APPENDIX G

Noise Assessment

NOISE ASSESSMENT TECHNICAL REPORT
for the
Otay Ranch Village Four Project
City of Chula Vista, California

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SUMMARY

This report assesses potential noise and vibration impacts associated with the implementation of the Otay Ranch Village Four herein referred to as the project. The project is located within the southern portion of the City of Chula Vista, California. Chula Vista is located in San Diego County, approximately two miles south of the City of San Diego, and approximately two miles north of the US-Mexico International Border.

Otay Valley Quarry, LLC is proposing to develop an approximately 165.93 acre site, identified as Village Four in the Otay Ranch General Development Plan, with 73 single-family low- to medium-density residential dwelling units, approximately 160 multi-family medium- to high-density residential dwelling units, and approximately 117 multi-family high-density residential dwelling units on approximately 34.73 acres of the project site. Approximately 117.22 acres of the project site would be designated as open space. Approximately 19.73 of those acres would be for fuel modification areas, perimeter slopes, and passive recreation, and approximately 97.49 acres would be dedicated to the MSCP Preserve.

The noise assessment impact analysis evaluates the potential for significant adverse impacts due to construction and long-term operation of the proposed project. Construction of the proposed project would result in temporary generation of elevated noise levels with the potential to cause nuisance to noise-sensitive land uses in the vicinity of construction activities, including rock blasting and crushing activities. Mitigation measures are specified to address this issue.

Buildout of the proposed project would result in significant traffic noise increases along Main Street within the project site. Mitigation measures N-1 through N-3 would reduce direct and cumulative impacts to a less than significant level. Short-term increases in traffic noise off-site would be less than significant. Long-term traffic noise impacts would be less than significant.

Future traffic volumes on major roadways transecting the project may result in noise levels that exceed the 65 dB CNEL exterior noise criterion for residences, which are considered potentially significant impacts. Sound walls have been prescribed to control future traffic noise and achieve residual noise levels that are less than significant. To achieve compliance with the residential indoor criterion, special construction materials or techniques may be required where the residual exterior noise exposure equals or exceeds 65 dB CNEL. When site plans are prepared for residential neighborhoods, a verification noise analysis will be performed to identify the residual ambient noise levels present in residential yard areas, and to prescribe any necessary construction materials or techniques for compliance with the indoor residential noise criterion.

Future residents of Village Four would have the potential to be exposed to nuisance noise from Brown Field aircraft operations. However, airport noise exposure levels would remain below significant levels; therefore impacts would be less than significant.

The project would not have a significant contribution toward cumulatively significant noise increases on the surrounding roadway network resulting from Year 2030 build-out of the General Plan.

1 INTRODUCTION

1.1 Purpose

This technical noise report evaluates noise effects of the project including potential impacts from current and future ambient noise levels upon proposed land uses as well as noise generation potential from proposed land uses and activities within Otay Ranch Village Four (proposed project). Noise generation sources from future implementation of the project include traffic and mechanical equipment.

1.2 Project Location and Description

The proposed project is located within Otay Ranch in the City of Chula Vista, California (Figures 1 and 2).

Otay Valley Quarry, LLC is proposing to develop an approximately 165.93 acre site, identified as Village Four in the Otay Ranch General Development Plan, with 73 single-family low- to medium-density residential dwelling units, approximately 160 multi-family medium- to high-density residential dwelling units, and approximately 117 multi-family high-density residential dwelling units on approximately 34.73 acres of the project site. Approximately 117.22 acres of the project site would be designated as open space. Approximately 19.73 of those acres would be for fuel modification areas, perimeter slopes, and passive recreation, and approximately 97.49 acres would be dedicated to the MSCP Preserve.

The primary entry point into Village Four is from La Media Road. The project proposes an approximate 2-mile eastern extension of Main Street which would provide additional access to the project site. In addition to the extension of Main Street, 4 internal village streets are proposed.

Grading of the project site would commence in January 2018. Construction of infrastructure would occur over 1 month and would begin August 2018 with building construction beginning in November 2018. The analysis contained herein is based on the following assumptions (duration of phases is approximate):

- Grading – 7 months (January 2018 – July 2018)
- Infrastructure – 1 month (August 2018)
- Paving – 3 months (October 2018 – December 2018)
- Building construction – 12 months (November 2018 – October 2019)
- Application of architectural coatings – 4 months (August 2019 – November 2019)

Grading of the project site would require the export of about 260,534 cubic yards of soil and is expected to occur over 7 months. Building construction would take approximately 12 months to complete. Paving would take approximately 3 months while architectural coatings would take approximately 4 months to complete. Construction of the proposed project is estimated to take approximately 22 months.

1.3 Terminology Used to Describe Sound

The following descriptions are provided for direct reference in reviewing the information in this section. Please refer to Appendix A for detailed definitions of technical terms used in the description and evaluation of noise.

Sound is defined as any pressure variation detected by the human ear. The preferred unit for measuring sound is the decibel (dB). The dB expresses the logarithmic ratio of the amount of energy radiating from a source in the form of an acoustic wave. Zero dB corresponds approximately to the threshold of healthy human hearing while 120–140 dB corresponds to an average person's threshold of pain.

The human ear is not equally responsive to all frequencies of the audible sound spectrum. An electronic filter is normally used when taking noise measurements that de-emphasizes certain frequencies in a manner that mimics the human ear's response to sound; this method is referred to as A-weighting. Sound levels expressed under the A-weighted system are sometimes designated dB(A). All sound levels discussed in this report are A-weighted.

The equivalent continuous sound level (L_{eq}) is a single noise level which, if held constant during the specified time period, would represent the same total energy as a fluctuating noise. L_{eq} values are commonly expressed for periods of one hour, but longer or shorter time periods may be specified.

The noise descriptor Community Noise Equivalent Level (CNEL) is typically used when describing community noise. CNEL averages the varying sound levels occurring over a 24-hour period and gives a 10-decibel penalty to noises occurring between the hours of 10:00 p.m.–7:00 a.m. and a 5-dB penalty for noise between the hours of 7:00–10:00 p.m. to take into account noise sensitivity during nighttime and evening hours, respectively.

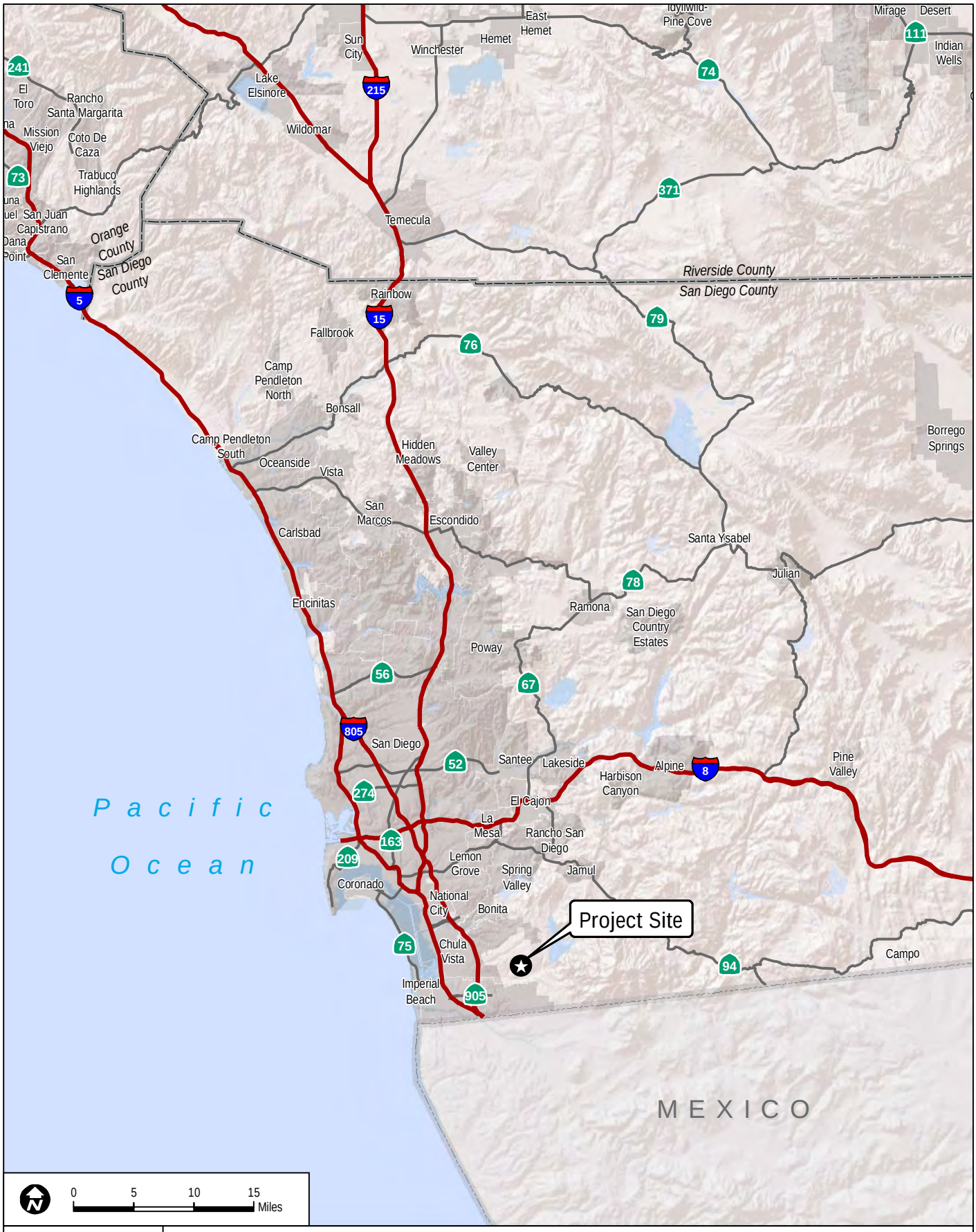

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FIGURE 1

Regional Map

Noise Assessment Technical Report for Otay Ranch Village Four

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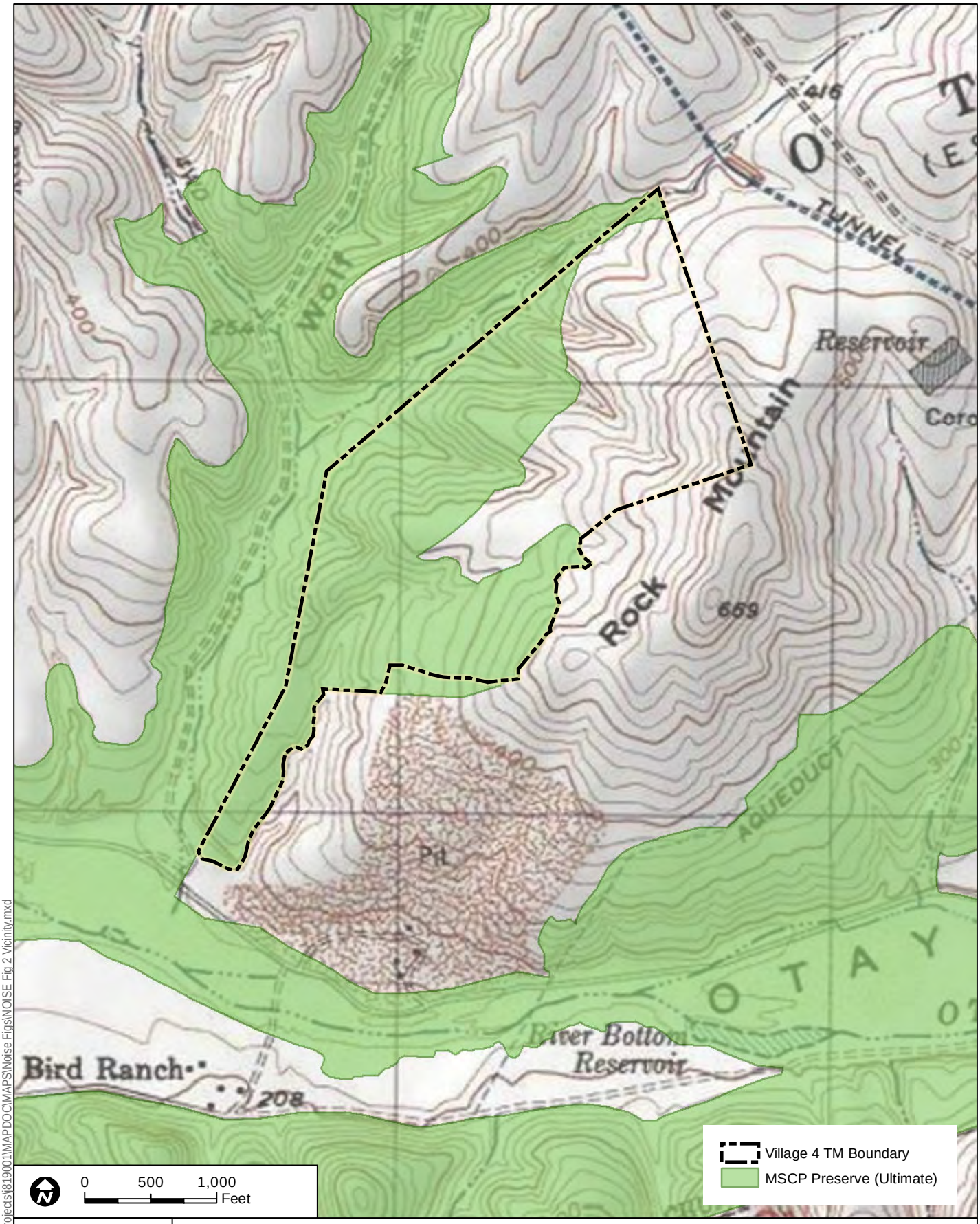

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AERIAL SOURCE: BING MAPPING SERVICE

FIGURE 2
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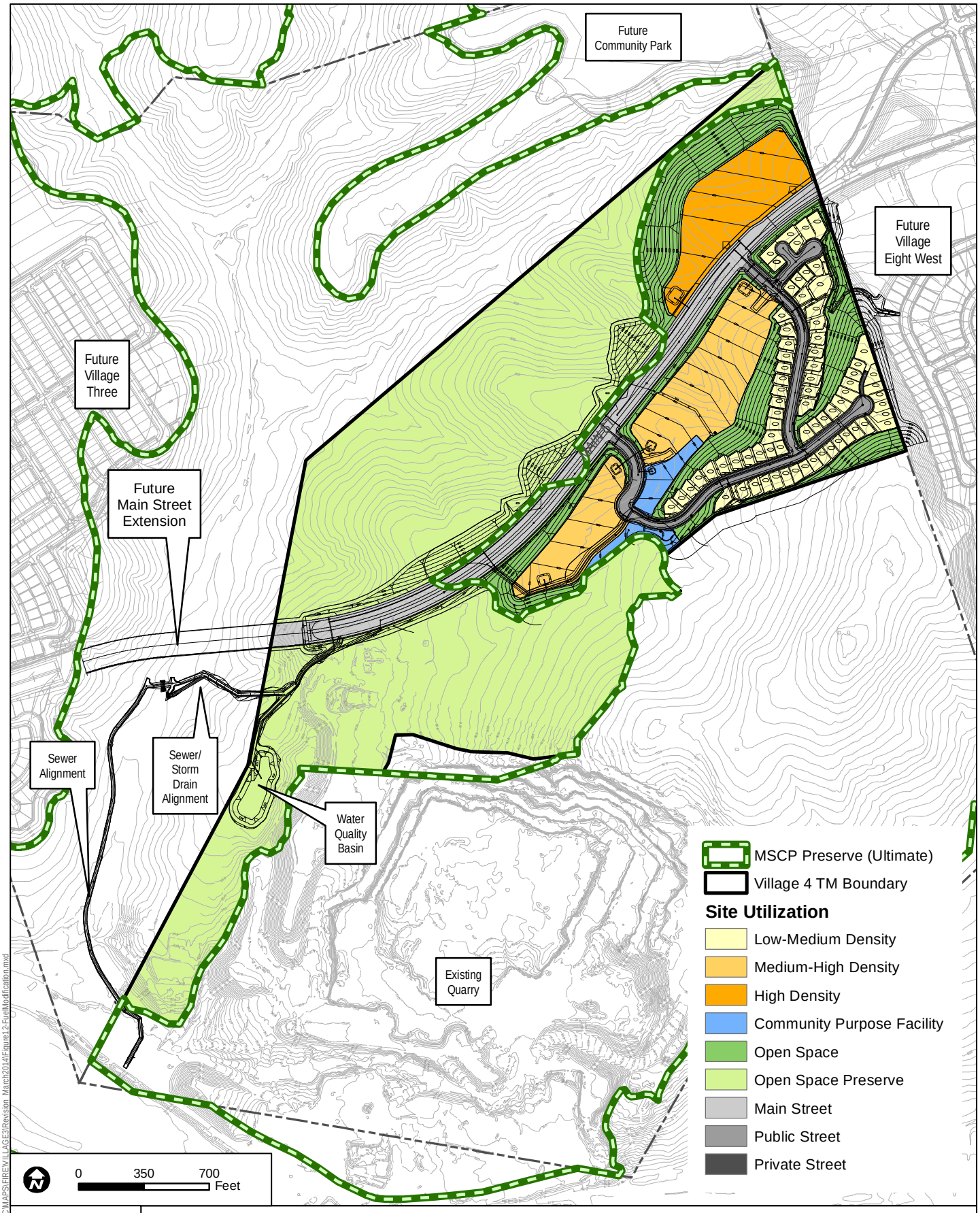

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FIGURE 3

Site Utilization Plan

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Noise Assessment Technical Report for Otay Ranch Village Four

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1.4 Noise Criteria

1.4.1 California Code of Regulations, Title 24

Title 24 of the California Code of Regulations (CCR) sets standards that new development in California must meet. According to Title 24 Section 1207, interior noise levels are not to exceed 45 dB CNEL for new multi-family residences, hotels and other attached residences. Title 24 Section 1207 does not apply to single-family homes.

Section 1207 of Title 24 also requires that an interior acoustical study demonstrating that interior noise levels due to exterior sources will be less than or equal to 45 CNEL be performed for affected multi-family structures that are exposed to exterior noise levels in excess of 60 CNEL.

1.4.2 City of Chula Vista General Plan

The City of Chula Vista General Plan Noise Element establishes noise criteria for various land uses (City of Chula Vista 2005). The maximum allowable exterior noise level at outdoor usable areas for new residential development is an annual CNEL of 65 dB. The City's exterior land use-noise compatibility guidelines for various land uses are depicted in Table 1. For residential development, the City typically applies the noise criteria at the backyards of single-family homes and at private patios, exterior balconies, and exterior common use areas of multi-family developments.

Table 1
City of Chula Vista Exterior Land Use/Noise Compatibility Guidelines

Land Use	Annual CNEL in Decibels					
	50	*55*	*60*	*65*	*70*	*75*
Residential						
Schools, Libraries, Daycare Facilities, Convalescent Homes, Outdoor Use Areas, and other Similar Uses Considered Noise Sensitive						
Neighborhood Parks, Playgrounds						
Community Parks, Athletic Fields						
Offices and Professional						
Places of Worship (excluding outdoor use areas)						
Golf Courses						
Retail and Wholesale Commercial, Restaurants, Movie Theaters						
Industrial, Manufacturing						

Also, Objective E22 (Protect the community from the effects of transportation noise) of the City's General Plan Noise Element, Policy E22.5 requires projects to construct appropriate mitigation

measures to attenuate existing and projected traffic noise levels, in accordance with applicable standards, including the exterior land use/noise compatibility guidelines listed in Table 1.

For off-site project-related traffic, the City considers a noise impact to be significant if implementation of the proposed project results in noise levels that exceed the exterior noise limits established in the City's General Plan, including 65 dBA CNEL for residences, schools, and recreational uses; 70 dBA CNEL for offices, community parks and athletic fields; and 75 dBA CNEL for commercial uses. For transportation-related noise, a significant impact would occur if the proposed project results in a 3 dBA CNEL or greater increase in traffic noise on a roadway segment and the resultant noise level would exceed the General Plan exterior noise limits.

