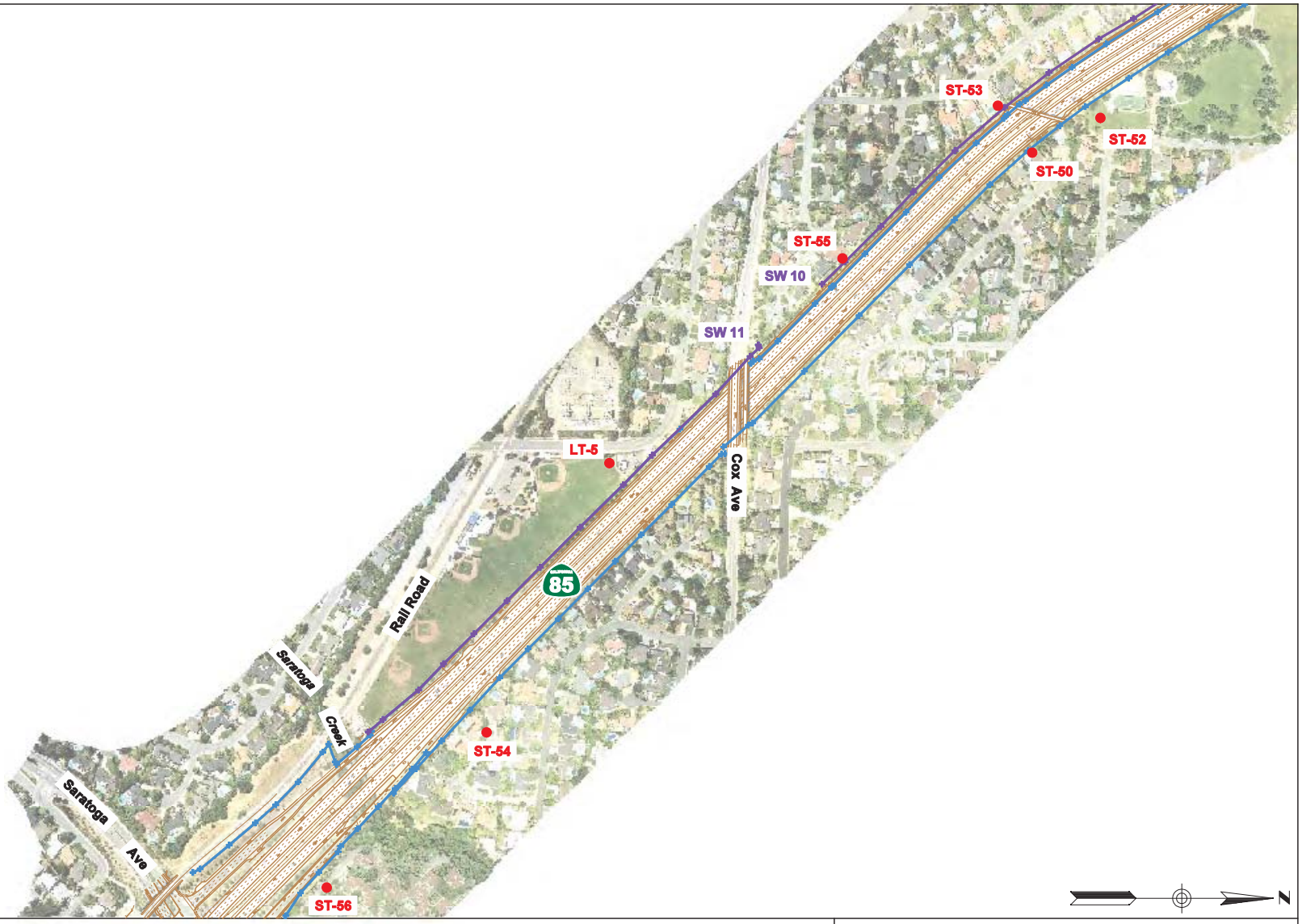
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics · Air Quality