1.4.3 City of Chula Vista Municipal Code

The City of Chula Vista Noise Ordinance (Municipal Code Section 19.68) contains regulations restricting land use related noise-generating activities and operations, so as to avoid noise nuisance in the community. Section 19.68.030 establishes the maximum allowable exterior noise limits, based upon the classification of the receiving land use. These standards typically apply to stationary sources such as noise from mechanical equipment or event noise, as opposed to traffic noise. For instance, a school, commercial enterprise, or industrial operation must not generate noise that exceeds a certain specified noise level at any property boundary where an adjacent residential use exists. The property-line noise standards are presented in Table 2.

Table 2
City of Chula Vista Exterior Property-Line Noise Limits

	Noise Level [dB(A)]	
	10 p.m. to 7 a.m. (Weekdays)	*7 a.m. to 10 p.m. (Weekdays)*
Receiving Land Use Category	*10 p.m. to 8 a.m. (Weekends)*	*8 a.m. to 10 p.m. (Weekends)*
All residential (except multiple dwelling)	45	55
Multiple dwelling residential	50	60
Commercial	60	65
Light industry – I-R and I-L zone	70	70
Heavy industry – I zone	80	80

Title 17 of the Chula Vista Municipal Code (Environmental Quality), Chapter 24, addresses managing noisy and disorderly conduct. Section 17.24.040.C.8 specifically addresses restrictions against generation of construction noise in overnight periods. The use of any tools, power machinery, or equipment, or the conduct of construction and building work in residential zones so as to cause noises disturbing to the peace, comfort, and quiet enjoyment of property of any

person residing or working in the vicinity, shall be prohibited between the hours of 10:00 p.m.–7:00 a.m., Monday–Friday, and between the hours of 10:00 p.m.–8:00 a.m., Saturday and Sunday, except when the work is necessary for emergency repairs required for the health and safety of any member of the community (City of Chula Vista 2010).

1.4.4 City of Chula Vista Multiple Species Conservation Program Subarea Plan

The Multiple Species Conservation Program (MSCP) Subarea Plan regulates impacts to sensitive biological resources, including noise impacts. In accordance with Section 7.5.2 of the Chula Vista Subarea Plan, Adjacency Management Issues, uses in or adjacent to the Preserve should be designed to minimize noise impacts. Berms or walls should be constructed adjacent to commercial areas and any other use that may introduce noises that could impact or interfere with wildlife utilization of the Preserve. Excessively noisy areas or activities adjacent to breeding areas, including temporary grading activities, must incorporate noise reduction measures or be curtailed during the breeding season of sensitive bird species, consistent with Table 3-5 of the MSCP Subregional Plan, included as Appendix A to the MSCP Subarea Plan. In general, the construction noise threshold for sensitive biological resources is an hourly average noise level of 60 dBA and no clearing, grubbing, and/or grading is permitted within the MSCP Preserve during the breeding season of the sensitive species present.

1.4.5 Otay Ranch GDP/SRP

The purpose of the Otay Ranch Noise goals, objectives and policies is to direct the identification of conditions under which noise occurs and provide general guidelines to protect Otay Ranch residents from the adverse effects of unwanted sound. Policy directions are provided to simultaneously control noise at its source, along its transmission path, and at the receiver site.

Goals, Objectives and Policies

- ***Goal:*** Promote a quiet community where residents live without noise that is detrimental to health and enjoyment of property.
- ***Goal:*** Ensure residents are not adversely affected by noise.
- ***Objective:*** Otay Ranch shall have a noise abatement program to enforce regulations to control noise.
- ***Policy:*** Prohibit excessive noises that are a detriment to the health and safety of residents.
- ***Policy:*** Limit noise at the source, along the path of transmission and/or at the receiver site.
- ***Policy:*** Reduce the need for noise mitigation through site and land use planning techniques, whenever feasible.

- ***Policy:*** Consider the effects of noise, especially from transportation, in land use decisions to ensure noise compatibility.
- ***Policy:*** Comply with applicable noise ordinances and performance standards in zoning ordinances.
- ***Policy:*** Use the Environmental Review Process to evaluate the effects of noise.
- ***Policy:*** Regularly review technological developments and building techniques that decrease the project related noise impacts on site and off site and specify needed noise mitigation measures.

Part IV, Feasible Mitigation Measures of the GDP also includes regulations. The Land Use section specifies:

3b. The project developer shall prove through a site-specific noise study that measures necessary to achieve exterior and interior noise standards are incorporated into project designs to ensure that significant noise impacts would not occur while the quarries are in operation.

A "Noise (FEIR Section 4.9.13.2)" subsection lists other considerations:

1a. The Subregional Plan text indicates where site-specific acoustical analyses will be required. These areas where studies are required include:

- All areas within 9,300 feet of Nelson and Sloan Mining Operation and the Daley Quarry.
- All areas within the 60 CNEL noise contour of on-site and off-site roadways, which shall include all roadways on the Otay Valley Parcel and all roadways assigned a future ADT of 3,000 trips or greater on the Proctor Valley and San Ysidro Mountain parcels.
- All areas within 1,250 feet of Otay Landfill.
- All areas within one mile of the San Diego Air Sports Center.
- All areas adjacent to Least Bell's Vireo habitat and California gnatcatcher habitat.

1b. The studies shall provide a description of the Project, the existing noise environment, the methods of evaluation, the future acoustical environment, noise impacts, and the required mitigation measures. The study shall be prepared by a qualified acoustician in accordance with local standards for preparation of such studies. The following standards shall be achieved:

- Residential development within the impact area shall not be allowed unless the site-specific noise study shows that the exterior noise level can be mitigated to 60 CNEL or below, and that interior noise level can be mitigated to 45 CNEL or below.

- Impacts to Least Bell's Vireo and California Gnatcatcher habitat shall be mitigated to achieve a level of 60 dBA Leq or below.
- Proper site planning to reduce noise impacts shall be utilized for all noise-sensitive land uses. Site planning techniques shall include the following:
    - Place commercial uses adjacent to the high noise roadways such as Heritage Road, Orange Avenue, Main Street, Paseo Ranchero, and State Route 125.
    - Place less noise-sensitive land uses on parcels closest to significant noise generators such as the Nelson and Sloan Mining Operation, the Daley Quarry, the Otay Landfill, and adjacent to various industrial activities.
    - Increase the distance from noise source to sensitive receptors by creation of setbacks.
    - Place noise-sensitive land uses outside of the 60 CNEL noise contour of roadways.
    - Place non-noise sensitive uses such as parking lots and utility areas between the noise source and receiver.
    - Orient usable outdoor living space such as balconies, patios, and children play areas away from roadways.
- Noise barriers such as walls and earthen berms shall be used to mitigate noise from ground transportation sources when setbacks are not feasible. To be effective a barrier(s) shall block the line-of-sight from the source to the receiver. A barrier shall also be of solid construction (e.g. masonry) without holes or gaps and be long enough to prevent sound from passing around the ends. A site-specific acoustical analysis shall be required to determine the proper height and placement of a barrier.

2. An interior acoustical analysis will be required for all residential buildings located within the 60 CNEL noise contour to ensure that building's design limits the interior noise level to 45 CNEL or below.

The Cumulative Impacts section also contains an "Noise (FEIR Section 6.14.3)" which specifies:

1. Future acoustical studies shall be required for residences and other noise sensitive land uses exposed to exterior noise levels of 60 cNEL or greater for all projects within the jurisdiction of the agency.
2. Future acoustical studies shall be required for Least Bell's Viero habitat and California Gnatcatcher habitat exposed to noise levels of 60 dBA Leq or greater for all projects within the jurisdiction of the agency.

3. Noise attenuation techniques, such as construction of walls and/or earthen berms between sensitive uses and significant noise sources shall be required to achieve standards as discussed in Section VIII of the FPEIR.

2 METHODOLOGIES AND INSTRUMENTATION

In order to establish baseline (existing) noise levels within the project area, several short-term noise measurements were conducted. Most measurements were conducted adjacent to roadways, for use in validating the traffic noise model and to characterize current ambient noise levels. One measurement was also conducted away from the influence of busy streets, in order to characterize the general existing noise environment typified by much of the project area where major roadways are currently absent.

To determine the existing noise levels and future noise levels from major transportation sources, short-term noise measurements were conducted adjacent to existing roadways in the project vicinity that currently contribute to the ambient noise levels within the project area. Noise modeling was conducted using the Federal Highway Administration (FHWA) traffic noise prediction model (TNM version 2.5). TNM was used to determine noise levels associated with current average daily traffic volumes and to predict the noise levels from traffic volumes forecast to exist in the future. Data inputs used in the noise model included the number and types of vehicles on the roadway, vehicle speeds, and physical characteristics of the road and topography; as well as receiver and noise barrier heights and locations.

The noise measurements were conducted using a laboratory-calibrated Piccolo digital integrating sound level meter. The accuracy of the sound level meter was verified before and after each measurement using a Larson Davis Cal150 handheld field calibrator. The sound level meter meets the current American National Standards Institute standard for a Type 2 sound level meter.

Traffic counts were made during the noise measurements. To validate the noise model, the same traffic volume and vehicle composition ratios counted during the noise measurements were used along with the observed vehicle speed. Using vehicle counts and observed speeds, the modeled noise values were within two dB of the measured noise levels, which confirms the accuracy of the inputs used in the noise model (please see Section 3.2.2 for the model calibration results).

The future modeled traffic speed was assumed to be the posted speed limit for existing roads and anticipated speed limit for future roads. The truck percentages used in the noise model for existing and future scenarios on existing and future arterials were 2.0% medium trucks and 2.0% heavy trucks. This truck mix is based on vehicle surveys conducted for a number of similar roads in Chula Vista and San Diego County that allow truck traffic. Based upon observations during the noise measurements, a 1% vehicle composition was assigned to motorcycles for existing and future scenarios.

As part of the CNEL calculation process, based on typical travel patterns, the analysis assumed the average hourly traffic volume is approximately equal to 10% of the average daily trips (ADT). 10% of the ADT is generally accepted to be roughly equivalent to the worst-case hourly traffic volume; using this value in the noise model results in an average hourly equivalent noise level approximately equal to the CNEL for the corresponding ADT and actual hourly traffic distribution. Thus, this relationship results in a CNEL value that is representative of traffic noise resulting from typical daytime, evening and nighttime traffic distribution.

3 EXISTING CONDITIONS

3.1 Project Setting

The project area is generally located near the southern boundary of the City of Chula Vista, east of Interstate 805, west of State Route 125 (SR-125), and north of State Route 905. Village Four is located on the east side of Wolf Canyon, straddling the future extension of Main Street from La Media Road to the north to Heritage Road to the southwest. Village Four is surrounded by Village 3 to the west, Villages 2 and 4 to the north, Village 8 West to the east, and rock quarry to the south. Village Four currently consists of vacant, undeveloped land. Regional access to the project will be provided primarily by La Media Road. Traffic along these major local roadways would be the dominant source of noise contributing to the future community noise level within the project site.

3.2 Ambient Noise Monitoring

3.2.1 Typical Existing Conditions (Undeveloped Land)

Today, much of the project site exists as undeveloped open space. Areas within Village Four that are not located immediately adjacent to an existing roadway would be expected to have ambient noise levels less than typical levels found in the urban environment. One short-term noise measurement (shown in Figure 4) was conducted within the Village Four project site in order to characterize the baseline conditions representative of the undeveloped areas.

Table 3 provides the results of the noise measurement within Village Four. Assuming that the noise measurement represents the hourly average noise level (which is valid for environmental noise sources that are steady or nearly steady), an approximate CNEL value can be calculated by adding 7 dB to the hourly average noise level (Harris 1979). Table 3 provides a calculated existing CNEL level, based on the approach of employing the measured L_{eq} value as the hourly average noise level.

Table 3
Existing On-Site Noise Levels

Site ID	Description	Date/Time	L_{eq}	CNEL
M1	Village Four Ambient	7/06/15 9:50–10:10 a.m.	43.1 dBA	50 dBA

3.2.2 Existing Roadway-Related Noise and Modeled Calibration Results

One noise measurement (M2) was conducted along La Media Road north of the Project site. La Media Road will be one of the primary access routes to the project as described in Section 3.1, above. Please refer to Figure 4, which shows the on-site and off-site noise measurement locations. Table 4 provides descriptions of the measurement location with respect to the roadway centerline, the observed traffic speed, measured noise level (as equivalent noise level, or L_{eq}), the concurrent traffic volume for each vehicle type (i.e., number of vehicles passing the measurement point during the measurement), and the corresponding TNM noise modeling result. As shown in Table 4, the difference between the measured and modeled traffic noise level for M2 was found to be one decibel, which is regarded in the state of the practice (i.e., generally accepted and utilized methodologies by noise control practitioners) as an acceptable degree of tolerance between measured and modeled (California Department of Transportation 2009). No correction factors were applied to any of the subsequent traffic modeling results.

Table 4
Existing Measured Average Sound Levels Associated with Local Roadways Near Village Four and Validation Results

Site	Description	Date/ Time	Measured Leq1	Cars	MT2	HT3	Busses	MC4	MPH5	Corresponding Model Calibration Result (Leq1)	Difference (Measured –Modeled)
M2	Approximately 220 feet to center line of La Media Road	7/06/15 9:50–10:10 a.m.	54 dB	85	0	0	0	0	45	53 dB	1 dB

Notes:
1 Equivalent Continuous Sound Level (Time-Average Sound Level)
2 Medium Trucks (Includes busses)
3 Heavy Trucks
4 Motorcycle
5 Miles Per Hour (observed speed of traffic during noise measurement)
General Notes: Temperature 66 degrees F, overcast sky, calm wind.

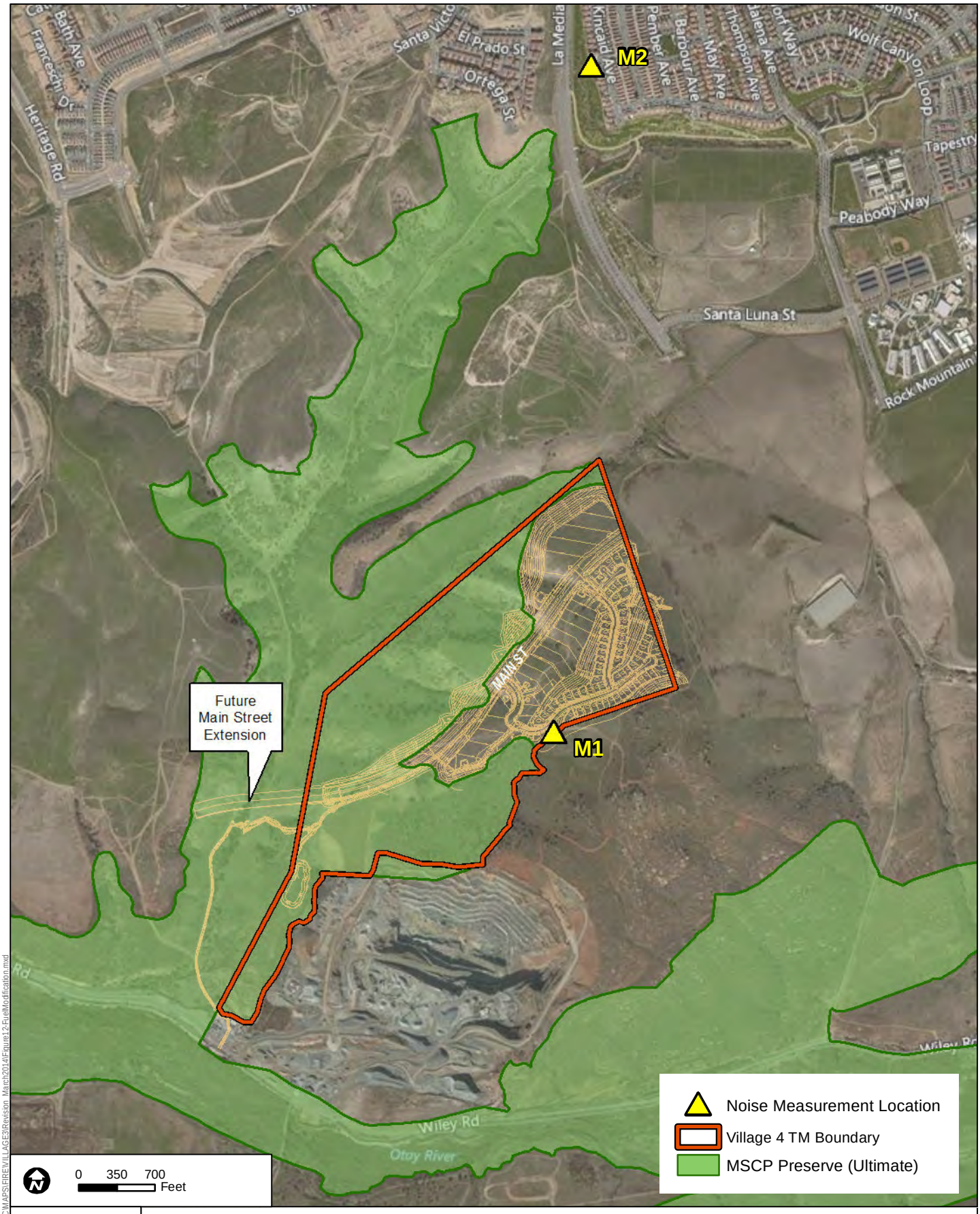

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FIGURE 4

Field Noise Measurement Locations

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3.3 Traffic Noise Modeling – Existing Conditions

The existing CNEL along major roadways anticipated to affect future noise levels within / adjacent to Village Four (i.e., La Media Road and Main Street) was determined based on the ambient noise measurements, using the current daily traffic volume pertinent to each road as identified in the Fehr & Peers traffic impact assessment (normalized for automobile [95%], medium and heavy truck [2% each][1], and motorcycle [1%] percentages) in the traffic noise prediction model. One representative model receiver location was selected for each of the modeled roadway segments (R1 through R3) along La Media Road from Olympic Parkway to Santa Luna Road (see Figure 5). The existing CNEL modeled for each major roadway is presented in Table 5. It should be noted the dB values in Table 5 calculated for existing roadway traffic volumes are on a CNEL basis, and are therefore different than the dB L_{eq} values measured for La Media Road in the field (and presented in Table 4). The measured L_{eq} values simply reflect actual traffic occurring during the short term measurement, which is used to calibrate the model. The noise level (CNEL) from existing traffic volume is then calculated using the calibrated model.

Table 5
Existing Community Noise Equivalent Level (CNEL) Associated with Local Roadways

Description of Roadway/ Noise Modeling Location	Traffic Analysis Period	Traffic Volume (Average Daily Trips)	Modeled Average Traffic Speed	CNEL
R1: La Media Road – Olympic Parkway to Santa Venetia Street, approximately 140 feet from center line	Existing Conditions	16,408	45 MPH	54 dB
R2: La Media Road –Santa Venetia Street to Birch Road, approximately 140 feet from center line	Existing Conditions	11,515	45 MPH	54 dB
R3: La Media Road –Birch Road to Santa Luna Street, approximately 125 feet from center line	Existing Conditions	2,072	45 MPH	48 dB

Based upon the modeled CNEL values presented in Table 5, La Media Road currently does not generate noise levels in excess of 65 dB CNEL beyond the roadway rights-of-way.

[1] Includes busses.