SHEET NO. 8 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

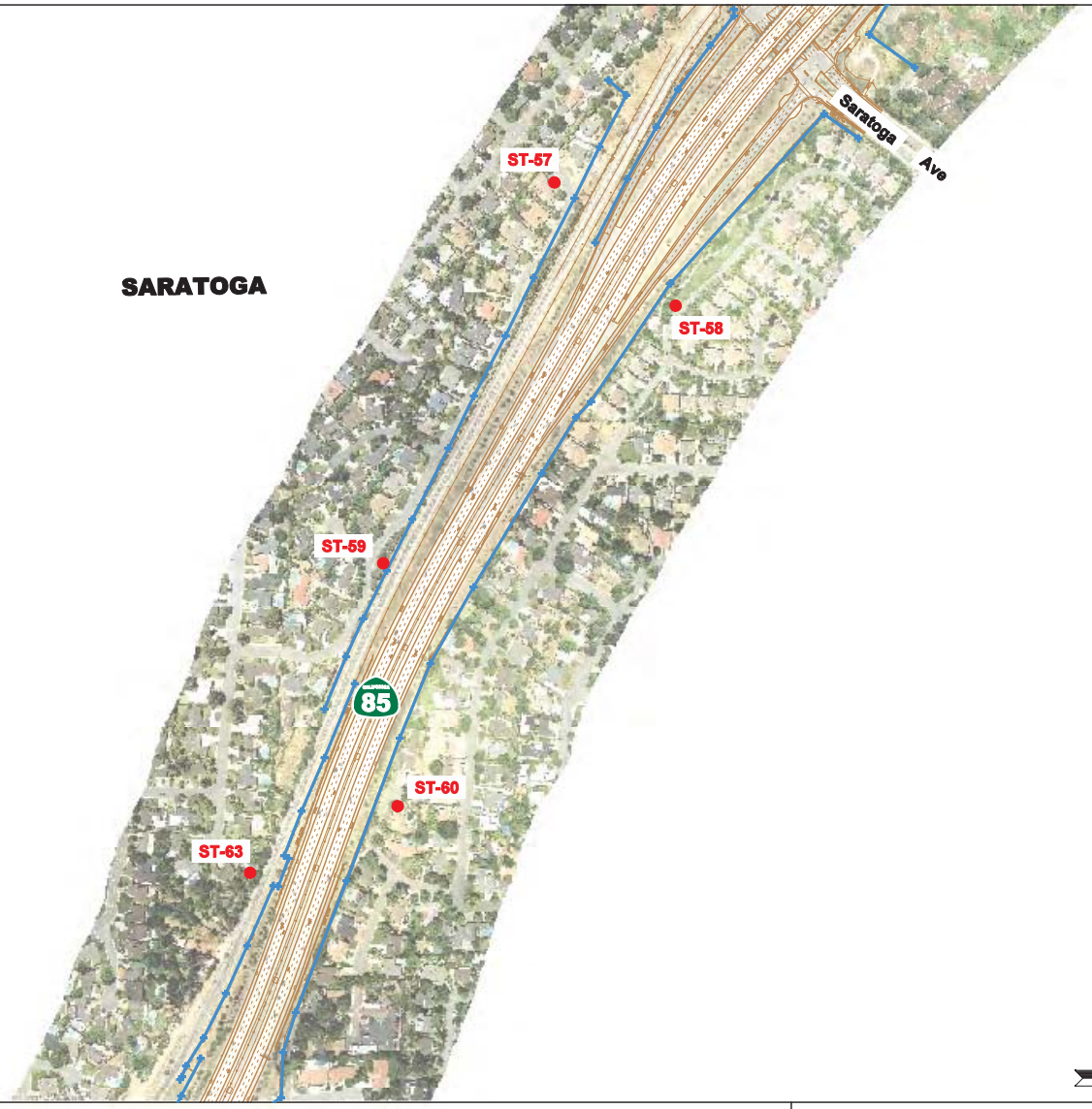
1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400 FEET

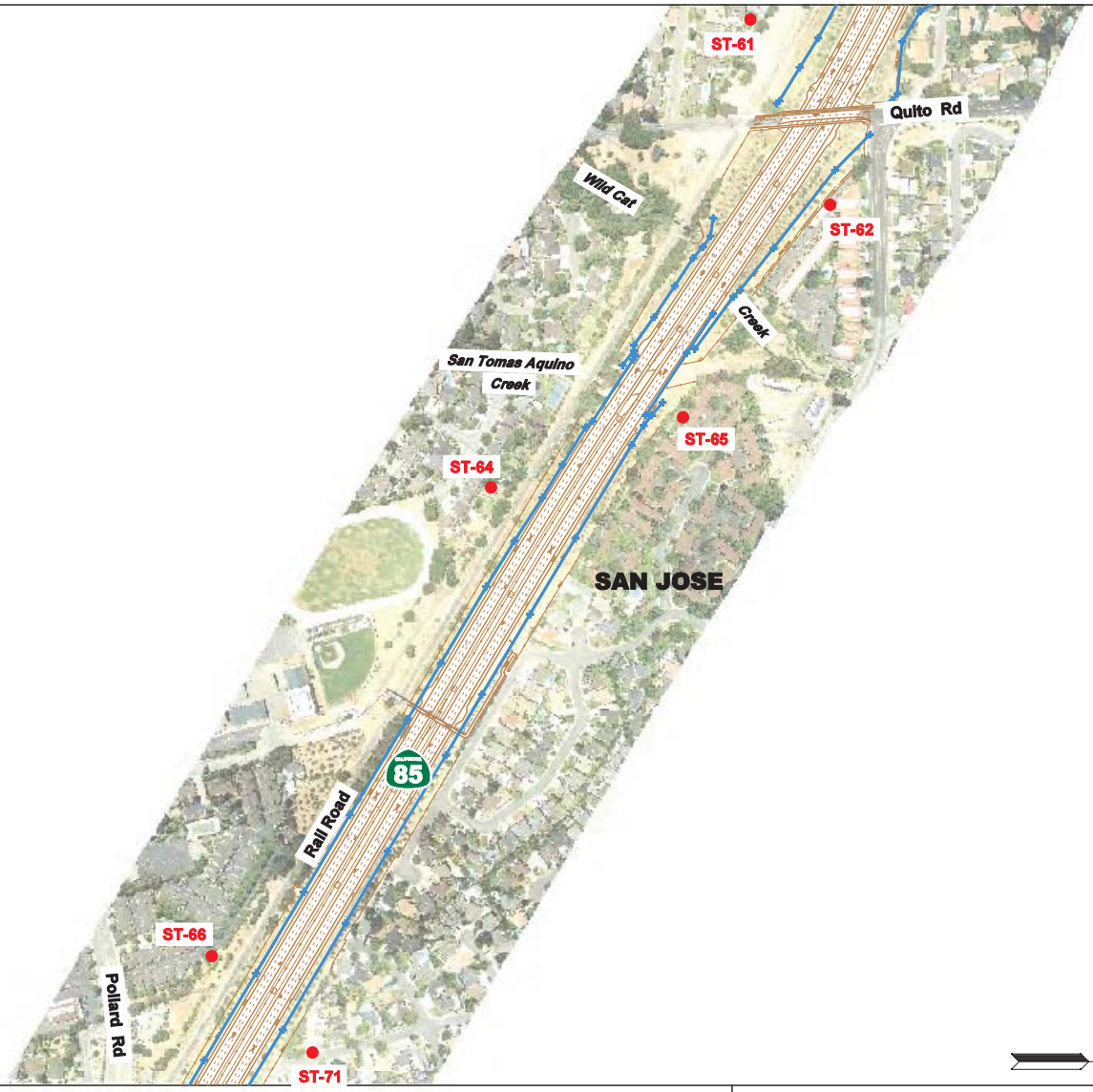
0 FT 400FT 800FT 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC. Acoustics • Air Quality

SHEET NO. 10 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality

SHEET NO. 11 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality

N

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

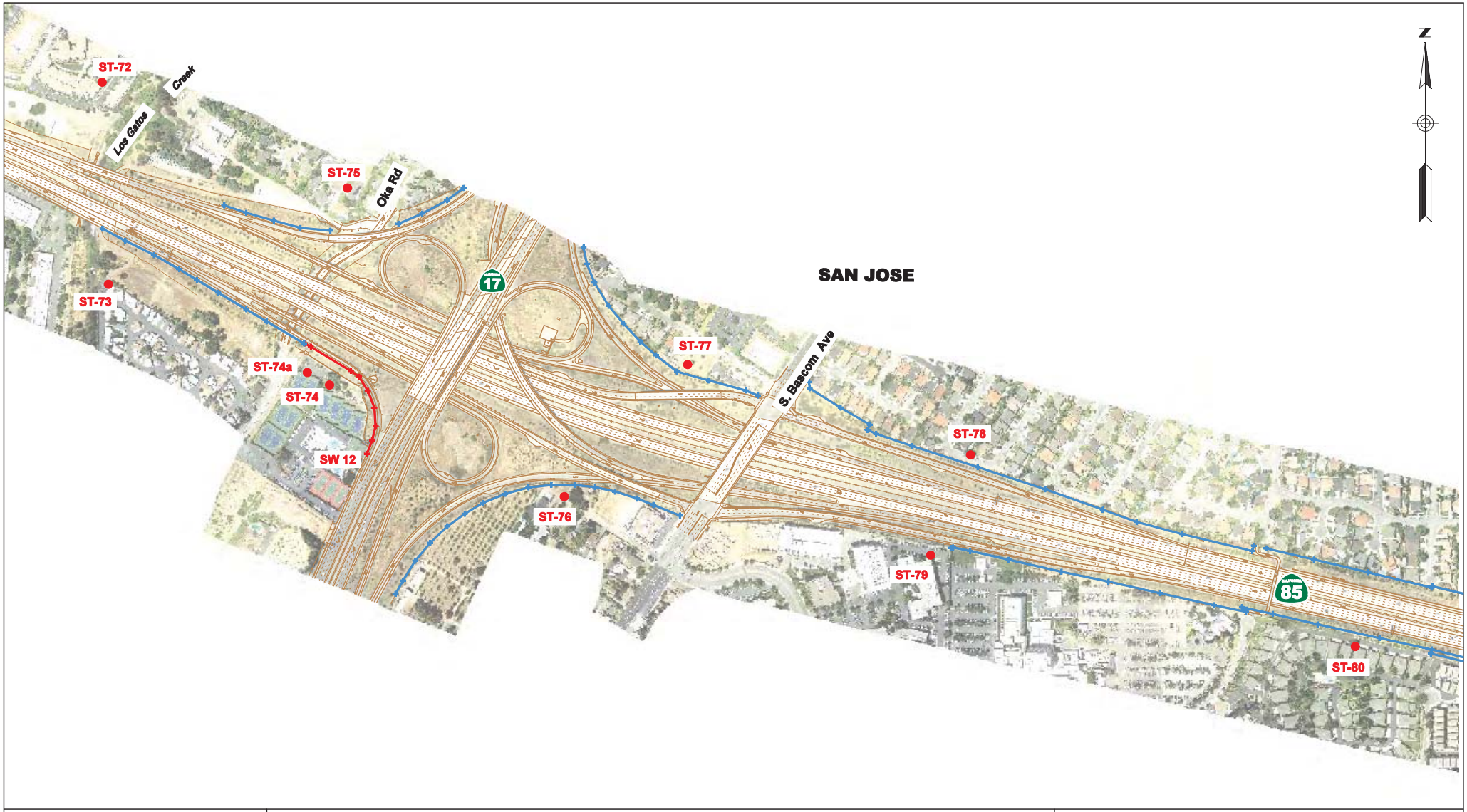
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality

SHEET NO. 13 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

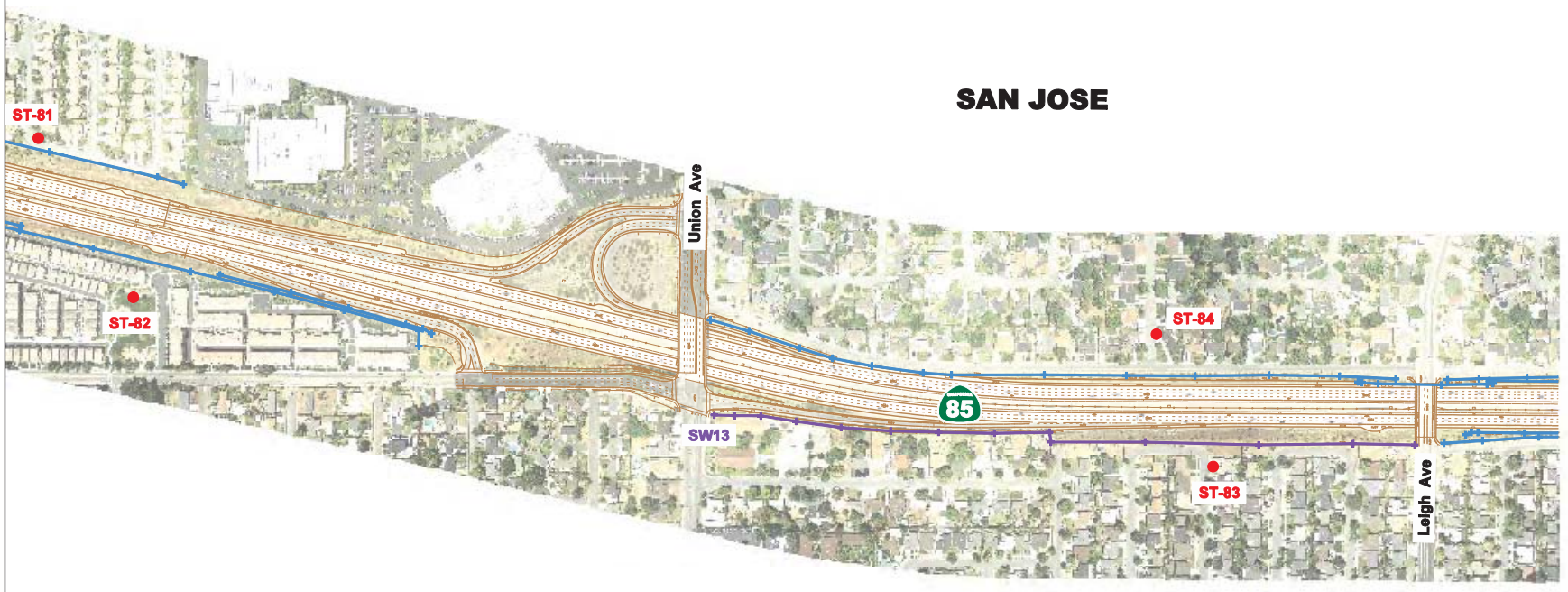
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics · Air Quality