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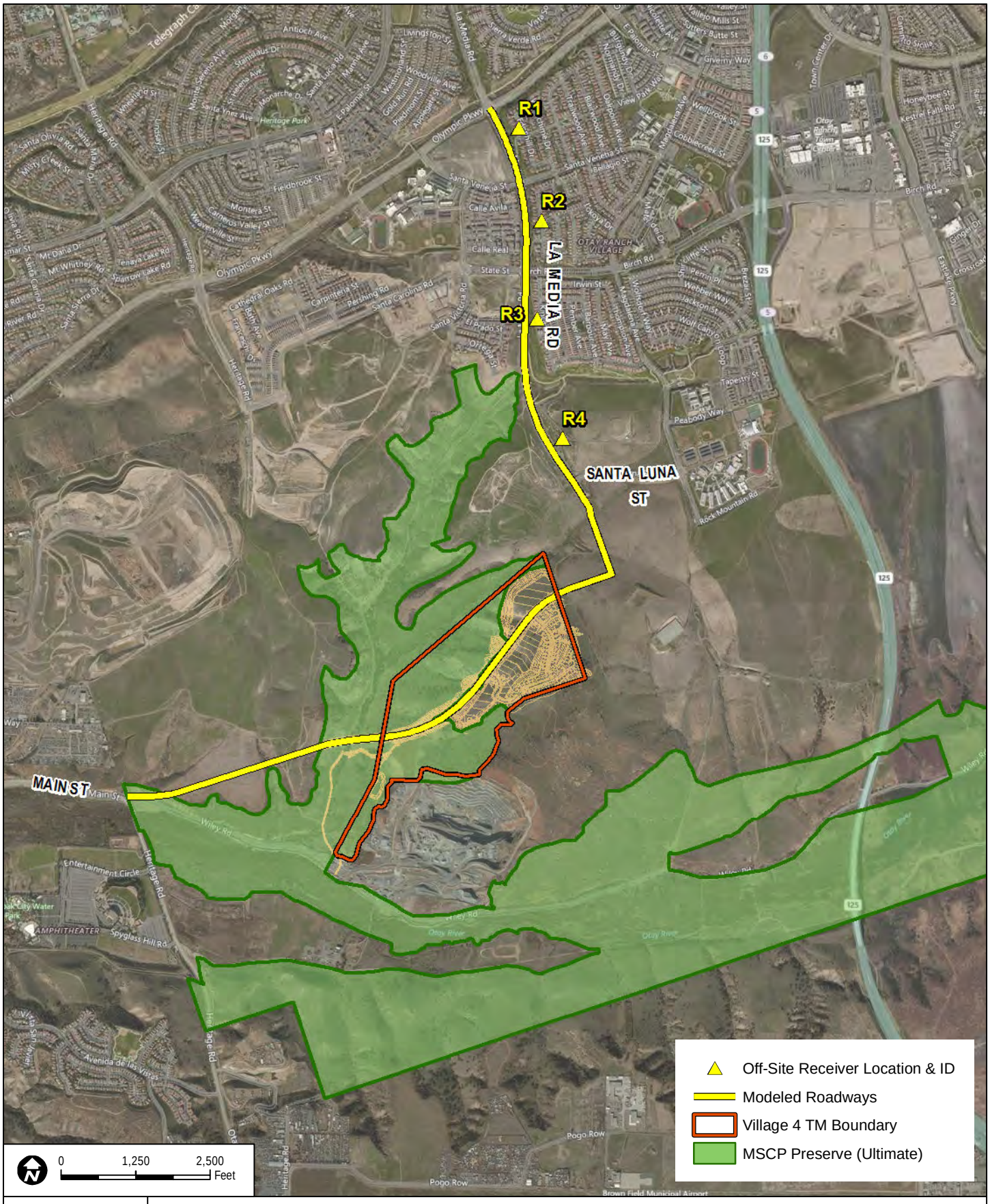

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AERIAL SOURCE: BING MAPPING SERVICE

FIGURE 5

Modeled Roadway Segments and Off-Site Receiver Locations

Noise Assessment Technical Report for Otay Ranch Village Four

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4 SIGNIFICANCE CRITERIA

Based on the criteria identified in Appendix G of the CEQA Guidelines, the proposed project would have a significant impact on noise if it would result in:

1. The exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?
2. The exposure of persons to or generation of excessive ground borne vibration or ground borne noise levels?
3. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?
4. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?
5. For a project located within an airport land use plan (ALUP) or, where such a plan has not been adopted, within two miles of a public airport or public use airport, expose people residing or working in the project area to excessive noise levels?
6. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?

Additionally, the proposed project would have a significant impact if found to be inconsistent with the City of Chula Vista's General Plan, the Otay Ranch General Development Plan, or other objectives and policies regarding noise thereby resulting in a significant physical impact (City of Chula Vista 2011).

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5 IMPACTS

5.1 Traffic Noise

Significant impacts from project-related traffic noise could result at existing and planned future noise-sensitive land uses in the project vicinity. Additionally, significant traffic noise impacts could occur at the on-site noise-sensitive land uses which would be constructed as a result of the proposed project. To evaluate future off-site and on-site noise exposure levels from traffic along major roadways, the FHWA's TNM version 2.5 noise prediction model was run with worst-case traffic volumes as provided in the Village Four Traffic Impact Analysis (Fehr & Peers 2016). Dudek compiled roadway traffic volumes for each roadway segment reported in the traffic analysis, for the existing and Year 2030 scenarios, without and with the Project. The tables in Appendix B provide the volume comparison for all roadway segments for these analysis years.

Because of the size of the traffic impact analysis area (as listed in Appendix B) and the number of associated roadway segments, a preliminary screening analysis[2] was done to estimate the relative increase in traffic noise from the project. Using this preliminary screening analysis, it was found that with the exception of three segments of La Media Road in the Existing plus Project scenario and one segment of La Media Road in the Future plus Project scenario, none of the major roadway or freeway segments in the traffic impact analysis would have an estimated increase in noise levels of one dB or more. Therefore the roadways modeled in detail using the TNM model were limited to those adjacent to the Village Four project site (Main Street) for on-site noise impacts analysis and La Media Road from Olympic Parkway to Main Street for off-site noise impacts analysis. Figure 5 shows the modeled roadway segments within Village Four (Main Street) as well as off-site (La Media Road).

5.1.1 Off-Site Traffic Noise

Off-site modeling for traffic used elevations from Google Earth; and the traffic speeds were the posted speed limits (for existing roadways) or the presumed speed limits for future roadways based upon roadway type (i.e., 45 mph for the Main Street extension adjacent to and north of the Project site). The assumed traffic mix for the arterials was 95% autos, 2% medium trucks (including busses), 2% heavy trucks and 1% motorcycles.

La Media Road is located to the northeast of Village Four. Currently La Media Road terminates at Santa Luna Street, but by Year 2030 it would extend southward to Main Street. La Media

[2] Using the following basic relation: Delta = $10*\text{Log}(V_2/V_1)$, where Delta is the change in noise level, V_2 is the "new" volume, and V_1 is the "prior" volume. Ref: Harris, 1991

Road is a major arterial forecast to carry up to 33,900 ADT (from Santa Venetia Street to Birch Road) in 2030. Modeled noise levels for representative noise-sensitive receptors for the existing and existing plus project scenarios are summarized in Table 6. As shown, the first row of homes aligned closest to La Media Road (all of which have and were modeled with minimum 6-foot high masonry walls) would be exposed to noise levels ranging to 55 dB CNEL in the Existing plus Project scenario. The noise levels associated with Existing plus Project La Media Road traffic volumes would not exceed the exterior noise criterion of 65 dB CNEL, and is considered a less than significant impact. No mitigation is required.

Table 6
Project Contribution to Off-Site Traffic Noise – Existing Plus Project
(Off-Site Traffic Noise Level Increase)

Roadway (segment)	Rcvr #	CNEL (dB)		
		Existing	*Existing + Project*	*dB Change*
La Media Road Olympic Parkway to Santa Venetia Street	R1	54	55	1
La Media Road Santa Venetia Street to Birch Road	R2	54	55	1
La Media Road Birch Road to Santa Luna Street	R3	48	53	5

The project's contributions to long-term traffic noise levels on the roadway network are discussed in Section 5.5, Cumulative Impacts. When full project build-out has occurred in Year 2030, the proposed project's contribution to overall traffic volumes on the completed roadway network would be insignificant.

5.1.2 On-Site Traffic Noise

As described in Section 3.1, Main Street, which provides direct access to the project site, would be the predominant source of noise contributing to the future community noise level within Village Four. The noise modeling utilized the current site plans and grading elevations available from the project designers; Future traffic along Main Street represents the principle source for potential noise exposure levels that exceed adopted criterion for noise sensitive land uses within the project site.

To evaluate noise exposure for future residential parcels located within the project area in TNM, modeled receiver points representing noise receivers were placed in the yard area of selected parcels. In general, two receiver points (one at a height of five feet above the future, graded elevation and one at a height of 15 feet (in order to approximate the noise level at the second-floor façade) were specified to represent blocks of approximately 4–7 side-by-side single-family lots along the frontage of Main Street adjacent to the project site, and every 100 to 200 feet along

the multi-family parcels. Upon completion of the model runs, the noise exposure levels were identified for each of the receiver points. Using this method, the on-site noise-sensitive land uses were assessed to determine if adjacent traffic-related noise exposure would exceed the 65 dB CNEL exterior noise criterion at on-site residences. Additionally, groupings of model receiver points were placed at 50-foot intervals[4] perpendicular to Main Street, in order to determine the distances beyond the front row that the 65 and 60 dB noise levels may[5] extend.

As shown in Figure 6, multi-family residential land uses would be north (R-3) and south (R-2 A and R-2B) of Main Street and single-family residential land uses (R-1) would be south of Main Street. Main Street in the project vicinity does not currently exist, but by Year 2030 it would be a major arterial forecast to carry up to 48,193 ADT (from Heritage Road to La Media Road) with the proposed project. Modeled noise levels for representative noise-sensitive receptors are summarized in Table 7. As shown, the first row of residences aligned closest to Main Street would be exposed to traffic noise levels ranging from 68 to 73 dB CNEL from future traffic. All of the on-site modeled receivers along the first row would exceed the exterior noise criterion of 65 dB CNEL; this is considered a potentially significant impact. Mitigation for this potentially significant impact is provided, and involves construction of six-foot high sound walls along the northern and southern frontage of Main Street (for further details see Section 6, Mitigation Measures, Mitigation Measure N-1). Table 7 presents the noise levels with the recommended sound walls. As shown, the resultant noise levels with sound walls would not exceed the 65 dB CNEL noise standard at first-floor receivers.

Second-floor exterior uses such as usable balconies (if these are incorporated into the residential designs) fronting along Main Street would still exceed the City's 65 dB CNEL noise standard. Therefore, a potentially significant impact related to second-floor exterior levels would occur. Mitigation for this potential significant impact is provided (see Section 6, Mitigation Measures, Mitigation Measure N-2 and N-3).

Also, interior noise levels at residences adjacent to Main Street would have the potential to exceed 45 dBA CNEL; therefore, a potentially significant impact related to interior noise levels would also occur. Mitigation for this potentially significant impact is provided (see Section 6, Mitigation Measures, Mitigation Measure N-2 and N-3).

[4] From 50 feet to 300 feet back from the site boundary fronting Main Street.

[5] Because floor plans/building designs have not yet been developed for the project site, these calculations are considered preliminary.

Table 7
Traffic Noise Modeling Results (Year 2030) - Village Four

Receiver #	Yr2030 w Project (CNEL)	Significant Impact?	Yr2030 w Project w walls (6 foot height) (CNEL)	Significant Impact?
R5: Parcel R-3 N side	72	Yes	65	No
R6: Parcel R-3 N central	73	Yes	65	No
R7: Parcel R-3 central	72	Yes	65	No
R8: Parcel R-3 S central	72	Yes	64	No
R9: Parcel R-3 S side	73	Yes	64	No
R10: Parcel R-3 N side 2nd floor	72	Yes	72	Yes
R11: Parcel R-3 N central 2nd floor	73	Yes	73	Yes
R12: Parcel R-3 central 2nd floor	72	Yes	72	No
R13: Parcel R-3 S central 2nd floor	72	Yes	72	Yes
R14: Parcel R-3 S side 2nd floor	72	Yes	72	No
R15 Parcel R-1 Lot # 68	72	Yes	62	No
R16: Parcel R-1 Lot # 69	72	Yes	63	No
R17: Parcel R-1 Lot # 72	71	Yes	62	No
R18: Parcel R-2A N side	71	Yes	63	No
R19: Parcel R-2A N central	71	Yes	64	No
R20: Parcel R-2A central	70	Yes	60	No
R21: Parcel R-2A central 2	70	Yes	61	No
R22: Parcel R-2A S central	72	Yes	66	No
R23: Parcel R-2A S side	72	Yes	63	No
R24: Parcel R-2B N side	71	Yes	61	No
R25: Parcel R-2B N Central	70	Yes	62	No
R26: Parcel R-2B Central	70	Yes	61	No
R27: Parcel R-2B Central 2	69	Yes	61	No
R28: Parcel R-2B S Central	69	Yes	58	No
R29: Parcel R-2B S	68	Yes	57	No
R30: Parcel R-1 Lot # 68 2nd floor	72	Yes	72	Yes
R31: Parcel R-1 Lot # 69 2nd floor	72	Yes	72	Yes

Table 7
Traffic Noise Modeling Results (Year 2030) - Village Four

Receiver #	Yr2030 w Project (CNEL)	Significant Impact?	Yr2030 w Project w walls (6 foot height) (CNEL)	Significant Impact?
R32: Parcel R-1 Lot # 72 2nd floor	71	Yes	71	Yes
R33: Parcel R-2A N 2nd floor	71	Yes	71	Yes
R34: Parcel R-2A N central 2nd floor	70	Yes	70	Yes
R35: Parcel R-2A central 2nd floor	70	Yes	70	Yes
R36: Parcel R-2A central 2 2nd floor	70	Yes	70	Yes
R37: Parcel R-2A S central Parcel 23 2nd floor	72	Yes	72	Yes
R38: Parcel R-2A S 2nd floor	72	Yes	72	Yes
R39: Parcel R-2B N side 2nd floor	71	Yes	71	Yes
R40: Parcel R-2B N Central 2nd floor	70	Yes	70	Yes
R41: Parcel R-2B Central 2nd floor	70	Yes	70	Yes
R42: Parcel R-2B Central 2 2nd floor	69	Yes	69	Yes
R43: Parcel R-2B S Central 2nd floor	69	Yes	69	Yes
R44: Parcel R-2B S 2nd floor	68	Yes	68	Yes
R5: Parcel R-3 N side	72	Yes	65	No
R6: Parcel R-3 N central	73	Yes	65	No

Noise modeling of receiver locations beyond the first row of residences (summarized in Table 8) indicates that at parcel R-3, ground-floor traffic noise levels would be at or below 65 dB CNEL within approximately 50 feet of the parcel boundary, and at or below 60 dB CNEL within approximately 100 feet of the parcel boundary. At parcels R-1, R-2A and R-2B, ground-floor traffic noise levels would be at or below or below 60 dB CNEL within approximately 50 feet of the parcel boundary. At parcel R-3, second-floor traffic noise levels would be at or below 65 dB CNEL within approximately 100 feet of the parcel boundary, and at or below 60 dB CNEL within approximately 200 to 250 feet of the parcel boundary. At parcel R-1, second-floor traffic noise levels would be at or below 65 dB CNEL within approximately 100 feet of

the parcel boundary and at or below 60 dB CNEL within approximately 150 feet of the parcel boundary. At parcel R-2A, second-floor traffic noise levels would be at or below 60 dB CNEL within approximately 100 feet of the parcel boundary. At parcel R-2B, second-floor traffic noise levels would be at or below 65 dB CNEL within approximately 50 feet of the parcel boundary and at or below 60 dB CNEL within approximately 100 feet of the parcel boundary. Noise contours for the mitigated condition are shown in Figure 6.

Because the ultimate building configurations and designs for these land uses have not yet been determined, preliminary assumptions regarding building row shielding were made, and thus these results are considered preliminary. However, based on these results, second-floor exterior uses such as usable balconies (if these are incorporated into the residential designs) with a direct view of Main Street may exceed the City's 65 dB CNEL noise standard beyond the first row row of residences at the distances shown in Table 8. The specific portions of the parcels requiring subsequent analysis are specified in Table 9. Therefore, a potentially significant impact related to second-floor exterior levels would occur. Mitigation for this potential significant impact is provided (see Section 6, Mitigation Measures, Mitigation Measure N-2 and N-3).

Also, interior noise levels at residences beyond the first row of residences adjacent to Main Street may exceed 45 dBA CNEL at the distances shown in Table 8; therefore, a potentially significant impact related to interior noise levels would also occur. Mitigation for this potentially significant impact is provided (see Section 6, Mitigation Measures, Mitigation Measure N-2 and N-3).

Table 8
Traffic Noise Modeling (Year 2030) Results
for Distances Beyond the Parcel Boundary Line

Receiver Location	Noise Level[6] at Specified Distance from Parcel Boundary (dB CNEL)					
	50′	*100′*	*150′*	*200′*	*250′*	*300′*
Parcel R-3 North side	63	58	57	59	54	54
Parcel R-3 North-Central	64	57	56	55	52	53
Parcel R-3 Central	63	59	57	52	53	52
Parcel R-3 South side	62	60	59	58	54	54
Parcel R-1 Single-family Lots	59	57	56	55	56	55
Parcel R-2A	58	55	53	47	50	51
Parcel R-2B N side	58	55	54	52	51	50
Parcel R-2B S side	55	51	50	46	47	45
Parcel R-3 North 2nd Floor	70	63	62	61	57	58
Parcel R-3 N Central 2nd Floor	70	63	61	60	58	58

[6] Noise levels with soundwalls as specified

Table 8
Traffic Noise Modeling (Year 2030) Results
for Distances Beyond the Parcel Boundary Line

Receiver Location	Noise Level[6] at Specified Distance from Parcel Boundary (dB CNEL)					
	50′	*100′*	*150′*	*200′*	*250′*	*300′*
Parcel R-3 Central 2nd Floor	70	63	62	56	58	57
Parcel R-3 S 2nd Floor	69	64	62	61	57	58
Parcel R-1 Single-family Lots 2nd Floor	67	61	59	58	60	60
Parcel R-2A 2nd Floor	66	59	57	54	54	55
Parcel R-2 B side 2nd Floor	65	59	57	54	54	54
Parcel R-2B S side 2nd Floor	62	53	52	48	50	50
Bold	= 65 dBA CNEL or less					
	= 60 dBA CNEL or less					

Table 9
Parcels Requiring Subsequent Noise Analysis

Receiver Location	Ground-Floor Level	2nd-Floor Level
Parcel R-3	Within 100' of parcel boundary line[1]	Within 250 ' of parcel boundary line[1]
Parcel R-1	Within 50 ' of parcel boundary line[1]	Within 150' of parcel boundary line[1]
Parcel R-2A	Within 50 ' of parcel boundary line[1]	Within 100' of parcel boundary line[1]
Parcel R-2B	Within 50 ' of parcel boundary line[1]	Within 100' of parcel boundary line[1]

1 – Parcel boundary line adjacent to Main Street.

5.2 Airport Related Noise Exposure

Development containing noise-sensitive land uses that is proposed in proximity to an airport has the potential to experience nuisance noise from airport operations. Typically, if the development proposal is located within the Airport Influence Area of an adopted Airport Land Use Plan (ALUP) or Airport Land Use Compatibility Plan (ALUCP), or within the vicinity of a private airstrip not subject to an airport land use plan, noise from airport operations is to be assessed for potential impacts upon the development.

Brown Field Airport is located along the north side of Otay Mesa Road, approximately 1.5 miles south of Village Four. The runways are oriented in an east/west direction.

The project site is subject to overflights of planes and helicopters taking off from Brown Field, which are audible on the project site and would be audible in the future. Overflights from Brown Field may be considered a nuisance to residents. In accordance with standard condition #46 in

Section 5-300 of the City's Subdivision Manual, applicants are required to record an Airport Overflight Agreement against the property to the satisfaction of the Director of Development Services prior to recordation of any Final Map. This condition would run with the property, and as such, potential nuisance noise from aircraft overflights would be disclosed to future residents.

The San Diego County Airport Land Use Commission adopted an ALUCP for Brown Field in 2010 (County of San Diego 2010). The graphics in the 2010 ALUCP indicate that the project site (i.e., the uses of residential Village Four) is north and outside of the 60 and 65 dB CNEL noise contours for Brown Field (refer to Appendix D). According to existing data for Brown Field, the project site would not be exposed to noise levels from aircraft operations that exceed 60–65 dB CNEL. In that 65 dB CNEL is an acceptable exterior noise exposure level for all of the land uses proposed within the project, airport noise exposure levels would remain below significant levels. Therefore, impacts would be less than significant and no mitigation is required to address airport noise exposure.

R5/R10
R6/R11
R7/R12
R15/R30
R16/R31
R17/R32
R8/R13
R9/R15
R18/R33
R19/R34
R20/R35
R21/R36
R22/R37
R23/R38
R24/R39
R25/R40
R26/R41
R27/R42
R28/R43
R29/R44
MAIN ST
Future Village Eight West
0 150 300 Feet
Modeled Receiver Location & ID
Soundwall Location
60 dBA CNEL Noise Contour (mitigated, ground floor)
65 dBA CNEL Noise Contour (mitigated, ground floor)
Village 4 TM Boundary
MSCP Preserve (Ultimate)

Z:\Projects\8190\01\MAPDOC\MAPS\FIGREVILLAGE5\Revision_March2014\Figure12-FinalNoiseMitigation.mxd

DUDEK

8190

FIGURE 6

Approximate Soundwall Locations & Modeled Receiver Locations

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5.3 Impacts from Operation of Off-Site Facilities

As discussed above under Section 3, Existing Conditions, the Otay Valley Rock Quarry is located south of Village Four, approximately 1,000 feet from the nearest planned residential portion of the project site. According to the EIR prepared for the proposed quarry reclamation plan amendment, daytime average noise levels along the perimeter of the quarry range from approximately 45 dBA to 55 dBA (City of Chula Vista 2011). Operation of the quarry may be audible but is not particularly prominent on the project site, as demonstrated by the ambient noise measurements taken at the site. Intermittent noise from particularly loud operations, such as blasting, may be occasionally audible on the project site. Due to the temporary and periodic nature of noise from the quarry operations, it would not result in a significant impact to development in Village Four.

5.4 Short-Term Noise Impacts (Construction-Related Noise)

Because the development of the project would be a multi-year endeavor, portions of the development would be completed and occupied during the construction of subsequent portions (phases). Therefore, the occupied project phases have the potential to be impacted by noise from on-going construction activities. Additionally, construction of Village Four, which is adjacent to other planned communities which may be constructed first (such as Village Eight West, located to the east of the Project), has the potential to result in short-term noise impacts at adjacent noise-sensitive land uses.

Noise from construction activity is generated by the broad array of powered, noise-producing mechanical equipment used in the construction process. This equipment ranges from hand-held pneumatic tools to bulldozers, dump trucks, and front loaders. The exact complement of noise-producing equipment that would be in use during any particular period has not yet been determined. Noisy construction activities could be in progress on more than one part of the project site at a given time. However, the noise levels from construction activity during various phases of a typical construction project have been evaluated, and their use provides an acceptable prediction of a project's potential noise impacts.

In order to assess the potential noise effects of construction, this noise analysis used data from an extensive field study of various types of industrial and commercial construction projects (U.S. Environmental Protection Agency 1971). Noise levels associated with various construction phases where all pertinent equipment is present and operating, at a reference distance of 50 feet, are shown in Table 10. Because of vehicle technology improvements and stricter noise regulations since the field study was published, this analysis uses the average noise levels shown in Table 10 for the loudest construction phase. This information indicates

that the overall average noise level generated on a construction site could be 89 dBA at a distance of 50 feet during excavation and finishing phases. The noise levels presented are value ranges; the magnitude of construction noise emission typically varies over time because construction activity is intermittent and the power demands on construction equipment (and the resulting noise output).

Table 10
Typical Noise Levels from Construction Activities for Large Construction Projects

Construction Activity	Average Sound Level at 50 feet (dBA L_{eq})[a]	Standard Deviation (dB)
Ground Clearing	84	7
Excavation	89	6
Foundations	78	3
Erection	87	6
Finishing	89	7

Source: U.S. Environmental Protection Agency 1971
[a] Sound level with all pertinent equipment operating.

Noise levels generated by construction equipment (or by any point source) decrease at a rate of approximately six dBA per doubling of distance from the source (Harris 1979). Therefore, if a particular construction activity generated average noise levels of 89 dBA at 50 feet, the L_{eq} would be 83 dBA at 100 feet, 77 dBA at 200 feet, 71 dBA at 400 feet, and so on. This calculated reduction in noise level is based on the loss of energy resulting from the geometric spreading of the sound wave as it leaves the source and travels outward. Intervening structures that block the line of sight, such as buildings, would further decrease the resultant noise level by a minimum of five dBA. The effects of molecular air absorption and anomalous excess attenuation would reduce the noise level from construction activities at more distant locations at the rates of 0.7 dBA and 1.0 dBA per 1,000 feet, respectively.

5.4.1 Impacts to Noise Sensitive Land Uses

With respect to the potential for construction of the project or phases to have nuisance noise impacts upon completed and occupied components within Village Four, a worst-case scenario would be a completed "block" or "neighborhood" separated only by an internal public roadway from another block that is under construction. The narrowest roadway proposed within Village Four has a right-of-way of 58 feet. Construction noise is attenuated by approximately six dB for every doubling of distance. Thus, assuming no shielding from intervening barriers or buildings, the maximum noise levels would be approximately 88 dBA at the residential property lines situated across a 58-foot roadway right-of-way from active construction. This noise level could intermittently occur for a few days when construction equipment is operating immediately

adjacent to the opposite side of the roadway right-of-way from occupied homes. The remainder of the time the construction noise level would be less because the equipment would be operating in a large area farther away from the existing residences. When the construction equipment is operating, the existing residences could be disturbed by the activities.

The generation of noise from construction activities during noise sensitive time periods upon completed and occupied components of the project is considered a significant impact. Additionally, construction noise could affect existing off-site noise-sensitive land uses. The nearest potential off-site noise-sensitive land uses relative to the project site would be Village Eight West (if constructed before Village Four), located adjacent to the project site boundary. As such, project generated construction noise would pose a potentially significant impact on noise-sensitive receptors if construction hour limitations are not imposed. However, with adherence to a restricted construction schedule dictating project-related site preparation and construction activities limited to the hours between 7:00 am–6:00 pm, Monday–Friday and between the hours of 8:00 am–6:00 pm Saturday, significant construction-related noise impacts could be avoided. To avoid potentially significant construction-related noise impacts, mitigation is provided (see Section 6, Mitigation Measures, N-4).

The location of construction within the proposed project is anticipated to occur in the vicinity of the Preserve boundary with the exception of the construction of Main Street, which occurs immediately at the Preserve edge, as shown on Figure 3. Noise levels throughout construction could exceed allowable noise thresholds. In order to ensure that construction related noise does not impact sensitive resources, primarily nesting birds, construction activities shall either include noise reduction measures or be conducted outside the breeding season of special-status bird species, as described in mitigation measure BIO16 provided in the project's Biological Technical Report to ensure compliance with the City's Adjacency Management Guidelines (Dudek 2016). If construction is scheduled to occur between February 15 and August 15, on-site noise reduction techniques shall be implemented to ensure that construction noise levels do not exceed 60 dBA Leq-h at the location of any occupied sensitive habitat areas (as determined by the biologist through nesting bird surveys; see mitigation measures BIO9 and BIO16 provided in the project's Biological Resources Technical Report) (Dudek 2016).

5.4.2 Vibration

Project-related construction activities have the potential to create groundborne vibration. Construction activities can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Buildings founded on the soil in the vicinity of the construction site respond to these vibrations, with

varying results ranging from no perceptible effects at the lowest levels, perceptible vibrations at moderate levels, and slight damage at the highest levels (Federal Transit Administration 2006). There are no businesses or institutions with highly sensitive equipment (such as hospitals, laboratories or printing presses) in the vicinity of the project. The nearest such institution would be the Sharp Chula Vista Medical Center, located approximately 2.5 miles from the project site. At 2.5 miles from the nearest construction activity, the facility would be located outside of the vibration screening distances for major construction activity (200 feet) and pile driving (600 feet). Therefore construction activity would not affect any off-site vibration-sensitive land use and impacts related to groundborne vibration during construction at off-site land uses would be less than significant.

Vibrations from smaller, rubber-tired trucks and other equipment would typically not result in perceptible or damage-inducing vibration levels beyond a distance of approximately 45 feet[7].The highest vibration levels during construction typically occur during pile-driving, blasting or demolition activities. Neither pile driving or demolition activities are anticipated as part of this project, although blasting of native rock and the crushing of that rock may be necessary. This is addressed in the following section.

It should be noted that ground vibrations from construction activities do not often reach the levels that can damage structures or affect activities that are not vibration-sensitive, although the vibrations may be felt by nearby persons in close proximity and result in annoyance (FTA 2006). Additionally, the Village Four development would consist of new buildings constructed in accordance with all building codes and would not be susceptible to vibration damage. Vibration impacts would be temporary and would cease following construction. Thus, the potential for on-site impacts from vibration is less than significant.

5.4.3 Blasting and Rock Crushing

The locations of the rock blasting and rock crushing, if any, have not yet been determined; however if blasting and rock crushing occur, they would take during the early phases of the project, when the site would be unoccupied. Based on information from the applicant's engineering contractors (Hunsaker 2017), , it is estimated that up to 60 blasting events, at a rate of 2 per week over a 30-week period, could take place. The following information is provided in the event that blasting is necessary for project implementation.

[7] Assumes vibration levels from a loaded truck (86 VdB at reference distance of 25 feet). Resulting vibration level at a distance of 45 feet would be approximately 78 VdB, which is below the FTA critieria for Type 2 (residential) land uses of 80 VdB for infrequent events.

Rock blasting is typically done as a single event to break up rock material, which can then be processed. The duration is very brief (fractions of a second) for a blasting event, and typically only one blast occurs per day. The City of Chula Vista does not have a threshold for this type of temporary, impulsive and intermittent construction-related noise. The U.S. Bureau of Mines Report of Investigations 8485 recommends a maximum safe overpressure of 0.013 pound per square inch (133 dB peak) for impulsive airblast (Siskind et al. 1980). Typical rock blasting operations generate approximately 119–123 dB at 600 feet (City of Riverside 2009). Given that the project site is within approximately 2,000 feet of planned residential uses in Village Three which are currently under construction, this would result in a potential peak noise level of approximately 109-113 dB Peak. A peak noise level of this magnitude would fall within the range (90–120 dB Peak) of strongly perceptible to mildly unpleasant, and would be well below the threshold of damage to physical property. Although this would not exceed any City thresholds, blasting, if determined to be necessary, is considered to have a potentially significant impact unless mitigated.

In addition, another planned residential development (Village Eight West) is adjacent to the eastern boundary of the project site. The phasing of Village Eight West relative to the proposed project (Village Four) is not known at this time; however, if Village Eight West is occupied prior to or during blasting activities at Village Four, significant impacts could occur. To avoid potentially significant impacts, mitigation is provided (see Section 6, Mitigation Measures, N-5). Implementation of the mitigation measure would reduce the impact of blasting, should blasting be required, to a less than significant level.

The project applicant is also required to retain a qualified blasting specialist to develop a site specific blasting program report to assess, control, and monitor ground vibration from blasting, for any residences located within 1,000 feet of the mining operation. The applicant is required to provide public notification of the blasting schedule for residents within 1,000 feet of blasting. The applicant will give a monthly blasting schedule in writing to residences within 1,000 feet of potential blast locations. The notice will disclose the anticipated blasting schedule and provide a contact phone number for the blasting contractor. Unscheduled changes to the blasting schedule will require the blasting schedule to be reissued no less than 24 hours prior to the blasting. Therefore, groundborne vibration impacts would be less than significant.

On-site rock crushing may be associated with the blasting activities (Hunsaker 2017). Approximately 406,500 cubic yards of rock material would be crushed over an estimated time span of 163 working days[8]. Similarly to blasting, it is not known at this stage of the project if

[8] Based upon the assumption of a daily rock-crushing rate of 2,500 cubic yards per day.

rock-crushing will be necessary or if so, the location within the project site of such activity. Typically, rock-crushing operation would begin with a front-end loader picking up material and dumping the material into a primary crusher. The material would then be crushed, screened, and stacked in product piles. The material would be stockpiled adjacent to the rock-crushing equipment. All material will be used on site. Electric power would most likely be provided by a diesel engine generator. Based on noise measurements that have been conducted for portable rock crushing operations, the rock crushing activity would generate a one-hour average noise level of approximately 80 dB at a distance of 100 feet from the primary crusher. The primary crusher would also generate impulsive noise events. Maximum noise levels associated with the primary crusher could reach approximately 88 dB at 100 feet. Although the overall noise levels are not substantially different from those of other heavy construction equipment, the character of rock-crushing noise is more impulsive and thus could be more annoying to nearby noise-sensitive land uses. Additionally, rock-crushing installations remain in-place for long periods of time and can run for long periods throughout a work-day. Therefore, whenever possible they should not be located in proximity of residences or other noise-sensitive land uses. At a distance of 600 feet, the average noise level from a typical rock crushing operation would be reduced to below 65 dBA L_{eq}.

As discussed previously, the phasing of the adjacent Village Eight West relative to the proposed project (Village Four) is not known at this time; however, if Village Eight West is occupied prior to or during rock crushing activity within Village Four, significant impacts could occur. To avoid potentially significant impacts, mitigation is provided (see Section 6, Mitigation Measures, N-6). Implementation of the mitigation measure would reduce the impact of blasting, should blasting be required, to a less than significant level.

5.5 Cumulative Impacts

Noise effects of the project would, for the most part, be confined to the project area and are evaluated on a project-specific basis. Long-term on-site activities associated with the project would not have a regional effect upon community noise levels, and therefore need not be considered in combination with approved or proposed projects in the region. The one exception is the project's contribution to traffic-related noise levels, which extend beyond the site boundaries, and which must be considered in the context of proposed projects in the region. The project's contribution to cumulatively significant noise impacts is presented in Table 11. The methodology again uses the TNM model to compare the resulting noise levels from Year 2030 with and without Project traffic volumes.

Table 11
Project Contribution to Off-Site Traffic Noise – Year 2030
(Off-Site Traffic Noise Level Increase)

Roadway (segment)	Rcvr #	CNEL (dB)		
		Year 2030	*Year 2030 + Project*	*dB Change*
La Media Road Olympic Parkway to Santa Venetia Street	R1	57	58	1
La Media Road Santa Venetia Street to Birch Road	R2	59	59	0
La Media Road Birch Road to Santa Luna Street	R3	58	58	0
La Media Road Birch Road to Main Street	R4	57	58	1

As seen in Table 10, the project's contribution to cumulative noise levels would be limited; a one dB increase at most, which by itself is not a discernible increase. Additionally as shown in Table 10, the proposed project would not result in any modeled receivers to exceed the City's 65 dB CNEL noise standard for residential land uses. Therefore, the project's contribution to increased noise levels would not be cumulatively considerable and cumulative impacts would be less than significant. Consequently, mitigation is not required for the project's contribution to off-site noise impacts associated with General Plan build out traffic volumes.

Additionally, the project would operate within the vicinity of the MSCP Preserve. According to the project's Biological Technical Report, the project would comply with the City's Adjacency Management Guidelines (refer to mitigation measure BIO16), which include the minimization of operational noise such that it would not impact or interfere with wildlife utilization of the Preserve (Dudek 2016). Both the Otay Ranch Resource Management Plan and the Chula Vista MSCP Subarea Plan provide consideration for and mitigation of cumulative impacts to biological resources.

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6 MITIGATION MEASURES

The following mitigation measures are recommended to address the identified potentially significant noise impacts.

MM N-1 Prior to the approval of grading permits for residential development adjacent to Main Street, the project applicant or its designee shall be responsible for the preparation of a subsequent acoustical study based on the final map design and implementation of any measures recommended as a result of the analysis to the satisfaction of the Development Services Director (or their designee). The study shall include, but not be limited to the following:

1. Location, height, and building material of the noise barriers in accordance with Figure 6 (On-Site Modeled Receivers and Approximate Sound Wall Locations), contained in the Noise Assessment Technical Report for the Otay Ranch Village Four Project (Dudek July 2015). The sound wall noise barriers shall be a minimum of six feet in height, must have a surface density of at least four pounds per square foot, and be free of openings and cracks. The wall may be constructed of acrylic glass, masonry material, earthen berm, or a combination of these materials. Heights are provided relative to final pad elevation. Required heights may be achieved through construction of walls, berms or a wall/berm combination;
2. A detailed analysis that demonstrates that barriers and/or setbacks have been incorporated into the project design, such that noise exposure to residential receivers placed in all useable outdoor areas, including multi-family residential patios and balconies, are at or below 65 dBA CNEL; and
3. Should pad grade elevations, parcel configuration/site design, and/or traffic assumptions change during the processing of any final maps, the barriers shall be refined to reflect those modifications.

MM N-2 Site-Specific Acoustic Analysis – Single-Family Residences. Concurrent with design review and prior to the approval of building permits for single-family residential development where the exterior noise level exceeds 60 dBA CNEL and/or where usable outdoor area (patios or balconies) noise levels exceed 65 dBA CNEL, the applicant shall prepare an acoustical analysis ensuring that interior noise levels due to exterior noise sources will be at or below 45 dBA CNEL and the City's Exterior Land Use/Noise Compatibility Guidelines for outdoor use areas (i.e., 65 dBA CNEL) are met. Design-level architectural plans

shall be used to calculate the exterior-to-interior transmissions loss for habitable rooms. Contingent upon the results of the interior acoustical analysis, units may need to include an air conditioning system to provide a habitable interior environment with the windows closed while meeting the interior standard of 45 dBA CNEL. The acoustical analysis shall be prepared to the satisfaction of the Director of Development Services (or their designee), and all required noise control measures identified in the acoustical analysis shall be made conditions of building permit issuance.

MM N-3 Site-Specific Acoustic Analysis – Multi-Family Residences. Concurrent with design review and prior to the approval of building permits for multi-family areas where first and/or second floor exterior noise levels exceed 60 dBA CNEL and/or where usable outdoor area (patios or balconies) noise levels exceed 65 dBA CNEL, the applicant shall prepare an acoustical analysis demonstrating compliance with California's Title 24 Interior Noise Standards (i.e., 45 dBA CNEL) and the City's Exterior Land Use/Noise Compatibility Guidelines for outdoor use areas (i.e., 65 dBA CNEL). Design-level architectural plans will be available during design review and will permit the accurate calculation of transmissions loss for habitable rooms. For these areas, it may be necessary for the windows to be able to remain closed to ensure that interior noise levels meet the interior standard of 45 dBA CNEL. Consequently, the design for buildings in these areas may need to include a ventilation or air conditioning system to provide a habitable interior environment with the windows closed based on the result on the interior acoustical analysis.

MM N-4 All project-related site preparation and construction activities shall be limited to the hours between 7:00 am–6:00 pm, Monday –Friday, and between 8:00 am–6:00 pm Saturday. No construction activities shall occur on Federal holidays (e.g., Thanksgiving, July 4th, Labor Day, etc.). All maintenance of construction equipment shall be limited to the same hours. This language shall be added to the Project grading plans. Non-noise-generating construction activities such as interior painting are not subject to these restrictions.

MM N-5 Prior to the issuance of a grading permit, a blasting plan will be required in the event that blasting is proposed in Village Four. This plan shall identify when such blasting events would occur, the approximate amount of explosive, and the location and proximity to sensitive receptors. The Blasting Plan would also detail the surrounding zone in which noise-sensitive land uses would be notified of planned blasting activities, and of the nature of audible warning signals to be used

just prior to blasting. The blasting plan shall be prepared to the satisfaction of the Director of Development Services (or their designee).

MM N-6 The project applicant, or its designee, shall take those steps necessary to ensure that on-site rock crusher facilities are located a minimum of 600 feet from the property line of occupied residences or other noises-sensitive uses.

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7 REFERENCES

California Department of Transportation, Division of Environmental Analysis. 2009. Technical Noise Supplement.

Fehr & Peers. 2016. Otay Ranch Village 4 South, Draft Final TIA. July.