SHEET NO. 14 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

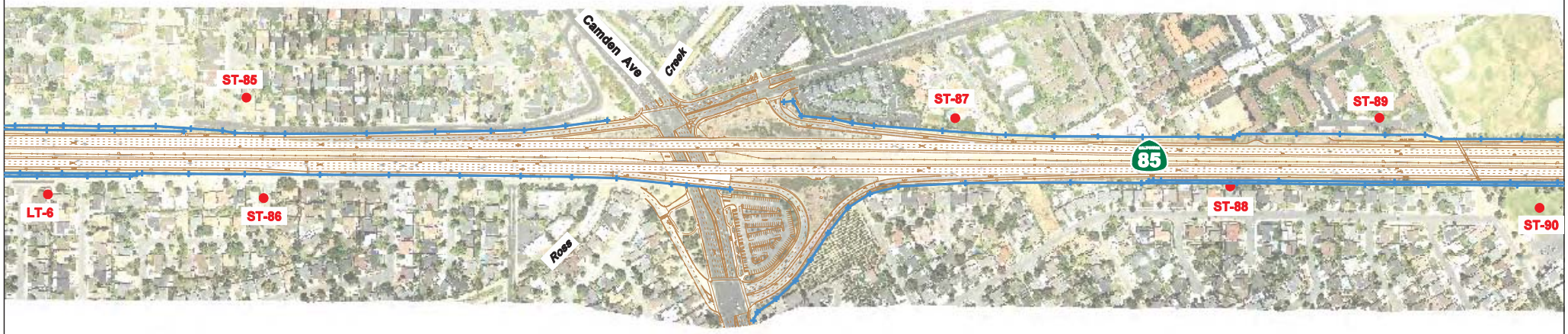
6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

N

SAN JOSE



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 16 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

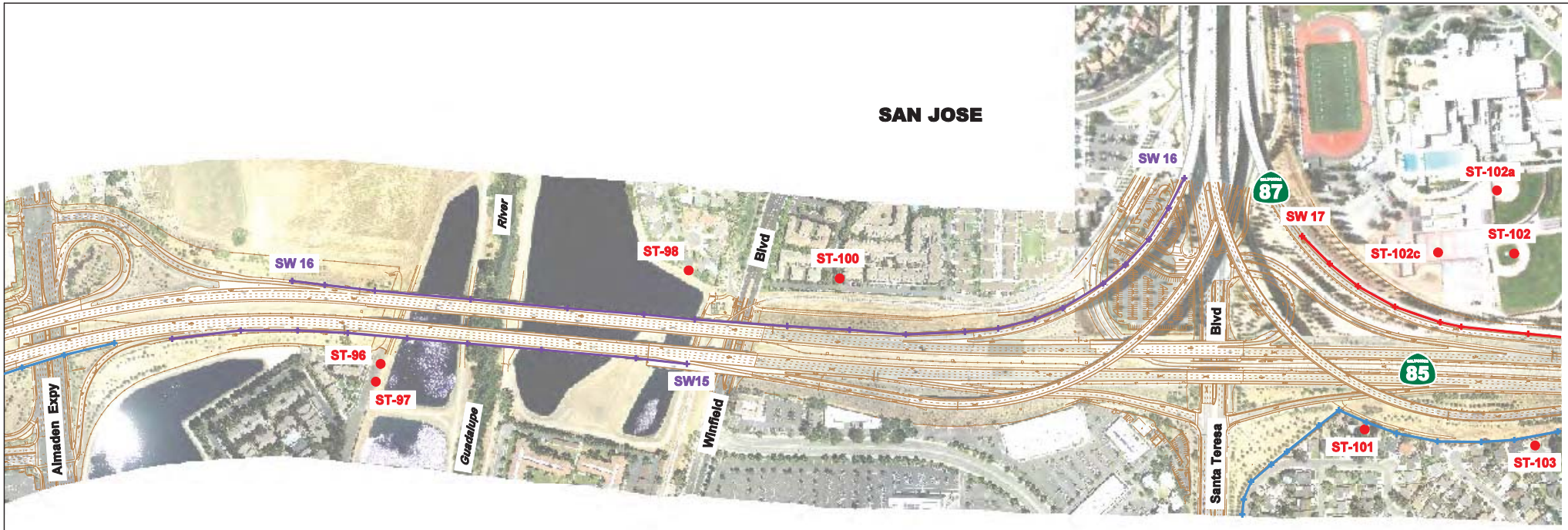
1: 400 FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality