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APPENDIX A

Definitions of Noise Terms

APPENDIX A
Definitions of Noise Terms

Term	Definition
Ambient Noise Level	The composite of noise from all sources near and far. The normal or existing level of environmental noise at a given location.
A-Weighted Sound Level, dBA	The sound pressure level in decibels as measured on a sound level meter using the A-weighted filter network. The A-weighting filter de-emphasizes the very low and very high frequency components of the sound in a manner similar to the frequency response of the human ear and correlates well with subjective reactions to noise.
Community Noise Equivalent Level, CNEL	CNEL is the average equivalent A-weighted sound level during a 24-hour day. CNEL accounts for the increased noise sensitivity during the nighttime (10 PM–7AM) and evening (7–10 PM) by adding ten dB to the sound levels at night and five dB to the sound levels during the evening.
Decibel, dB	A unit for measuring sound pressure level and is equal to 10 times the logarithm to the base 10 of the ratio of the measured sound pressure squared to a reference pressure, which is 20 micropascals.
Maximum A-weighted Sound Level, Lmax	The greatest sound level measured on a sound level meter during a designated time interval or event.
Time-Average Sound Level, TAV	The sound level corresponding to a steady state sound level containing the same total energy as a time varying signal over a given sample period. TAV is designed to average all of the loud and quiet sound levels occurring over a time period.

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APPENDIX B

Pertinent Traffic Data

EXISTING PLUS PROJECT CONDITIONS TRAFFIC VOLUME DATA

(From Table 5.2 oF Chen Ryan Traffic Impact Analysis)

Facility	From	To	Existing ADT	Existing ADT w/ Project	Project ADT (>800)	Estimated Project-Related Noise Increase[1] (dB)	Potential Significant Noise Increase (i.e., 1 dB or Greater ?)
Olympic Pkwy	I-805 SB Ramps	I-805 NB Ramps	39,450	39,983	533	0.1	No
Olympic Pkwy	I-805 NB Ramps	Oleander Avenue	48,508	49,391	883	0.1	No
Olympic Pkwy	Oleander Avenue	Brandywine Avenue	52,262	53,145	883	0.1	No
Olympic Pkwy	Brandywine Avenue	Heritage Road	52,690	53,925	1,235	0.1	No
Olympic Pkwy	Heritage Road	Santa Venetia Street	48,232	49,997	1,765	0.2	No
Olympic Pkwy	Santa Venetia Street	La Media Road	45,805	47,570	1,765	0.2	No
Olympic Pkwy	La Media Road	East Palomar Street	31,038	32,097	1,059	0.1	No
Olympic Pkwy	East Palomar Street	SR-125 SB Ramps	35,555	36,614	1,059	0.1	No
Birch Rd	La Media Road	Magdalena Avenue	9,160	9,584	424	0.2	No
Birch Rd	Magdalena Avenue	SR-125 SB Ramps	10,740	11,164	424	0.2	No
Main St	I-805 NB Ramps	Oleander Avenue	31,341	31,341	0	0.0	No
Main St	Oleander Avenue	Brandywine Avenue	23,065	23,065	0	0.0	No
Main St	Brandywine Avenue	Heritage Rd	10,865	10,865	0	0.0	No
Heritage Rd	Main Street	Avenida De Las Vistas	8,787	8,787	0	0.0	No
La Media Rd	Olympic Parkway	Santa Venetia Street	16,408	19,514	3,106	0.8	Yes
La Media Rd	Santa Venetia Street	Birch Road	11,515	14,621	3,106	1.0	Yes
La Media Rd	Birch Road	Santa Luna Street	2,072	5,602	3,530	4.3	Yes

1- Based on the following relation: Estimated dB Increase = $10*\text{Log}\ (V_{\text{with Project}} / V_{\text{without Project}})$. For example, if $V_{\text{with Project}} = 4000$ and $V_{\text{without Project}} = 2000$, the Estimated dB Increase is 3 dB.

MID TERM (2020) CONDITIONS TRAFFIC VOLUME DATA
(From Table 7.2 oF Chen Ryan Traffic Impact Analysis)

Facility	From	To	Year 2020 ADT	Year 2020 ADT w/ Project	Project ADT (>800)	Estimated Project-Related Noise Increase[1] (dB)	Potential Significant Noise Increase (i.e., 1 dB or Greater ?)
Olympic Pkwy	I-805 SB Ramps	I-805 NB Ramps	63,470	64,000	530	0.0	No
Olympic Pkwy	I-805 NB Ramps	Oleander Avenue	70,117	71,000	883	0.1	No
Olympic Pkwy	Oleander Avenue	Brandywine Avenue	64,517	65,400	883	0.1	No
Olympic Pkwy	Brandywine Avenue	Heritage Road	58,265	59,500	1235	0.1	No
Olympic Pkwy	Heritage Road	Santa Venetia Street	44,435	46,200	1765	0.2	No
Olympic Pkwy	Santa Venetia Street	La Media Road	36,535	38,300	1765	0.2	No
Olympic Pkwy	La Media Road	East Palomar Street	27,523	27,700	177	0.0	No
Olympic Pkwy	East Palomar Street	SR-125 SB Ramps	47,023	47,200	177	0.0	No
Birch Rd	La Media Road	Magdalena Avenue	26,194	27,500	1306	0.2	No
Birch Rd	Magdalena Avenue	SR-125 SB Ramps	30,394	31,700	1306	0.2	No
Main St	I-805 NB Ramps	Oleander Avenue	50,100	50,100	0	0.0	No
Main St	Oleander Avenue	Brandywine Avenue	51,300	51,300	0	0.0	No
Main St	Brandywine Avenue	Heritage Rd	39,200	39,200	0	0.0	No
Main St	Heritage Road	Project Access	n/a	n/a	n/a	n/a	n/a
Main St	Project Access	La Media Road	0	3,530	3,530	n/a	Yes
Main St	La Media Road	SR-125 SB Ramps	18,500	18,500	0	0.0	No
Main St	SR-125 SB Ramps	SR-125 NB Ramps	n/a	n/a	n/a	n/a	n/a
Main St	SR-125 NB Ramps	Eastlake Parkway	n/a	n/a	n/a	n/a	n/a
Otay Valley Rd	Main Street	SR-125	n/a	n/a	n/a	n/a	n/a
Heritage Rd	Olympic Parkway	Santa Victoria Road	17,500	17,500	0	0.0	No
Heritage Rd	Santa Victoria Road	Main Street	17,500	17,500	0	0.0	No
Heritage Rd	Main Street	Avenida de las Vistas	17,400	17,400	0	0.0	No
La Media Rd	Olympic Parkway	Santa Venetia Street	32,482	34,600	2,118	0.3	No
La Media Rd	Santa Venetia Street	Birch Road	29,582	31,700	2,118	0.3	No
La Media Rd	Birch Road	Santa Luna Street	17,170	20,700	3,530	0.8	Yes
La Media Rd	Santa Luna Street	Main Street	15,970	19,500	3,530	0.9	Yes

1- Based on the following relation: Estimated dB Increase = $10*\text{Log}(V_{\text{with Project}} / V_{\text{without Project}})$. For example, if $V_{\text{with Project}} = 4000$ and $V_{\text{without Project}} = 2000$,

LONG TERM (2030) CONDITIONS TRAFFIC VOLUME DATA

(From Table 8.2 oF Fehr & Peers Traffic Impact Analysis)

Facility	From	To	Year 2030 ADT	Year 2030 ADT w/ Project	Project ADT (>800)	Estimated Project-Related Noise Increase[1] (dB)	Potential Significant Noise Increase (i.e., 1 dB or Greater ?)
Olympic Pkwy	I-805 SB Ramps	I-805 NB Ramps	45,218	45,500	282	0.0	No
Olympic Pkwy	I-805 NB Ramps	Oleander Avenue	56,041	56,500	459	0.0	No
Olympic Pkwy	Oleander Avenue	Brandywine Avenue	48,241	48,700	459	0.0	No
Olympic Pkwy	Brandywine Avenue	Heritage Road	41,388	42,200	812	0.1	No
Olympic Pkwy	Heritage Road	Santa Venetia Street	35,217	36,100	883	0.1	No
Olympic Pkwy	Santa Venetia Street	La Media Road	28,917	29,800	883	0.1	No
Olympic Pkwy	La Media Road	East Palomar Street	26,923	27,100	177	0.0	No
Olympic Pkwy	East Palomar Street	SR-125 SB Ramps	47,423	47,600	177	0.0	No
Birch Rd	La Media Road	Magdalena Avenue	31,159	31,300	141	0.0	No
Birch Rd	Magdalena Avenue	SR-125 SB Ramps	30,859	31,000	141	0.0	No
Main St	I-805 NB Ramps	Oleander Avenue	50,676	51,100	424	0.0	No
Main St	Oleander Avenue	Brandywine Avenue	54,476	54,900	424	0.0	No
Main St	Brandywine Avenue	Heritage Rd	48,876	49,300	424	0.0	No
Main St	Heritage Road	Project Access	45,621	46,609	988	0.1	No
Main St	Project Access	La Media Road	45,651	48,193	2,542	0.2	No
Main St	La Media Road	SR-125 SB Ramps	53,917	54,800	883	0.1	No
Main St	SR-125 SB Ramps	SR-125 NB Ramps	54,370	54,900	530	0.0	No
Main St	SR-125 NB Ramps	Eastlake Parkway	60,147	60,500	353	0.0	No
Otay Valley Rd	Main Street	SR-125	22,617	22,900	283	0.1	No
Heritage Rd	Olympic Parkway	Santa Victoria Road	36,394	36,500	106	0.0	No
Heritage Rd	Santa Victoria Road	Main Street	45,390	45,600	210	0.0	No
Heritage Rd	Main Street	Avenida de las Vistas	60,347	60,700	353	0.0	No
La Media Rd	Olympic Parkway	Santa Venetia Street	32,464	33,700	1,236	0.2	No
La Media Rd	Santa Venetia Street	Birch Road	32,664	33,900	1,236	0.2	No
La Media Rd	Birch Road	Santa Luna Street	20,323	21,700	1,377	0.3	No
La Media Rd	Santa Luna Street	Main Street	19,723	21,100	1,377	0.3	No

1- Based on the following relation: Estimated dB Increase = $10*\text{Log}(V_{\text{with Project}} / V_{\text{without Project}})$. For example, if $V_{\text{with Project}} = 4000$ and $V_{\text{without Project}} = 2000$, the Estimated dB Increase would be 3 dB.

APPENDIX C

TNM Model Data

Dudek					**30 July 2015**						
M Greene					**TNM 2.5**						
INPUT: ROADWAYS							**Average pavement type shall be used unless**				
PROJECT/CONTRACT:	**8190**						**a State highway agency substantiates the use**				
RUN:	**Otay Ranch Vllg Four Cal Run M2**						**of a different type with the approval of FHWA**				
Roadway		**Points**									
Name	**Width**	**Name**	**No.**	**Coordinates (pavement)**			**Flow Control**			**Segment**	
				X	**Y**	**Z**	**Control Device**	**Speed Constraint**	**Percent Vehicles Affected**	**Pvmt Type**	**On Struct?**
	ft			ft	ft	ft		mph	%		
La Media Road NB-Birch to Santa Luna	60.0	point43	43	42,300.0	44,000.0	450.00				Average	
		point44	44	42,300.0	47,500.0	450.00					
La Media Road SB-Birch to Santa Luna	60.0	point45	45	42,250.0	47,500.0	450.00				Average	
		point46	46	42,250.0	44,000.0	450.00					

Dudek **30 July 2015**

M Greene **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Volumes

PROJECT/CONTRACT: **8190**

RUN: **Otay Ranch Vllg Four Cal Run M2**

Roadway	**Points**											
Name	**Name**	**No.**	**Segment**									
			Autos		**MTrucks**		**HTrucks**		**Buses**		**Motorcycles**	
			V	**S**	**V**	**S**	**V**	**S**	**V**	**S**	**V**	**S**
			veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph	veh/hr	mph
La Media Road NB-Birch to Santa Luna	point43	43	128	45	0	0	0	0	0	0	0	0
	point44	44										
La Media Road SB-Birch to Santa Luna	point45	45	128	45	0	0	0	0	0	0	0	0
	point46	46										

Dudek						**30 July 2015**					
M Greene						**TNM 2.5**					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	**8190**										
RUN:	**Otay Ranch Vllg Four Cal Run M2**										
Receiver											
Name	**No.**	**#DUs**	**Coordinates (ground)**			**Height**	**Input Sound Levels and Criteria**				**Active**
			X	**Y**	**Z**	**above**	**Existing**	**Impact Criteria**		**NR**	**in**
						Ground	**LAeq1h**	**LAeq1h**	**Sub'l**	**Goal**	**Calc.**
			ft	ft	ft	ft	dBA	dBA	dB	dB	
M2 Measurement	77	1	42,499.0	44,904.9	490.00	5.00	54.10	65	10.0	8.0	Y

Dudek
M Greene

30 July 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Vllg Four Cal Run M2
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
M2 Measurement	77	1	54.1	53.2	65	-0.9	10	----	53.2	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction		
		Min	Avg	Max
		dB	dB	dB
All Selected	1	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek **30 July 2015**
M Greene **TNM 2.5**

INPUT: ROADWAYS
PROJECT/CONTRACT: **8190**
RUN: **Otay Ranch Village Four Existing**

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with the approval of FHWA

Roadway Name	Width	Points Name	No.	Coordinates (pavement) X	Y	Z	Flow Control Control Device	Speed Constraint	Percent Vehicles Affected	Segment Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
La Media Road NB-Birch to Santa Luna	60.0	point43	43	42,300.0	44,000.0	450.00				Average	
		point44	44	42,300.0	47,500.0	450.00					
La Media Road SB-Birch to Santa Luna	60.0	point45	45	42,250.0	47,500.0	450.00				Average	
		point46	46	42,250.0	44,000.0	450.00					
Resi - La Media Rd Birch to Santa Luna	60.0	point59	59	42,300.0	47,550.0	450.00				Average	
		point60	60	42,300.0	49,500.0	450.00					
La Media Rd SB-Santa Venetia toBirch	60.0	point62	62	42,250.0	49,500.0	450.00				Average	
		point61	61	42,250.0	47,550.0	450.00					
La MdiaRdNB-Santa Venetia to Olympc	60.0	point63	63	42,300.0	49,600.0	450.00				Average	
		point64	64	42,300.0	51,000.0	450.00					
La MdiaRdSB-Santa Venetia to Olympc	60.0	point65	65	42,250.0	49,600.0	450.00				Average	
		point66	66	42,250.0	51,000.0	450.00					

Dudek **30 July 2015**

M Greene **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Percentages

PROJECT/CONTRACT: **8190**

RUN: **Otay Ranch Village Four Existing**

Roadway	Points		Segment										
Name	Name	No.	Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
La Media Road NB-Birch to Santa Luna	point43	43	104	95	45	2	45	2	45	0	0	1	45
	point44	44											
La Media Road SB-Birch to Santa Luna	point45	45	104	95	45	2	45	2	45	0	0	1	45
	point46	46											
Resi - La Media Rd Birch to Santa Luna	point59	59	576	95	45	2	45	2	45	0	0	1	45
	point60	60											
La Media Rd SB-Santa Venetia toBirch	point62	62	576	95	45	2	45	2	45	0	0	1	45
	point61	61											
La MdiaRdNB-Santa Venetia to Olympc	point63	63	820	95	45	2	45	2	45	0	0	1	45
	point64	64											
La MdiaRdSB-Santa Venetia to Olympc	point65	65	820	95	45	2	45	2	45	0	0	1	45
	point66	66											

Dudek
M Greene

30 July 2015
TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village Four Existing

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1: Resi -La Mdia - Olympc to Santa Vene	66	1	42,420.0	50,300.0	480.00	5.00	0.00	65	10.0	8.0	Y
R2: Resi -La Media Santa Venetia toBirch	73	1	42,415.0	48,500.0	470.00	5.00	0.00	65	10.0	8.0	Y
R3: Resi - La Media Birch to Santa Luna	75	1	42,400.0	45,800.0	460.00	5.00	0.00	65	10.0	8.0	Y

Dudek 30 July 2015
M Greene TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village Four Existing

Barrier									Points									
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment			
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	42,390.0	47,500.0	460.00	6.00	0.00	0	0		
									point2	2	42,390.0	44,000.0	460.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point8	8	42,405.0	47,550.0	470.00	6.00	0.00	0	0		
									point9	9	42,405.0	49,500.0	470.00	6.00					
Barrier7	W	0.00	99.99	0.00				0.00	point10	10	42,410.0	49,600.0	480.00	6.00	0.00	0	0		
									point11	11	42,410.0	51,000.0	480.00	6.00					

Dudek
M Greene
30 July 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village Four Existing
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R1: Resi -La Mdia - Olympc to Santa Venet	66	1	0.0	54.4	65	54.4	10	----	54.4	0.0	8	-8.0
R2: Resi -La Media Santa Venetia toBirch	73	1	0.0	54.0	65	54.0	10	----	54.0	0.0	8	-8.0
R3: Resi - La Media Birch to Santa Luna	75	1	0.0	48.3	65	48.3	10	----	48.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek					**30 July 2015**						
M Greene					**TNM 2.5**						
INPUT: ROADWAYS							**Average pavement type shall be used unless**				
PROJECT/CONTRACT:	**8190**						**a State highway agency substantiates the use**				
RUN:	**Otay Ranch Village Four Exist w Project**						**of a different type with the approval of FHWA**				
Roadway		**Points**									
Name	**Width**	**Name**	**No.**	**Coordinates (pavement)**			**Flow Control**			**Segment**	
				X	**Y**	**Z**	**Control Device**	**Speed Constraint**	**Percent Vehicles Affected**	**Pvmt Type**	**On Struct?**
	ft			ft	ft	ft		mph	%		
La Media Road NB-Birch to Santa Luna	60.0	point43	43	42,300.0	44,000.0	450.00				Average	
		point44	44	42,300.0	47,500.0	450.00					
La Media Road SB-Birch to Santa Luna	60.0	point45	45	42,250.0	47,500.0	450.00				Average	
		point46	46	42,250.0	44,000.0	450.00					
La Media Rd NB-Birch to Santa Venetia	60.0	point59	59	42,300.0	47,550.0	450.00				Average	
		point60	60	42,300.0	49,500.0	450.00					
La Media Rd SB-Birch to Santa Venetia	60.0	point62	62	42,250.0	49,500.0	450.00				Average	
		point61	61	42,250.0	47,550.0	450.00					
La MdiaRdNB-Santa Venetia to Olympc	60.0	point63	63	42,300.0	49,600.0	450.00				Average	
		point64	64	42,300.0	51,000.0	450.00					
La MdiaRdSB-Santa Venetia to Olympc	60.0	point65	65	42,250.0	49,600.0	450.00				Average	
		point66	66	42,250.0	51,000.0	450.00					

Dudek **30 July 2015**

M Greene **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Percentages

PROJECT/CONTRACT: **8190**

RUN: **Otay Ranch Village Four Exist w Project**

Roadway	Points		Segment										
Name	Name	No.	Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
La Media Road NB-Birch to Santa Luna	point43	43	280	95	45	2	45	2	45	0	0	1	45
	point44	44											
La Media Road SB-Birch to Santa Luna	point45	45	280	95	45	2	45	2	45	0	0	1	45
	point46	46											
La Media Rd NB-Birch to Santa Venetia	point59	59	731	95	45	2	45	2	45	0	0	1	45
	point60	60											
La Media Rd SB-Birch to Santa Venetia	point62	62	731	95	45	2	45	2	45	0	0	1	45
	point61	61											
La MdiaRdNB-Santa Venetia to Olympc	point63	63	976	95	45	2	45	2	45	0	0	1	45
	point64	64											
La MdiaRdSB-Santa Venetia to Olympc	point65	65	976	95	45	2	45	2	45	0	0	1	45
	point66	66											

Dudek						**30 July 2015**					
M Greene						**TNM 2.5**					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	**8190**										
RUN:	**Otay Ranch Village Four Exist w Project**										
Receiver											
Name	**No.**	**#DUs**	**Coordinates (ground)**			**Height**	**Input Sound Levels and Criteria**				**Active**
			X	**Y**	**Z**	**above**	**Existing**	**Impact Criteria**		**NR**	**in**
						Ground	**LAeq1h**	**LAeq1h**	**Sub'l**	**Goal**	**Calc.**
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1: Resi -La Mdia - Olympc to Santa Vene	66	1	42,420.0	50,300.0	480.00	5.00	0.00	65	10.0	8.0	Y
R2: Resi -La Media Santa Venetia toBirch	73	1	42,415.0	48,500.0	470.00	5.00	0.00	65	10.0	8.0	Y
R3: Resi - La Media Birch to Santa Luna	75	1	42,400.0	45,800.0	460.00	5.00	0.00	65	10.0	8.0	Y