N

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

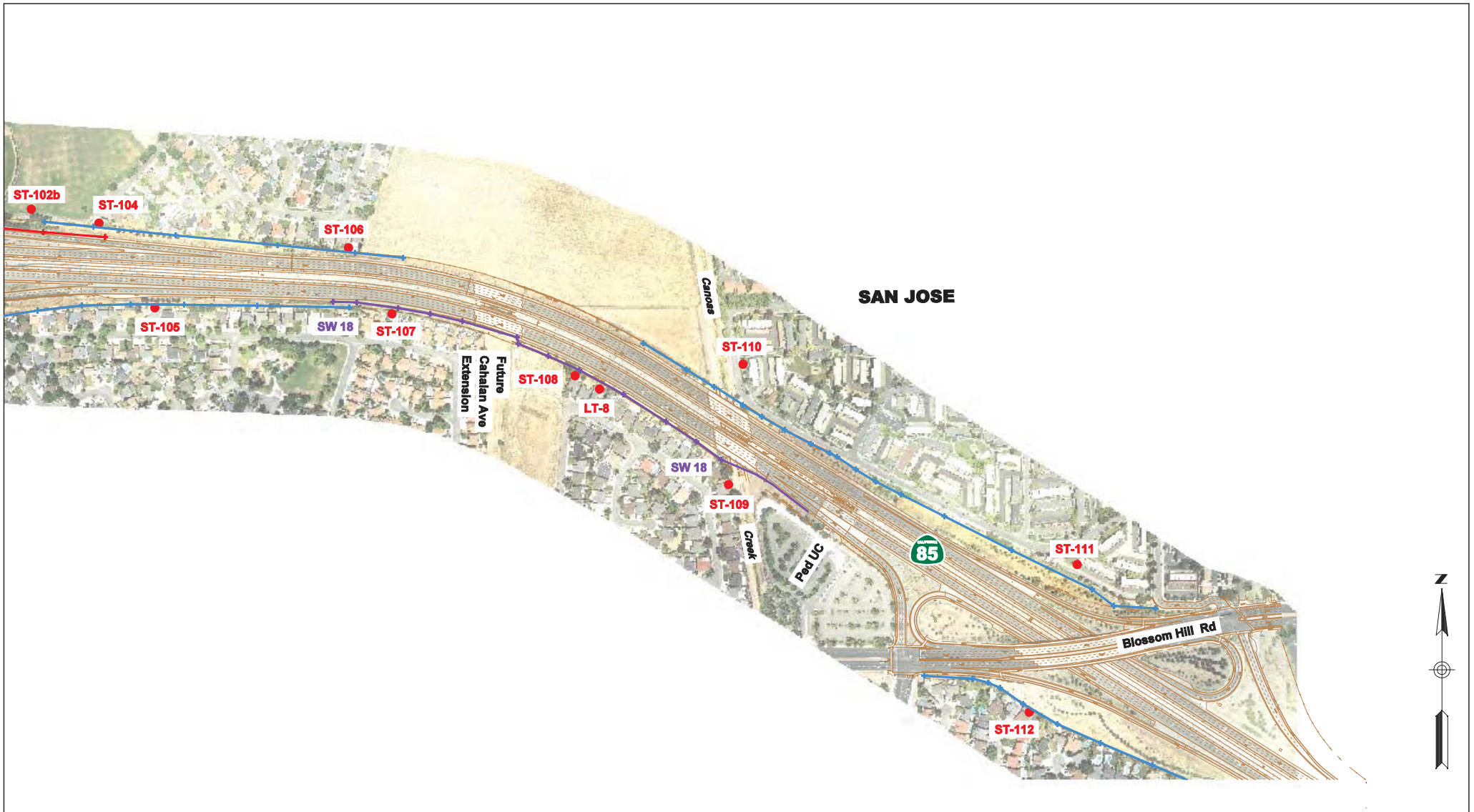
1: 400 FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400 FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 19 OF 26

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

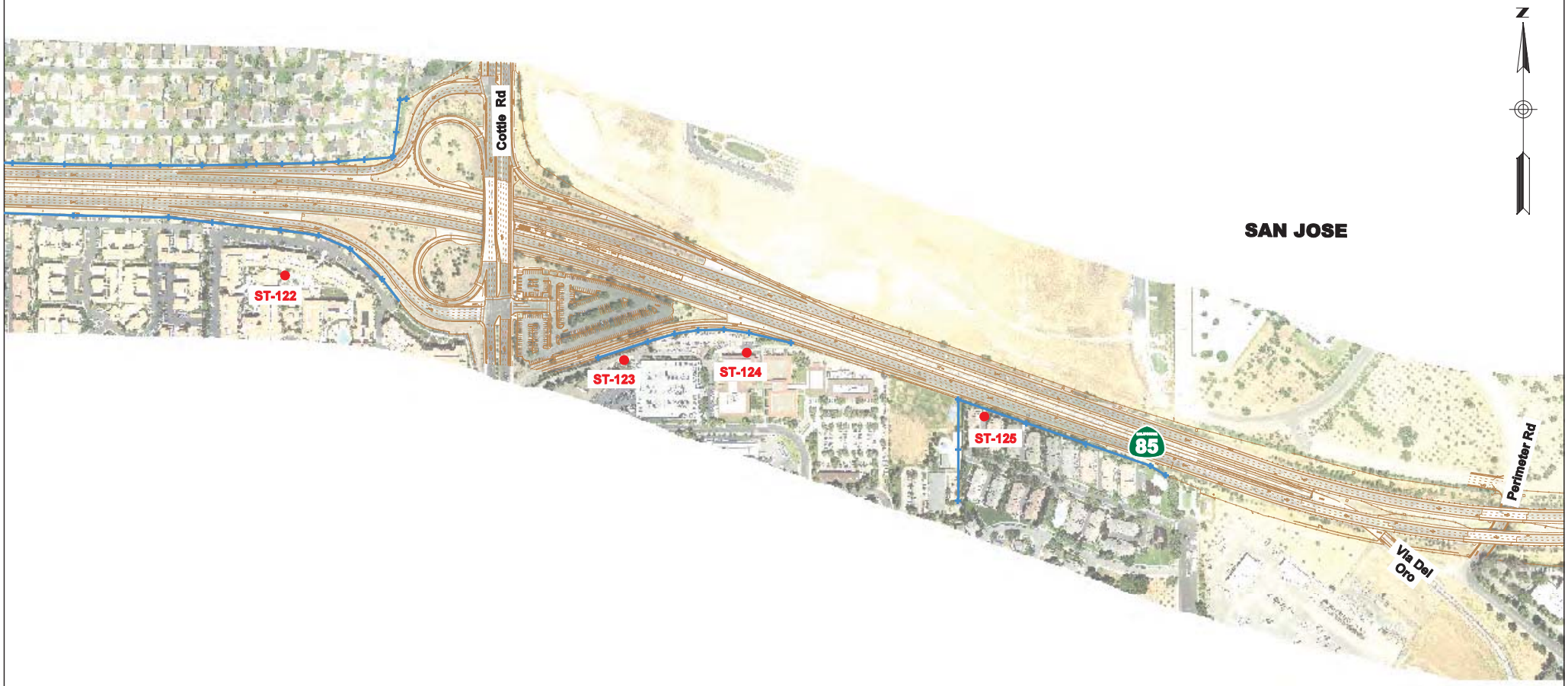
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 20 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400 FEET

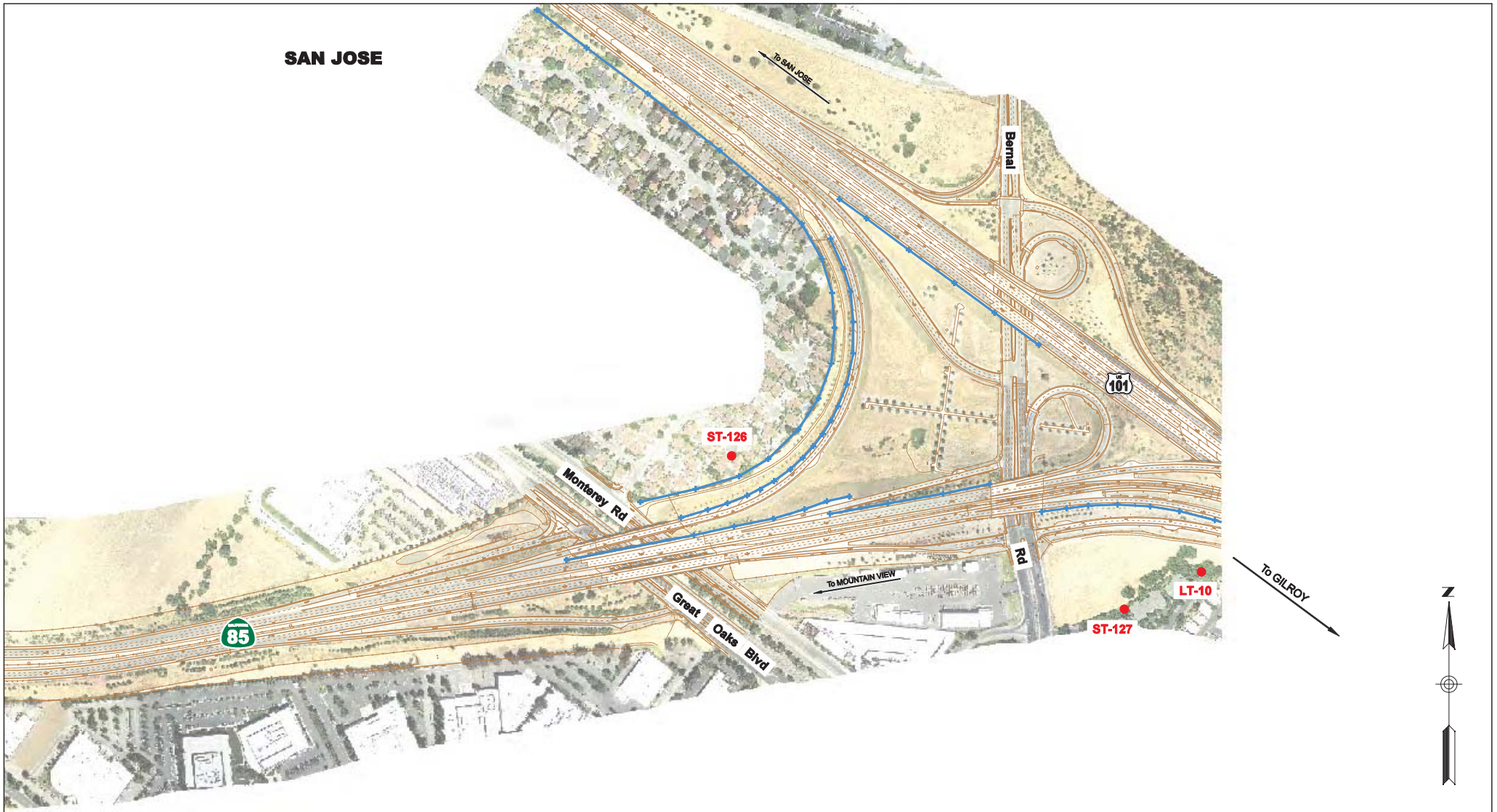
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 21 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