Dudek 30 July 2015
M Greene TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village Four Exist w Project

Barrier									Points									
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment			
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	42,390.0	47,500.0	460.00	6.00	0.00	0	0		
									point2	2	42,390.0	44,000.0	460.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point8	8	42,405.0	47,550.0	470.00	6.00	0.00	0	0		
									point9	9	42,405.0	49,500.0	470.00	6.00					
Barrier7	W	0.00	99.99	0.00				0.00	point10	10	42,410.0	49,600.0	480.00	6.00	0.00	0	0		
									point11	11	42,410.0	51,000.0	480.00	6.00					

Dudek
M Greene

30 July 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village Four Exist w Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R1: Resi -La Mdia - Olympc to Santa Venet	66	1	0.0	55.1	65	55.1	10	----	55.1	0.0	8	-8.0
R2: Resi -La Media Santa Venetia toBirch	73	1	0.0	55.1	65	55.1	10	----	55.1	0.0	8	-8.0
R3: Resi - La Media Birch to Santa Luna	75	1	0.0	52.5	65	52.5	10	----	52.5	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	3	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek					**30 July 2015**						
M Greene					**TNM 2.5**						
INPUT: ROADWAYS							**Average pavement type shall be used unless**				
PROJECT/CONTRACT:	**8190**						**a State highway agency substantiates the use**				
RUN:	**Otay Ranch VillageFour Future Yr 2030**						**of a different type with the approval of FHWA**				
Roadway		**Points**									
Name	**Width**	**Name**	**No.**	**Coordinates (pavement)**			**Flow Control**			**Segment**	
				X	**Y**	**Z**	**Control Device**	**Speed Constraint**	**Percent Vehicles Affected**	**Pvmt Type**	**On Struct?**
	ft			ft	ft	ft		mph	%		
La Media Road NB-Birch to Santa Luna	60.0	point43	43	42,300.0	44,000.0	450.00				Average	
		point44	44	42,300.0	47,500.0	450.00					
La Media Road SB-Birch to Santa Luna	60.0	point45	45	42,250.0	47,500.0	450.00				Average	
		point46	46	42,250.0	44,000.0	450.00					
La Media Road NB-Santa Luna to Main	60.0	point47	47	42,300.0	43,950.0	450.00				Average	
		point48	48	42,300.0	42,529.2	450.00					
La Media Road SB-Santa Luna to Main	60.0	point49	49	42,250.0	43,954.0	450.00				Average	
		point50	50	42,250.0	42,590.4	450.00					
La Media Rd NB-Birch to Santa Venetia	60.0	point59	59	42,300.0	47,550.0	450.00				Average	
		point60	60	42,300.0	49,500.0	450.00					
La Media Rd SB-Birch to Santa Venetia	60.0	point62	62	42,250.0	49,500.0	450.00				Average	
		point61	61	42,250.0	47,550.0	450.00					
La MdiaRdNB-Santa Venetia to Olympc	60.0	point63	63	42,300.0	49,600.0	450.00				Average	
		point64	64	42,300.0	51,000.0	450.00					
La MdiaRdSB-Santa Venetia to Olympc	60.0	point65	65	42,250.0	49,600.0	450.00				Average	
		point66	66	42,250.0	51,000.0	450.00					

Dudek **30 July 2015**

M Greene **TNM 2.5**

INPUT: TRAFFIC FOR LAeq1h Percentages

PROJECT/CONTRACT: **8190**

RUN: **Otay Ranch VillageFour Future Yr 2030**

Roadway	Points		Segment										
Name	Name	No.	Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
La Media Road NB-Birch to Santa Luna	point43	43	1016	95	45	2	45	2	45	0	0	1	45
	point44	44											
La Media Road SB-Birch to Santa Luna	point45	45	1016	95	45	2	45	2	45	0	0	1	45
	point46	46											
La Media Road NB-Santa Luna to Main	point47	47	879	95	45	2	45	2	45	0	0	1	45
	point48	48											
La Media Road SB-Santa Luna to Main	point49	49	879	95	45	2	45	2	45	0	0	1	45
	point50	50											
La Media Rd NB-Birch to Santa Venetia	point59	59	1626	95	45	2	45	2	45	0	0	1	45
	point60	60											
La Media Rd SB-Birch to Santa Venetia	point62	62	1626	95	45	2	45	2	45	0	0	1	45
	point61	61											
La MdiaRdNB-Santa Venetia to Olympc	point63	63	1623	95	45	2	45	2	45	0	0	1	45
	point64	64											
La MdiaRdSB-Santa Venetia to Olympc	point65	65	1623	95	45	2	45	2	45	0	0	1	45
	point66	66											

Dudek						**30 July 2015**					
M Greene						**TNM 2.5**					
INPUT: RECEIVERS											
PROJECT/CONTRACT:	**8190**										
RUN:	**Otay Ranch VillageFour Future Yr 2030**										
Receiver											
Name	**No.**	**#DUs**	**Coordinates (ground)**			**Height**	**Input Sound Levels and Criteria**				**Active**
			X	**Y**	**Z**	**above**	**Existing**	**Impact Criteria**		**NR**	**in**
						Ground	**LAeq1h**	**LAeq1h**	**Sub'l**	**Goal**	**Calc.**
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1: Resi -La Mdia - Olympc to Santa Vene	1	1	42,420.0	50,300.0	480.00	5.00	0.00	65	10.0	8.0	
R2: Resi -La Media Santa Venetia toBirch	2	1	42,415.0	48,500.0	470.00	5.00	0.00	65	10.0	8.0	
R3: Resi - La Media Birch to Santa Luna	3	1	42,400.0	45,800.0	460.00	5.00	0.00	65	10.0	8.0	
R4: Potential Future Resi - La Media Birch	4	1	42,400.0	43,400.0	460.00	5.00	0.00	65	10.0	8.0	

Dudek **30 July 2015**
M Greene **TNM 2.5**

INPUT: BARRIERS
PROJECT/CONTRACT: **8190**
RUN: **Otay Ranch VillageFour Future Yr 2030**

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per	$ per	Top	Run:Rise	$ per			X	Y	Z	at	Seg Ht	Perturbs		On	Important
				Unit	Unit	Width		Unit						Point	Incre-	#Up	#Dn	Struct?	Reflec-
				Area	Vol.			Length							ment				tions?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	42,390.0	47,500.0	460.00	6.00	0.00	0	0		
									point2	2	42,390.0	44,000.0	460.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point3	3	42,390.0	43,990.0	460.00	6.00	0.00	0	0		
									point4	4	42,390.0	42,500.0	460.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point8	8	42,405.0	47,550.0	470.00	6.00	0.00	0	0		
									point9	9	42,405.0	49,500.0	470.00	6.00					
Barrier7	W	0.00	99.99	0.00				0.00	point10	10	42,410.0	49,600.0	480.00	6.00	0.00	0	0		
									point11	11	42,410.0	51,000.0	480.00	6.00					

Dudek
M Greene

30 July 2015
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch VillageFour Future Yr 2030
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R1: Resi -La Mdia - Olympc to Santa Venet	1	1	0.0	57.4	65	57.4	10	----	57.4	0.0	8	-8.0
R2: Resi -La Media Santa Venetia toBirch	2	1	0.0	58.6	65	58.6	10	----	58.6	0.0	8	-8.0
R3: Resi - La Media Birch to Santa Luna	3	1	0.0	58.1	65	58.1	10	----	58.1	0.0	8	-8.0
R4: Potential Future Resi - La Media Birch	4	1	0.0	57.3	65	57.3	10	----	57.3	0.0	8	-8.0

Dwelling Units	# DUs	Noise Reduction Min	Avg	Max
		dB	dB	dB
All Selected	4	0.0	0.0	0.0
All Impacted	0	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

Dudek					**20 February 2017**						
M Greene					**TNM 2.5**						
INPUT: ROADWAYS							**Average pavement type shall be used unless**				
PROJECT/CONTRACT:	**8190**						**a State highway agency substantiates the use**				
RUN:	**Otay Ranch VillageFour Future w Project**						**of a different type with the approval of FHWA**				
Roadway		**Points**									
Name	**Width**	**Name**	**No.**	**Coordinates (pavement)**			**Flow Control**			**Segment**	
				X	**Y**	**Z**	**Control Device**	**Speed Constraint**	**Percent Vehicles Affected**	**Pvmt Type**	**On Struct?**
	ft			ft	ft	ft		mph	%		
Main St NB - Heritage to Proj Access	62.0	point1	1	36,736.5	39,737.2	305.12				Average	
		point2	2	37,053.8	39,815.0	308.40				Average	
		point3	3	37,382.5	39,846.8	311.68				Average	
		point4	4	37,709.6	39,877.3	314.96				Average	
		point5	5	38,035.1	39,913.1	318.24				Average	
		point6	6	38,351.4	39,997.7	330.05				Average	
		point7	7	38,651.6	40,133.5	349.08				Average	
		point8	8	38,913.4	40,307.4	368.11				Average	
		point9	9	39,162.1	40,536.7	387.14				Average	
		point10	10	39,369.8	40,793.3	405.84				Average	
		point11	11	39,573.5	41,051.8	416.99					
La Media Road NB-Birch to Santa Luna	60.0	point43	43	42,300.0	44,000.0	450.00				Average	
		point44	44	42,300.0	47,500.0	450.00					
La Media Road SB-Birch to Santa Luna	60.0	point45	45	42,250.0	47,500.0	450.00				Average	
		point46	46	42,250.0	44,000.0	450.00					
La Media Road NB-Santa Luna to Main	60.0	point47	47	42,300.0	43,950.0	450.00				Average	
		point48	48	42,300.0	42,529.2	450.00					
La Media Road SB-Santa Luna to Main	60.0	point49	49	42,250.0	43,954.0	450.00				Average	
		point50	50	42,250.0	42,590.4	450.00					
Main St SB- Proj Access to Heritage	62.0	point58	58	39,545.3	41,101.4	416.99				Average	
		point28	28	39,341.9	40,842.8	405.84				Average	
		point27	27	39,125.0	40,587.6	387.14				Average	
		point26	26	38,885.2	40,357.3	368.11				Average	
		point25	25	38,623.7	40,183.4	349.08				Average	
		point24	24	38,323.2	40,047.6	330.05				Average	

		point23	23	38,013.8	39,969.8	318.24				Average	
		point22	22	37,687.0	39,929.8	314.96				Average	
		point21	21	37,362.5	39,901.9	311.68				Average	
		point20	20	37,025.9	39,868.8	308.40				Average	
		point19	19	36,708.3	39,794.0	305.12					
La Media Rd NB-Birch to Santa Venetia	60.0	point59	59	42,300.0	47,550.0	450.00				Average	
		point60	60	42,300.0	49,500.0	450.00					
La Media Rd SB-Birch to Santa Venetia	60.0	point62	62	42,250.0	49,500.0	450.00				Average	
		point61	61	42,250.0	47,550.0	450.00					
La MdiaRdNB-Santa Venetia to Olympc	60.0	point63	63	42,300.0	49,600.0	450.00				Average	
		point64	64	42,300.0	51,000.0	450.00					
La MdiaRdSB-Santa Venetia to Olympc	60.0	point65	65	42,250.0	49,600.0	450.00				Average	
		point66	66	42,250.0	51,000.0	450.00					
Main St NB-Project Access to LaMedia	62.0	point57	57	39,573.5	41,051.8	416.99				Average	
		point12	12	39,778.2	41,311.0	424.54				Average	
		point13	13	39,968.2	41,570.5	427.49				Average	
		point14	14	40,164.4	41,839.9	430.45				Average	
		point15	15	40,239.5	41,926.8	432.09				Average	
		point16	16	40,389.4	42,075.8	434.71				Average	
		point17	17	40,653.5	42,271.3	437.99				Average	
		point41	41	40,925.0	42,402.0	443.00				Average	
		point42	42	42,300.0	42,500.0	450.00					
Main St SB - Santa Luna to Proj Access	62.0	point52	52	42,236.9	42,550.0	450.00				Average	
		point51	51	40,900.5	42,448.6	443.00				Average	
		point35	35	40,626.3	42,314.3	437.99				Average	
		point34	34	40,361.2	42,121.4	434.71				Average	
		point33	33	40,211.3	41,976.7	432.09				Average	
		point32	32	40,133.5	41,888.1	430.45				Average	
		point31	31	39,940.3	41,620.4	427.49				Average	
		point30	30	39,740.5	41,357.3	424.54				Average	
		point29	29	39,545.3	41,101.4	416.99					
Roadway21	12.0	point76	76	40,160.7	39,910.8	0.00				Average	
		point78	78	40,125.5	39,948.6	0.00				Average	
		point79	79	40,092.8	39,986.5	0.00				Average	
		point80	80	40,055.0	40,024.4	0.00				Average	
		point81	81	40,019.7	40,062.3	0.00				Average	
		point77	77	39,984.5	40,100.2	0.00					

Dudek 20 February 2
M Greene TNM 2.5

INPUT: TRAFFIC FOR LAeq1h Percentages
PROJECT/CONTRACT: 8190
RUN: Otay Ranch VillageFour Future w Project

Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Main St NB - Heritage to Proj Access	point1	1	2330	95	45	2	45	2	45	0	0	1	45
	point2	2	2330	95	45	2	45	2	45	0	0	1	45
	point3	3	2330	95	45	2	45	2	45	0	0	1	45
	point4	4	2330	95	45	2	45	2	45	0	0	1	45
	point5	5	2330	95	45	2	45	2	45	0	0	1	45
	point6	6	2330	95	45	2	45	2	45	0	0	1	45
	point7	7	2330	95	45	2	45	2	45	0	0	1	45
	point8	8	2330	95	45	2	45	2	45	0	0	1	45
	point9	9	2330	95	45	2	45	2	45	0	0	1	45
	point10	10	2330	95	45	2	45	2	45	0	0	1	45
	point11	11											
La Media Road NB-Birch to Santa Luna	point43	43	1085	95	45	2	45	2	45	0	0	1	45
	point44	44											
La Media Road SB-Birch to Santa Luna	point45	45	1085	95	45	2	45	2	45	0	0	1	45
	point46	46											
La Media Road NB-Santa Luna to Main	point47	47	1055	95	45	2	45	2	45	0	0	1	45
	point48	48											
La Media Road SB-Santa Luna to Main	point49	49	1055	95	45	2	45	2	45	0	0	1	45
	point50	50											
Main St SB- Proj Access to Heritage	point58	58	2330	95	45	2	45	2	45	0	0	1	45
	point28	28	2330	95	45	2	45	2	45	0	0	1	45
	point27	27	2330	95	45	2	45	2	45	0	0	1	45
	point26	26	2330	95	45	2	45	2	45	0	0	1	45

	point25	25	2330	95	45	2	45	2	45	0	0	1	45
	point24	24	2330	95	45	2	45	2	45	0	0	1	45
	point23	23	2330	95	45	2	45	2	45	0	0	1	45
	point22	22	2330	95	45	2	45	2	45	0	0	1	45
	point21	21	2330	95	45	2	45	2	45	0	0	1	45
	point20	20	2330	95	45	2	45	2	45	0	0	1	45
	point19	19											
La Media Rd NB-Birch to Santa Venetia	point59	59	1695	95	45	2	45	2	45	0	0	1	45
	point60	60											
La Media Rd SB-Birch to Santa Venetia	point62	62	1695	95	45	2	45	2	45	0	0	1	45
	point61	61											
La MdiaRdNB-Santa Venetia to Olympc	point63	63	1685	95	45	2	45	2	45	0	0	1	45
	point64	64											
La MdiaRdSB-Santa Venetia to Olympc	point65	65	1685	95	45	2	45	2	45	0	0	1	45
	point66	66											
Main St NB-Project Access to LaMedia	point57	57	2410	95	45	2	45	2	45	0	0	1	45
	point12	12	2410	95	45	2	45	2	45	0	0	1	45
	point13	13	2410	95	45	2	45	2	45	0	0	1	45
	point14	14	2410	95	45	2	45	2	45	0	0	1	45
	point15	15	2410	95	45	2	45	2	45	0	0	1	45
	point16	16	2410	95	45	2	45	2	45	0	0	1	45
	point17	17	2410	95	45	2	45	2	45	0	0	1	45
	point41	41	2410	95	45	2	45	2	45	0	0	1	45
	point42	42											
Main St SB - Santa Luna to Proj Access	point52	52	2410	95	45	2	45	2	45	0	0	1	45
	point51	51	2410	95	45	2	45	2	45	0	0	1	45
	point35	35	2410	95	45	2	45	2	45	0	0	1	45
	point34	34	2410	95	45	2	45	2	45	0	0	1	45
	point33	33	2410	95	45	2	45	2	45	0	0	1	45
	point32	32	2410	95	45	2	45	2	45	0	0	1	45
	point31	31	2410	95	45	2	45	2	45	0	0	1	45
	point30	30	2410	95	45	2	45	2	45	0	0	1	45
	point29	29											
Roadway21	point76	76	0	0	0	0	0	0	0	0	0	0	0
	point78	78	0	0	0	0	0	0	0	0	0	0	0
	point79	79	0	0	0	0	0	0	0	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Percentages **8190**

	point80	80	0	0	0	0	0	0	0	0	0	0	0
	point81	81	0	0	0	0	0	0	0	0	0	0	0
	point77	77											

Dudek
M Greene

20 February 2017
TNM 2.5

INPUT: BARRIERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch VillageFour Future w Project

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Increment	Perturbs #Up	#Dn	On Struct?	Important Reflections?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	42,390.0	47,500.0	460.00	6.00	0.00	0	0		
									point2	2	42,390.0	44,000.0	460.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point3	3	42,390.0	43,990.0	460.00	6.00	0.00	0	0		
									point4	4	42,390.0	42,500.0	460.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point8	8	42,405.0	47,550.0	470.00	6.00	0.00	0	0		
									point9	9	42,405.0	49,500.0	470.00	6.00					
Barrier18	W	0.00	99.99	0.00				0.00	point33	33	42,410.0	49,600.0	480.00	6.00	0.00	0	0		
									point34	34	42,410.0	51,000.0	480.00	6.00					

INPUT: BUILDING ROWS **8190**

			38	39,937.5	42,039.6	434.10
			35	39,775.7	41,882.1	431.10
Building10	25.00	80	39	40,672.8	42,011.5	450.00
			40	40,609.8	41,948.5	450.00
			41	40,512.5	41,834.0	455.00
			42	40,489.6	41,811.1	455.00
Building11	25.00	80	43	40,289.2	41,587.8	455.00
			44	40,231.9	41,467.6	455.00
			45	40,191.8	41,416.0	455.00
			46	40,128.9	41,341.6	455.00
			47	40,037.2	41,221.3	455.00
Building12	25.00	80	48	39,688.0	40,814.8	445.00
			49	39,636.4	40,706.0	445.00
			50	39,556.3	40,585.7	440.00
			51	39,493.3	40,494.1	440.00
			52	39,367.3	40,345.2	435.00
			53	39,292.9	40,242.2	432.00
			54	39,212.7	40,144.8	430.00

Dudek 20 February 2017
M Greene TNM 2.5

INPUT: BUILDING ROWS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch VillageFour Future

Building Row Name	Average Height	Building Percent	Points No.	Coordinates (ground) X	Y	Z
	ft	%		ft	ft	ft
Building3	25.00	80	10	39,610.1	40,874.7	430.12
			11	39,543.6	40,769.6	432.40
			12	39,461.2	40,647.2	432.09
			13	39,377.9	40,524.5	429.79
			14	39,288.0	40,406.1	426.51
			15	39,197.8	40,295.2	426.51
			16	39,104.3	40,187.9	426.18
Building4	25.00	70	17	40,656.2	42,113.1	451.44
			18	40,624.3	42,091.9	451.44
			19	40,568.3	42,068.2	444.23
			20	40,394.1	41,895.6	444.23
Building5	25.00	80	21	40,209.1	41,677.0	439.96
			22	40,119.3	41,509.0	446.00
			23	40,057.9	41,427.6	446.00
			24	40,018.2	41,367.9	445.21
			25	39,932.9	41,257.7	445.21
Building8	25.00	80	29	40,543.7	42,391.5	441.27
			30	40,291.2	42,191.1	437.01
			31	40,212.4	42,137.0	436.35
			32	40,042.1	41,958.8	434.06
			33	39,864.1	41,718.6	431.10
Building9	25.00	80	34	40,422.8	42,512.0	441.30
			36	40,261.0	42,354.5	437.00
			37	40,099.2	42,197.1	436.40

Dudek			**20 February 2017**	
M Greene			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**8190**			
RUN:	**Otay Ranch VillageFour Future w Project**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line2	1	39,079.7	40,187.7	426.18
	2	39,047.9	40,216.9	426.18
	3	39,141.4	40,324.1	426.51
	4	39,231.6	40,435.0	426.51
	6	39,321.5	40,553.5	429.79
	8	39,404.9	40,676.2	432.09
	10	39,487.2	40,798.6	432.40
	12	39,573.5	40,931.1	430.12
	13	39,610.2	40,904.5	430.12
Terrain Line3	14	39,687.7	41,024.3	429.46
	16	39,658.5	41,054.8	429.46
	17	39,747.0	41,166.3	429.46
	18	39,754.6	41,176.8	437.66
	19	39,844.5	41,288.4	437.66
	20	39,875.0	41,285.1	445.21
	21	39,960.3	41,395.3	445.21
	23	40,000.0	41,455.1	446.00
	26	40,061.4	41,536.4	446.00
	28	40,151.2	41,704.4	439.96
	29	40,240.5	41,821.9	439.96
	15	40,287.1	41,783.8	439.96
Terrain Line4	30	40,373.7	41,892.1	444.23
	32	40,339.2	41,929.1	444.23
	33	40,513.5	42,101.7	444.23

	34	40,523.6	42,101.4	448.16
	35	40,579.1	42,146.3	448.16
	36	40,584.6	42,143.7	451.44
	37	40,648.6	42,189.3	451.44
	38	40,671.9	42,162.4	451.44
	31	40,694.2	42,094.8	451.44
Terrain Line5	39	40,461.6	42,599.1	444.23
	41	40,583.7	42,417.7	441.27
	42	40,604.7	42,362.5	441.27
	43	40,323.2	42,142.4	437.01
	44	40,265.7	42,105.0	436.35
	45	40,095.5	41,926.8	434.06
	46	39,871.7	41,621.1	431.10
	47	39,852.7	41,633.5	431.10
	48	39,830.1	41,693.2	431.76
	40	39,830.7	41,770.3	432.09

Dudek 20 February 2017
M Greene TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch VillageFour Future w Project

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1: Resi -La Mdia - Olympc to Santa Ver	1	1	42,420.0	50,300.0	480.00	5.00	0.00	65	10.0	8.0	
R2: Resi -La Media Santa Venetia toBirc	2	1	42,415.0	48,500.0	470.00	5.00	0.00	65	10.0	8.0	
R3: Resi - La Media Birch to Santa Luna	3	1	42,400.0	45,800.0	460.00	5.00	0.00	65	10.0	8.0	
R4: Potential Future Resi - La Media Birc	4	1	42,400.0	43,400.0	460.00	5.00	0.00	65	10.0	8.0	
R5: Lot R-3 N side	6	1	40,567.6	42,347.2	441.11	5.00	0.00	65	10.0	8.0	
R6: Lot R-3 N central	7	1	40,401.4	42,215.6	439.76	5.00	0.00	65	10.0	8.0	
R7: Lot R-3 central	8	1	40,202.3	42,056.4	435.73	5.00	0.00	65	10.0	8.0	
R8: Lot R-3 S central	9	1	40,015.6	41,841.5	433.10	5.00	0.00	65	10.0	8.0	
R9: Lot R-3 S side	10	1	39,903.5	41,673.9	431.46	5.00	0.00	65	10.0	8.0	
R10: Lot R-3 N side 2nd flr	11	1	40,557.6	42,347.2	441.11	15.00	0.00	65	10.0	8.0	
R11: Lot R-3 N central 2nd flr	12	1	40,391.4	42,215.6	439.76	15.00	0.00	65	10.0	8.0	
R12: Lot R-3 central 2nd flr	13	1	40,192.3	42,056.4	435.73	15.00	0.00	65	10.0	8.0	
R13: Lot R-3 S central 2nd flr	14	1	40,005.6	41,841.5	433.10	15.00	0.00	65	10.0	8.0	
R14: Lot R-3 S side 2nd flr	15	1	39,893.5	41,673.9	431.46	15.00	0.00	65	10.0	8.0	
R15 Lot 68	16	1	40,631.1	42,164.7	451.38	5.00	0.00	65	10.0	8.0	
R16: Lot 69	17	1	40,565.8	42,123.4	448.16	5.00	0.00	65	10.0	8.0	
R17: Lot 72	18	1	40,398.2	41,973.0	444.23	5.00	0.00	65	10.0	8.0	
R18: Lot R-2a N side	19	1	40,235.5	41,800.1	440.00	5.00	0.00	65	10.0	8.0	
R19: Lot R-2a N central	20	1	40,147.3	41,650.1	444.00	5.00	0.00	65	10.0	8.0	
R20: Lot R-2a central	21	1	40,062.7	41,502.7	446.00	5.00	0.00	65	10.0	8.0	
R21: Lot R-2a central 2	24	1	39,948.1	41,363.9	445.21	5.00	0.00	65	10.0	8.0	Y
R22: Lot R-2a S central	25	1	39,831.3	41,256.3	437.66	5.00	0.00	65	10.0	8.0	Y

R23: Lot R-2a S side	26	1	39,703.1	41,094.7	429.46	5.00	0.00	65	10.0	8.0	Y
R24: Lot R-2b N side	27	1	39,520.5	40,837.8	431.12	5.00	0.00	65	10.0	8.0	Y
R25: Lot R-2b N Central	29	1	39,448.9	40,715.7	434.38	5.00	0.00	65	10.0	8.0	Y
R26: Lot R-2b Central	30	1	39,358.1	40,590.5	432.09	5.00	0.00	65	10.0	8.0	Y
R27: Lot R-2b Central 2	31	1	39,271.9	40,465.5	429.79	5.00	0.00	65	10.0	8.0	Y
R28: Lot R-2b S Central	32	1	39,168.2	40,340.8	426.51	5.00	0.00	65	10.0	8.0	Y
R29: Lot R-2b S	34	1	39,089.1	40,247.1	426.08	5.00	0.00	65	10.0	8.0	Y
R30: Lot 68 2nd flr	35	1	40,641.1	42,164.7	451.38	15.00	0.00	65	10.0	8.0	Y
R31: Lot 69 2nd flr	36	1	40,575.8	42,123.4	448.16	15.00	0.00	65	10.0	8.0	Y
R32: Lot 72 2nd flr	37	1	40,408.2	41,973.0	444.23	15.00	0.00	65	10.0	8.0	Y
R33: Lot R-2a N 2nd flr	38	1	40,245.5	41,800.1	440.00	15.00	0.00	65	10.0	8.0	Y
R34: Lot R-2a N central 2nd flr	39	1	40,157.3	41,650.1	444.00	15.00	0.00	65	10.0	8.0	Y
R35: Lot R-2a central 2nd flr	40	1	40,072.7	41,502.7	446.00	15.00	0.00	65	10.0	8.0	Y
R36: Lot R-2a central 2 2nd flr	41	1	39,958.1	41,363.9	445.21	15.00	0.00	65	10.0	8.0	Y
R37: Lot R-2a S central Lot 23 2nd flr	42	1	39,841.3	41,256.3	437.66	15.00	0.00	65	10.0	8.0	Y
R38: Lot R-2a S 2nd flr	43	1	39,713.1	41,094.7	429.46	15.00	0.00	65	10.0	8.0	Y
R39: Lot R-2b N side 2nd flr	44	1	39,530.5	40,837.8	431.12	15.00	0.00	65	10.0	8.0	Y
R40: Lot R-2b N Central 2nd flr	45	1	39,458.9	40,715.7	434.38	15.00	0.00	65	10.0	8.0	Y
R41: Lot R-2b Central 2nd flr	66	1	39,368.1	40,590.5	432.09	15.00	0.00	65	10.0	8.0	Y
R42: Lot R-2b Central 2 2nd flr	68	1	39,281.9	40,465.5	429.79	15.00	0.00	65	10.0	8.0	Y
R43: Lot R-2b S Central 2nd flr	71	1	39,178.2	40,340.8	426.51	15.00	0.00	65	10.0	8.0	Y
R44: Lot R-2b S 2nd flr	75	1	39,099.1	40,247.1	426.08	15.00	0.00	65	10.0	8.0	Y
R-3 N 50'	77	1	40,477.2	42,322.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 100'	78	1	40,442.1	42,361.9	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 150'	79	1	40,410.0	42,401.2	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 200'	80	1	40,371.8	42,438.3	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 250'	81	1	40,338.9	42,477.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 300'	83	1	40,299.8	42,511.1	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 50'	84	1	40,359.6	42,232.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 100'	85	1	40,327.6	42,270.4	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 150'	86	1	40,292.3	42,307.4	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 200'	87	1	40,259.6	42,344.4	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 250'	89	1	40,225.1	42,380.5	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 300'	90	1	40,190.9	42,417.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 50'	91	1	40,152.0	42,054.2	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 100'	92	1	40,116.7	42,092.1	435.00	5.00	0.00	65	10.0	8.0	Y

R-3 Central 150'	93	1	40,084.7	42,125.7	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 200'	96	1	40,048.6	42,163.5	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 250'	97	1	40,014.1	42,199.6	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 300'	98	1	39,980.6	42,236.7	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 50'	99	1	39,954.4	41,818.9	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 100'	100	1	39,920.0	41,857.2	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 150'	102	1	39,887.8	41,893.9	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 200'	104	1	39,851.8	41,930.7	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 250'	106	1	39,818.8	41,966.7	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 300'	109	1	39,784.1	42,005.5	432.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 50'	111	1	40,516.7	42,027.9	444.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 100'	112	1	40,549.6	41,991.1	444.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 150'	113	1	40,583.4	41,955.2	446.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 200'	114	1	40,618.2	41,916.4	450.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 250'	115	1	40,650.1	41,880.6	455.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 300'	117	1	40,687.8	41,840.5	455.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 50'	118	1	40,111.1	41,515.7	446.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 100'	119	1	40,144.5	41,480.5	446.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 150'	120	1	40,180.6	41,443.6	446.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 200'	121	1	40,213.9	41,406.8	450.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 250'	124	1	40,243.8	41,367.2	455.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 300'	125	1	40,279.7	41,331.0	455.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 50'	126	1	39,515.5	40,769.2	431.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 100'	127	1	39,552.1	40,732.0	432.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 150'	128	1	39,588.0	40,694.1	432.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 200'	130	1	39,627.8	40,656.2	445.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 250'	131	1	39,660.4	40,619.6	448.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 300'	132	1	39,695.1	40,580.5	450.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 50'	133	1	39,255.5	40,382.4	428.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 100'	134	1	39,291.8	40,346.8	428.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 150'	136	1	39,328.1	40,315.8	430.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 200'	137	1	39,369.8	40,280.2	430.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 250'	138	1	39,404.1	40,244.6	435.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 300'	139	1	39,441.9	40,207.3	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 50' 2nd Flr	140	1	40,478.7	42,326.9	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 100' 2nd Flr	141	1	40,444.4	42,366.9	440.00	15.00	0.00	65	10.0	8.0	Y

R-3 N 150' 2nd Flr	142	1	40,413.9	42,407.7	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 200' 2nd Flr	143	1	40,374.1	42,441.7	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 250' 2nd Flr	144	1	40,339.7	42,481.8	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 300' 2nd Flr	145	1	40,303.7	42,516.1	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 50' 2nd Flr	146	1	40,359.6	42,237.6	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 100' 2nd Flr	147	1	40,327.6	42,275.4	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 150' 2nd Flr	148	1	40,292.3	42,312.4	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 200' 2nd Flr	149	1	40,259.6	42,349.4	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 250' 2nd Flr	150	1	40,225.1	42,385.5	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 300' 2nd Flr	151	1	40,190.9	42,422.6	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 50' 2nd Flr	152	1	40,152.0	42,059.2	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 100' 2nd Flr	153	1	40,116.7	42,097.1	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 150' 2nd Flr	154	1	40,084.7	42,130.7	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 200' 2nd Flr	155	1	40,048.6	42,168.5	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 250' 2nd Flr	156	1	40,014.1	42,204.6	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 300' 2nd Flr	157	1	39,980.6	42,241.7	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 50' 2nd Flr	158	1	39,954.4	41,823.9	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 100' 2nd Flr	159	1	39,920.0	41,862.2	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 150' 2nd Flr	160	1	39,887.8	41,898.9	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 200' 2nd Flr	161	1	39,851.8	41,935.7	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 250' 2nd Flr	162	1	39,818.8	41,971.7	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 300' 2nd Flr	163	1	39,784.1	42,010.5	432.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 50' 2nd Flr	164	1	40,516.7	42,032.9	444.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 100' 2nd Flr	165	1	40,549.6	41,996.1	444.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 150' 2nd Flr	166	1	40,583.4	41,960.2	446.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 200' 2nd Flr	167	1	40,618.2	41,921.4	450.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 250' 2nd Flr	168	1	40,650.1	41,885.6	455.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 300' 2nd Flr	169	1	40,690.7	41,845.3	455.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 50' 2nd Flr	170	1	40,111.1	41,520.7	446.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 100' 2nd Flr	171	1	40,144.5	41,485.5	446.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 150' 2nd Flr	172	1	40,180.6	41,448.6	446.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 200' 2nd Flr	173	1	40,213.9	41,411.8	450.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 250' 2nd Flr	174	1	40,243.8	41,372.2	455.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 300' 2nd Flr	175	1	40,279.7	41,336.3	455.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 50' 2nd Flr	176	1	39,520.1	40,774.2	431.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 100' 2nd Flr	177	1	39,554.1	40,735.0	432.00	15.00	0.00	65	10.0	8.0	Y

INPUT: RECEIVERS **8190**

Lot R-2b N side 150' 2nd Flr	178	1	39,591.9	40,697.8	432.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 200' 2nd Flr	179	1	39,630.5	40,660.6	445.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 250' 2nd Flr	182	1	39,664.4	40,624.6	448.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 300' 2nd Flr	183	1	39,698.0	40,586.4	450.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 50' 2nd Flr	185	1	39,255.5	40,387.4	428.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 100' 2nd Flr	186	1	39,291.8	40,351.8	428.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 150' 2nd Flr	188	1	39,328.1	40,320.8	430.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 200' 2nd Flr	189	1	39,369.8	40,285.2	430.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 250' 2nd Flr	191	1	39,404.1	40,249.6	435.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 300' 2nd Flr	192	1	39,443.8	40,209.9	435.00	15.00	0.00	65	10.0	8.0	Y

Dudek
M Greene

20 February 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch VillageFour Future w Project
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h Calculated	Crit'n	Increase over existing Calculated	Crit'n Sub'l Inc	Type Impact	With Barrier Calculated LAeq1h	Noise Reduction Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R1: Resi -La Mdia - Olympc to Santa Vene	1	1	0.0	57.6	65	57.6	10	----	57.6	0.0	8	-8.0
R2: Resi -La Media Santa Venetia toBirch	2	1	0.0	58.7	65	58.7	10	----	58.7	0.0	8	-8.0
R3: Resi - La Media Birch to Santa Luna	3	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
R4: Potential Future Resi - La Media Birch	4	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
R5: Lot R-3 N side	6	1	0.0	72.4	65	72.4	10	Snd Lvl	72.4	0.0	8	-8.0
R6: Lot R-3 N central	7	1	0.0	73.1	65	73.1	10	Snd Lvl	73.1	0.0	8	-8.0
R7: Lot R-3 central	8	1	0.0	72.2	65	72.2	10	Snd Lvl	72.2	0.0	8	-8.0
R8: Lot R-3 S central	9	1	0.0	72.0	65	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R9: Lot R-3 S side	10	1	0.0	72.5	65	72.5	10	Snd Lvl	72.5	0.0	8	-8.0
R10: Lot R-3 N side 2nd flr	11	1	0.0	72.3	65	72.3	10	Snd Lvl	72.3	0.0	8	-8.0
R11: Lot R-3 N central 2nd flr	12	1	0.0	72.8	65	72.8	10	Snd Lvl	72.8	0.0	8	-8.0
R12: Lot R-3 central 2nd flr	13	1	0.0	72.1	65	72.1	10	Snd Lvl	72.1	0.0	8	-8.0
R13: Lot R-3 S central 2nd flr	14	1	0.0	71.9	65	71.9	10	Snd Lvl	71.9	0.0	8	-8.0
R14: Lot R-3 S side 2nd flr	15	1	0.0	72.3	65	72.3	10	Snd Lvl	72.3	0.0	8	-8.0
R15 Lot 68	16	1	0.0	71.9	65	71.9	10	Snd Lvl	71.9	0.0	8	-8.0
R16: Lot 69	17	1	0.0	72.0	65	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R17: Lot 72	18	1	0.0	71.4	65	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R18: Lot R-2a N side	19	1	0.0	71.4	65	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R19: Lot R-2a N central	20	1	0.0	70.5	65	70.5	10	Snd Lvl	70.5	0.0	8	-8.0
R20: Lot R-2a central	21	1	0.0	69.6	65	69.6	10	Snd Lvl	69.6	0.0	8	-8.0
R21: Lot R-2a central 2	24	1	0.0	70.2	65	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R22: Lot R-2a S central	25	1	0.0	71.7	65	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
R23: Lot R-2a S side	26	1	0.0	71.8	65	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R24: Lot R-2b N side	27	1	0.0	70.9	65	70.9	10	Snd Lvl	70.9	0.0	8	-8.0