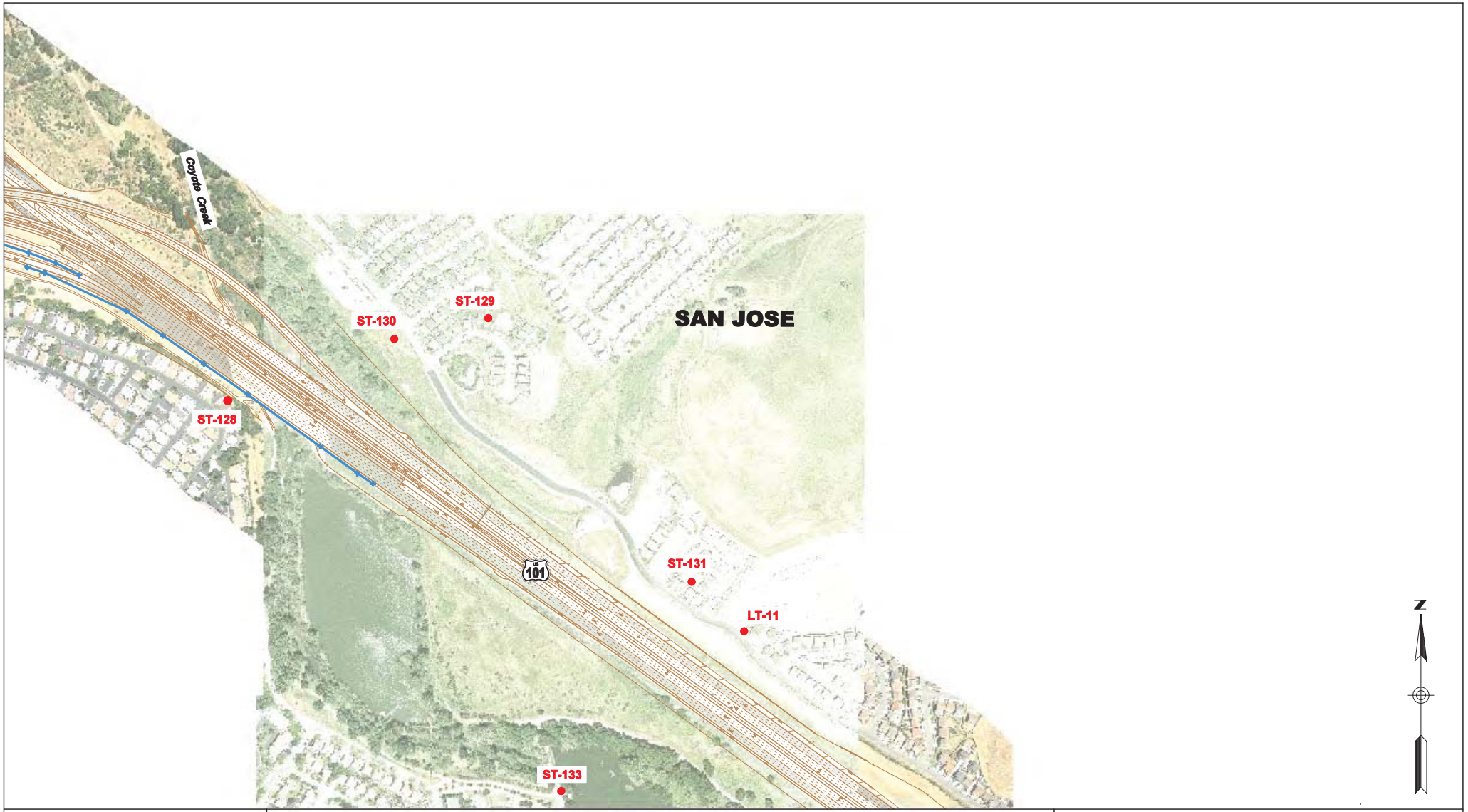
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality

SHEET NO. 22 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

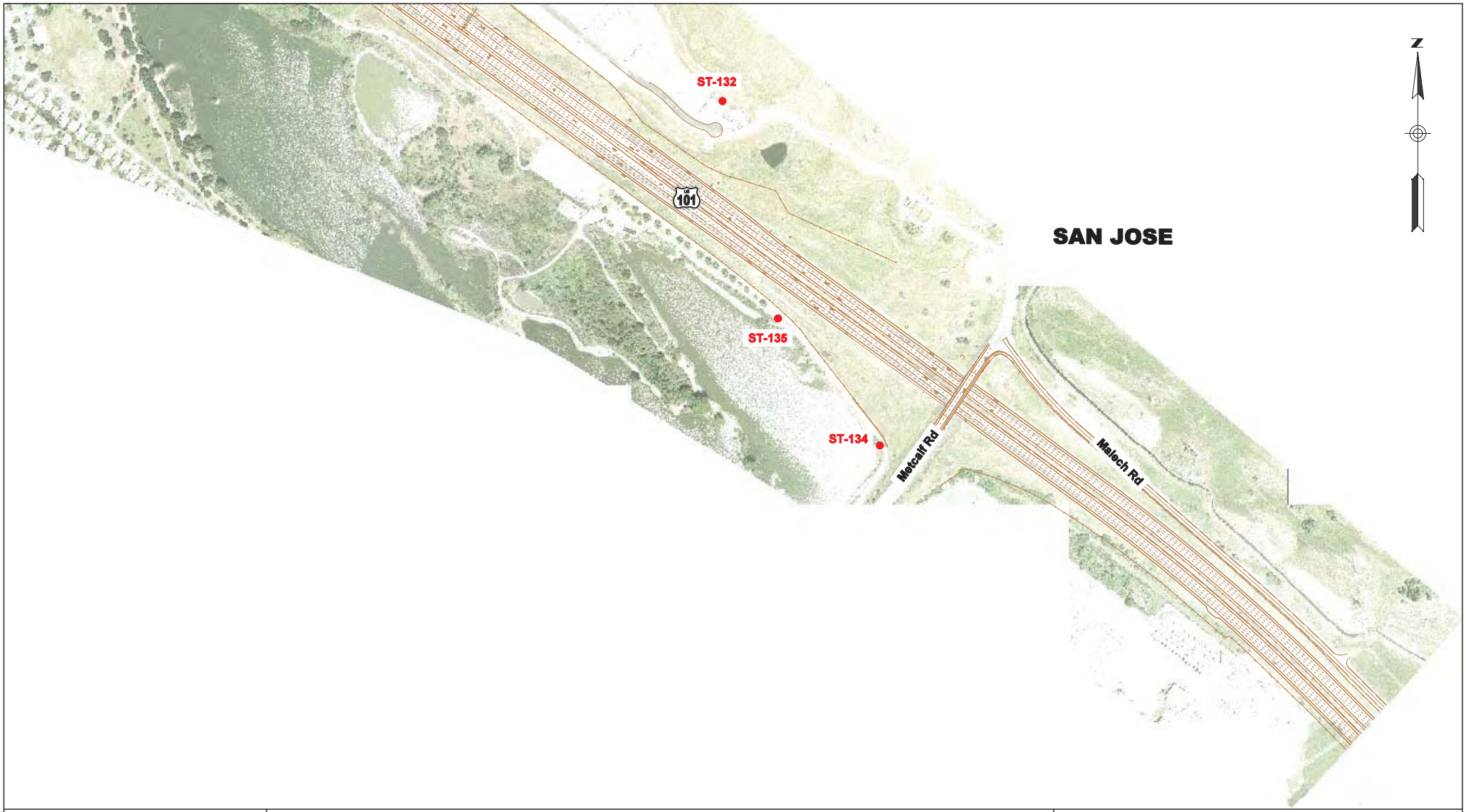
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics - Air Quality

SHEET NO. 23 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics · Air Quality

LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

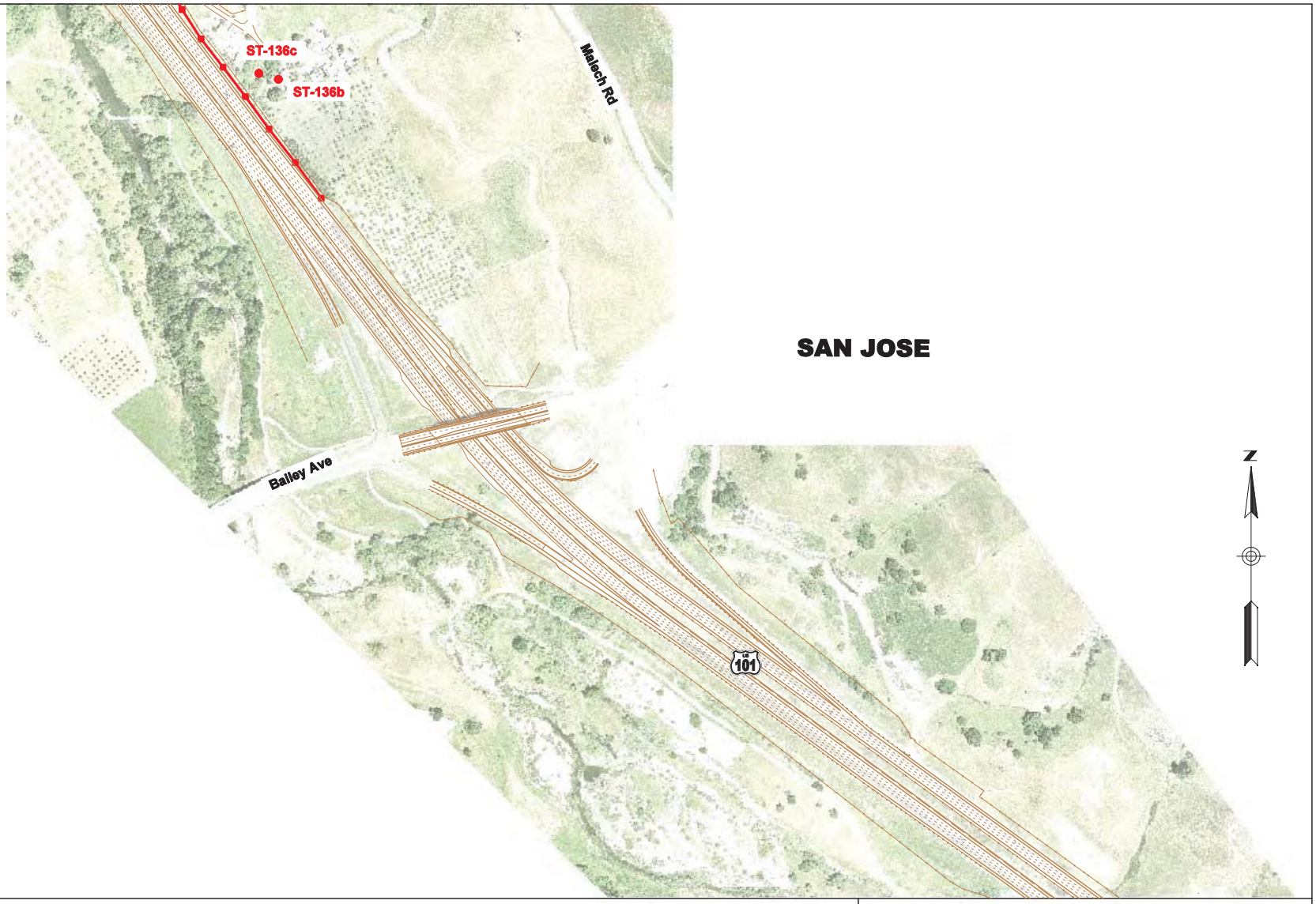
0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 25 OF 26



LEGEND:

- MODEL RECEIVER LOCATION
- EXISTING BARRIER
- EVALUATED NOISE ABATEMENT (NEW BARRIER)
- EVALUATED NOISE ABATEMENT (INCREASED BARRIER HEIGHT)

1: 400
FEET

0 FT | 400FT | 800FT | 1,600FT

6/29/12

MODELED NOISE RECEIVER & BARRIER LOCATION
SR 85 EXPRESS LANES PROJECT

ILLINGWORTH & RODKIN, INC.
Acoustics • Air Quality

SHEET NO. 26 OF 26