R25: Lot R-2b N Central	29	1	0.0	70.0	65	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
R26: Lot R-2b Central	30	1	0.0	69.7	65	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R27: Lot R-2b Central 2	31	1	0.0	69.0	65	69.0	10	Snd Lvl	69.0	0.0	8	-8.0
R28: Lot R-2b S Central	32	1	0.0	68.5	65	68.5	10	Snd Lvl	68.5	0.0	8	-8.0
R29: Lot R-2b S	34	1	0.0	68.0	65	68.0	10	Snd Lvl	68.0	0.0	8	-8.0
R30: Lot 68 2nd flr	35	1	0.0	71.8	65	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R31: Lot 69 2nd flr	36	1	0.0	72.0	65	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R32: Lot 72 2nd flr	37	1	0.0	71.4	65	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R33: Lot R-2a N 2nd flr	38	1	0.0	71.4	65	71.4	10	Snd Lvl	71.4	0.0	8	-8.0
R34: Lot R-2a N central 2nd flr	39	1	0.0	70.4	65	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R35: Lot R-2a central 2nd flr	40	1	0.0	69.7	65	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R36: Lot R-2a central 2 2nd flr	41	1	0.0	70.2	65	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R37: Lot R-2a S central Lot 23 2nd flr	42	1	0.0	71.6	65	71.6	10	Snd Lvl	71.6	0.0	8	-8.0
R38: Lot R-2a S 2nd flr	43	1	0.0	71.7	65	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
R39: Lot R-2b N side 2nd flr	44	1	0.0	70.9	65	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
R40: Lot R-2b N Central 2nd flr	45	1	0.0	70.0	65	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
R41: Lot R-2b Central 2nd flr	66	1	0.0	69.7	65	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R42: Lot R-2b Central 2 2nd flr	68	1	0.0	69.1	65	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R43: Lot R-2b S Central 2nd flr	71	1	0.0	68.6	65	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R44: Lot R-2b S 2nd flr	75	1	0.0	68.2	65	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R-3 N 50'	77	1	0.0	70.6	65	70.6	10	Snd Lvl	70.6	0.0	8	-8.0
R-3 N 100'	78	1	0.0	62.4	65	62.4	10	----	62.4	0.0	8	-8.0
R-3 N 150'	79	1	0.0	62.0	65	62.0	10	----	62.0	0.0	8	-8.0
R-3 N 200'	80	1	0.0	60.9	65	60.9	10	----	60.9	0.0	8	-8.0
R-3 N 250'	81	1	0.0	55.7	65	55.7	10	----	55.7	0.0	8	-8.0
R-3 N 300'	83	1	0.0	54.9	65	54.9	10	----	54.9	0.0	8	-8.0
R-3 N Central 50'	84	1	0.0	70.8	65	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R-3 N Central 100'	85	1	0.0	62.8	65	62.8	10	----	62.8	0.0	8	-8.0
R-3 N Central 150'	86	1	0.0	60.9	65	60.9	10	----	60.9	0.0	8	-8.0
R-3 N Central 200'	87	1	0.0	59.4	65	59.4	10	----	59.4	0.0	8	-8.0
R-3 N Central 250'	89	1	0.0	56.0	65	56.0	10	----	56.0	0.0	8	-8.0
R-3 N Central 300'	90	1	0.0	55.2	65	55.2	10	----	55.2	0.0	8	-8.0
R-3 Central 50'	91	1	0.0	70.3	65	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R-3 Central 100'	92	1	0.0	61.8	65	61.8	10	----	61.8	0.0	8	-8.0
R-3 Central 150'	93	1	0.0	59.8	65	59.8	10	----	59.8	0.0	8	-8.0
R-3 Central 200'	96	1	0.0	54.3	65	54.3	10	----	54.3	0.0	8	-8.0
R-3 Central 250'	97	1	0.0	54.0	65	54.0	10	----	54.0	0.0	8	-8.0
R-3 Central 300'	98	1	0.0	53.5	65	53.5	10	----	53.5	0.0	8	-8.0
R-3 S 50'	99	1	0.0	70.1	65	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R-3 S 100'	100	1	0.0	61.9	65	61.9	10	----	61.9	0.0	8	-8.0
R-3 S 150'	102	1	0.0	60.5	65	60.5	10	----	60.5	0.0	8	-8.0

R-3 S 200'	104	1	0.0	59.4	65	59.4	10	----	59.4	0.0	8	-8.0
R-3 S 250'	106	1	0.0	54.6	65	54.6	10	----	54.6	0.0	8	-8.0
R-3 S 300'	109	1	0.0	55.1	65	55.1	10	----	55.1	0.0	8	-8.0
SF Lots 50'	111	1	0.0	65.7	65	65.7	10	Snd Lvl	65.7	0.0	8	-8.0
SF Lots 100'	112	1	0.0	59.3	65	59.3	10	----	59.3	0.0	8	-8.0
SF Lots 150'	113	1	0.0	58.0	65	58.0	10	----	58.0	0.0	8	-8.0
SF Lots 200'	114	1	0.0	56.1	65	56.1	10	----	56.1	0.0	8	-8.0
SF Lots 250'	115	1	0.0	56.8	65	56.8	10	----	56.8	0.0	8	-8.0
SF Lots 300'	117	1	0.0	56.0	65	56.0	10	----	56.0	0.0	8	-8.0
Lot R-2a 50'	118	1	0.0	63.8	65	63.8	10	----	63.8	0.0	8	-8.0
Lot R-2a 100'	119	1	0.0	57.5	65	57.5	10	----	57.5	0.0	8	-8.0
Lot R-2a 150'	120	1	0.0	55.4	65	55.4	10	----	55.4	0.0	8	-8.0
Lot R-2a 200'	121	1	0.0	48.4	65	48.4	10	----	48.4	0.0	8	-8.0
Lot R-2a 250'	124	1	0.0	52.3	65	52.3	10	----	52.3	0.0	8	-8.0
Lot R-2a 300'	125	1	0.0	50.6	65	50.6	10	----	50.6	0.0	8	-8.0
Lot R-2b N side 50'	126	1	0.0	62.1	65	62.1	10	----	62.1	0.0	8	-8.0
Lot R-2b N side 100'	127	1	0.0	57.0	65	57.0	10	----	57.0	0.0	8	-8.0
Lot R-2b N side 150'	128	1	0.0	55.9	65	55.9	10	----	55.9	0.0	8	-8.0
Lot R-2b N side 200'	130	1	0.0	54.3	65	54.3	10	----	54.3	0.0	8	-8.0
Lot R-2b N side 250'	131	1	0.0	53.5	65	53.5	10	----	53.5	0.0	8	-8.0
Lot R-2b N side 300'	132	1	0.0	52.7	65	52.7	10	----	52.7	0.0	8	-8.0
Lot R-2b S side 50'	133	1	0.0	57.7	65	57.7	10	----	57.7	0.0	8	-8.0
Lot R-2b S side 100'	134	1	0.0	55.0	65	55.0	10	----	55.0	0.0	8	-8.0
Lot R-2b S side 150'	136	1	0.0	52.8	65	52.8	10	----	52.8	0.0	8	-8.0
Lot R-2b S side 200'	137	1	0.0	47.4	65	47.4	10	----	47.4	0.0	8	-8.0
Lot R-2b S side 250'	138	1	0.0	50.2	65	50.2	10	----	50.2	0.0	8	-8.0
Lot R-2b S side 300'	139	1	0.0	46.3	65	46.3	10	----	46.3	0.0	8	-8.0
R-3 N 50' 2nd Flr	140	1	0.0	70.7	65	70.7	10	Snd Lvl	70.7	0.0	8	-8.0
R-3 N 100' 2nd Flr	141	1	0.0	63.9	65	63.9	10	----	63.9	0.0	8	-8.0
R-3 N 150' 2nd Flr	142	1	0.0	63.7	65	63.7	10	----	63.7	0.0	8	-8.0
R-3 N 200' 2nd Flr	143	1	0.0	63.0	65	63.0	10	----	63.0	0.0	8	-8.0
R-3 N 250' 2nd Flr	144	1	0.0	59.6	65	59.6	10	----	59.6	0.0	8	-8.0
R-3 N 300' 2nd Flr	145	1	0.0	59.5	65	59.5	10	----	59.5	0.0	8	-8.0
R-3 N Central 50' 2nd Flr	146	1	0.0	70.8	65	70.8	10	Snd Lvl	70.8	0.0	8	-8.0
R-3 N Central 100' 2nd Flr	147	1	0.0	64.9	65	64.9	10	----	64.9	0.0	8	-8.0
R-3 N Central 150' 2nd Flr	148	1	0.0	63.7	65	63.7	10	----	63.7	0.0	8	-8.0
R-3 N Central 200' 2nd Flr	149	1	0.0	62.5	65	62.5	10	----	62.5	0.0	8	-8.0
R-3 N Central 250' 2nd Flr	150	1	0.0	60.7	65	60.7	10	----	60.7	0.0	8	-8.0
R-3 N Central 300' 2nd Flr	151	1	0.0	60.0	65	60.0	10	----	60.0	0.0	8	-8.0
R-3 Central 50' 2nd Flr	152	1	0.0	70.4	65	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R-3 Central 100' 2nd Flr	153	1	0.0	63.8	65	63.8	10	----	63.8	0.0	8	-8.0

R-3 Central 150' 2nd Flr	154	1	0.0	63.1	65	63.1	10	----	63.1	0.0	8	-8.0
R-3 Central 200' 2nd Flr	155	1	0.0	58.8	65	58.8	10	----	58.8	0.0	8	-8.0
R-3 Central 250' 2nd Flr	156	1	0.0	59.7	65	59.7	10	----	59.7	0.0	8	-8.0
R-3 Central 300' 2nd Flr	157	1	0.0	58.6	65	58.6	10	----	58.6	0.0	8	-8.0
R-3 S 50' 2nd Flr	158	1	0.0	70.2	65	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R-3 S 100' 2nd Flr	159	1	0.0	63.9	65	63.9	10	----	63.9	0.0	8	-8.0
R-3 S 150' 2nd Flr	160	1	0.0	63.3	65	63.3	10	----	63.3	0.0	8	-8.0
R-3 S 200' 2nd Flr	161	1	0.0	62.7	65	62.7	10	----	62.7	0.0	8	-8.0
R-3 S 250' 2nd Flr	162	1	0.0	59.1	65	59.1	10	----	59.1	0.0	8	-8.0
R-3 S 300' 2nd Flr	163	1	0.0	59.7	65	59.7	10	----	59.7	0.0	8	-8.0
SF Lots 50' 2nd Flr	164	1	0.0	70.0	65	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
SF Lots 100' 2nd Flr	165	1	0.0	63.9	65	63.9	10	----	63.9	0.0	8	-8.0
SF Lots 150' 2nd Flr	166	1	0.0	62.8	65	62.8	10	----	62.8	0.0	8	-8.0
SF Lots 200' 2nd Flr	167	1	0.0	59.8	65	59.8	10	----	59.8	0.0	8	-8.0
SF Lots 250' 2nd Flr	168	1	0.0	61.0	65	61.0	10	----	61.0	0.0	8	-8.0
SF Lots 300' 2nd Flr	169	1	0.0	60.4	65	60.4	10	----	60.4	0.0	8	-8.0
Lot R-2a 50' 2nd Flr	170	1	0.0	68.9	65	68.9	10	Snd Lvl	68.9	0.0	8	-8.0
Lot R-2a 100' 2nd Flr	171	1	0.0	61.8	65	61.8	10	----	61.8	0.0	8	-8.0
Lot R-2a 150' 2nd Flr	172	1	0.0	59.5	65	59.5	10	----	59.5	0.0	8	-8.0
Lot R-2a 200' 2nd Flr	173	1	0.0	56.3	65	56.3	10	----	56.3	0.0	8	-8.0
Lot R-2a 250' 2nd Flr	174	1	0.0	56.6	65	56.6	10	----	56.6	0.0	8	-8.0
Lot R-2a 300' 2nd Flr	175	1	0.0	56.1	65	56.1	10	----	56.1	0.0	8	-8.0
Lot R-2b N side 50' 2nd Flr	176	1	0.0	69.4	65	69.4	10	Snd Lvl	69.4	0.0	8	-8.0
Lot R-2b N side 100' 2nd Flr	177	1	0.0	61.3	65	61.3	10	----	61.3	0.0	8	-8.0
Lot R-2b N side 150' 2nd Flr	178	1	0.0	59.0	65	59.0	10	----	59.0	0.0	8	-8.0
Lot R-2b N side 200' 2nd Flr	179	1	0.0	56.5	65	56.5	10	----	56.5	0.0	8	-8.0
Lot R-2b N side 250' 2nd Flr	182	1	0.0	56.7	65	56.7	10	----	56.7	0.0	8	-8.0
Lot R-2b N side 300' 2nd Flr	183	1	0.0	56.1	65	56.1	10	----	56.1	0.0	8	-8.0
Lot R-2b S side 50' 2nd Flr	185	1	0.0	67.6	65	67.6	10	Snd Lvl	67.6	0.0	8	-8.0
Lot R-2b S side 100' 2nd Flr	186	1	0.0	58.8	65	58.8	10	----	58.8	0.0	8	-8.0
Lot R-2b S side 150' 2nd Flr	188	1	0.0	56.6	65	56.6	10	----	56.6	0.0	8	-8.0
Lot R-2b S side 200' 2nd Flr	189	1	0.0	51.6	65	51.6	10	----	51.6	0.0	8	-8.0
Lot R-2b S side 250' 2nd Flr	191	1	0.0	52.6	65	52.6	10	----	52.6	0.0	8	-8.0
Lot R-2b S side 300' 2nd Flr	192	1	0.0	51.5	65	51.5	10	----	51.5	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	140	0.0	0.0	0.0
All Impacted	53	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

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INPUT: ROADWAYS	Average pavement type shall be used unless
PROJECT/CONTRACT:	8190 a State highway agency substantiates the use
RUN:	Otay Ranch Village 4 Fut wPro Rev w Mit of a different type with the approval of FHWA

Roadway		Points									
Name	Width	Name	No.	Coordinates (pavement)			Flow Control			Segment	
				X	Y	Z	Control Device	Speed Constraint	Percent Vehicles Affected	Pvmt Type	On Struct?
	ft			ft	ft	ft		mph	%		
Main St NB - Heritage to Proj Access	62.0	point1	1	36,736.5	39,737.2	305.12				Average	
		point2	2	37,053.8	39,815.0	308.40				Average	
		point3	3	37,382.5	39,846.8	311.68				Average	
		point4	4	37,709.6	39,877.3	314.96				Average	
		point5	5	38,035.1	39,913.1	318.24				Average	
		point6	6	38,351.4	39,997.7	330.05				Average	
		point7	7	38,651.6	40,133.5	349.08				Average	
		point8	8	38,913.4	40,307.4	368.11				Average	
		point9	9	39,162.1	40,536.7	387.14				Average	
		point10	10	39,369.8	40,793.3	405.84				Average	
		point11	11	39,573.5	41,051.8	416.99					
La Media Road NB-Birch to Santa Luna	60.0	point43	43	42,300.0	44,000.0	450.00				Average	
		point44	44	42,300.0	47,500.0	450.00					
La Media Road SB-Birch to Santa Luna	60.0	point45	45	42,250.0	47,500.0	450.00				Average	
		point46	46	42,250.0	44,000.0	450.00					
La Media Road NB-Santa Luna to Main	60.0	point47	47	42,300.0	43,950.0	450.00				Average	
		point48	48	42,300.0	42,529.2	450.00					
La Media Road SB-Santa Luna to Main	60.0	point49	49	42,250.0	43,954.0	450.00				Average	
		point50	50	42,250.0	42,590.4	450.00					
Main St SB- Proj Access to Heritage	62.0	point58	58	39,545.3	41,101.4	416.99				Average	
		point28	28	39,341.9	40,842.8	405.84				Average	
		point27	27	39,125.0	40,587.6	387.14				Average	
		point26	26	38,885.2	40,357.3	368.11				Average	
		point25	25	38,623.7	40,183.4	349.08				Average	
		point24	24	38,323.2	40,047.6	330.05				Average	

		point23	23	38,013.8	39,969.8	318.24				Average	
		point22	22	37,687.0	39,929.8	314.96				Average	
		point21	21	37,362.5	39,901.9	311.68				Average	
		point20	20	37,025.9	39,868.8	308.40				Average	
		point19	19	36,708.3	39,794.0	305.12					
La Media Rd NB-Birch to Santa Venetia	60.0	point59	59	42,300.0	47,550.0	450.00				Average	
		point60	60	42,300.0	49,500.0	450.00					
La Media Rd SB-Birch to Santa Venetia	60.0	point62	62	42,250.0	49,500.0	450.00				Average	
		point61	61	42,250.0	47,550.0	450.00					
La MdiaRdNB-Santa Venetia to Olympc	60.0	point63	63	42,300.0	49,600.0	450.00				Average	
		point64	64	42,300.0	51,000.0	450.00					
La MdiaRdSB-Santa Venetia to Olympc	60.0	point65	65	42,250.0	49,600.0	450.00				Average	
		point66	66	42,250.0	51,000.0	450.00					
Main St NB-Project Access to LaMedia	62.0	point57	57	39,573.5	41,051.8	416.99				Average	
		point12	12	39,778.2	41,311.0	424.54				Average	
		point13	13	39,968.2	41,570.5	427.49				Average	
		point14	14	40,164.4	41,839.9	430.45				Average	
		point15	15	40,239.5	41,926.8	432.09				Average	
		point16	16	40,389.4	42,075.8	434.71				Average	
		point17	17	40,653.5	42,271.3	437.99				Average	
		point41	41	40,925.0	42,402.0	443.00				Average	
		point42	42	42,300.0	42,500.0	450.00					
Main St SB - Santa Luna to Proj Access	62.0	point52	52	42,236.9	42,550.0	450.00				Average	
		point51	51	40,900.5	42,448.6	443.00				Average	
		point35	35	40,626.3	42,314.3	437.99				Average	
		point34	34	40,361.2	42,121.4	434.71				Average	
		point33	33	40,211.3	41,976.7	432.09				Average	
		point32	32	40,133.5	41,888.1	430.45				Average	
		point31	31	39,940.3	41,620.4	427.49				Average	
		point30	30	39,740.5	41,357.3	424.54				Average	
		point29	29	39,545.3	41,101.4	416.99					
Roadway21	12.0	point76	76	40,160.7	39,910.8	0.00				Average	
		point78	78	40,125.5	39,948.6	0.00				Average	
		point79	79	40,092.8	39,986.5	0.00				Average	
		point80	80	40,055.0	40,024.4	0.00				Average	
		point81	81	40,019.7	40,062.3	0.00				Average	
		point77	77	39,984.5	40,100.2	0.00					

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INPUT: TRAFFIC FOR LAeq1h Percentages
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village 4 Fut wPro Rev w Mit

Roadway	Points												
Name	Name	No.	Segment										
			Total	Autos		MTrucks		HTrucks		Buses		Motorcycles	
			Volume	P	S	P	S	P	S	P	S	P	S
			veh/hr	%	mph	%	mph	%	mph	%	mph	%	mph
Main St NB - Heritage to Proj Access	point1	1	2330	95	45	2	45	2	45	0	0	1	45
	point2	2	2330	95	45	2	45	2	45	0	0	1	45
	point3	3	2330	95	45	2	45	2	45	0	0	1	45
	point4	4	2330	95	45	2	45	2	45	0	0	1	45
	point5	5	2330	95	45	2	45	2	45	0	0	1	45
	point6	6	2330	95	45	2	45	2	45	0	0	1	45
	point7	7	2330	95	45	2	45	2	45	0	0	1	45
	point8	8	2330	95	45	2	45	2	45	0	0	1	45
	point9	9	2330	95	45	2	45	2	45	0	0	1	45
	point10	10	2330	95	45	2	45	2	45	0	0	1	45
	point11	11											
La Media Road NB-Birch to Santa Luna	point43	43	1085	95	45	2	45	2	45	0	0	1	45
	point44	44											
La Media Road SB-Birch to Santa Luna	point45	45	1085	95	45	2	45	2	45	0	0	1	45
	point46	46											
La Media Road NB-Santa Luna to Main	point47	47	1055	95	45	2	45	2	45	0	0	1	45
	point48	48											
La Media Road SB-Santa Luna to Main	point49	49	1055	95	45	2	45	2	45	0	0	1	45
	point50	50											
Main St SB- Proj Access to Heritage	point58	58	2330	95	45	2	45	2	45	0	0	1	45
	point28	28	2330	95	45	2	45	2	45	0	0	1	45
	point27	27	2330	95	45	2	45	2	45	0	0	1	45
	point26	26	2330	95	45	2	45	2	45	0	0	1	45

	point25	25	2330	95	45	2	45	2	45	0	0	1	45
	point24	24	2330	95	45	2	45	2	45	0	0	1	45
	point23	23	2330	95	45	2	45	2	45	0	0	1	45
	point22	22	2330	95	45	2	45	2	45	0	0	1	45
	point21	21	2330	95	45	2	45	2	45	0	0	1	45
	point20	20	2330	95	45	2	45	2	45	0	0	1	45
	point19	19											
La Media Rd NB-Birch to Santa Venetia	point59	59	1695	95	45	2	45	2	45	0	0	1	45
	point60	60											
La Media Rd SB-Birch to Santa Venetia	point62	62	1695	95	45	2	45	2	45	0	0	1	45
	point61	61											
La MdiaRdNB-Santa Venetia to Olympc	point63	63	1685	95	45	2	45	2	45	0	0	1	45
	point64	64											
La MdiaRdSB-Santa Venetia to Olympc	point65	65	1685	95	45	2	45	2	45	0	0	1	45
	point66	66											
Main St NB-Project Access to LaMedia	point57	57	2410	95	45	2	45	2	45	0	0	1	45
	point12	12	2410	95	45	2	45	2	45	0	0	1	45
	point13	13	2410	95	45	2	45	2	45	0	0	1	45
	point14	14	2410	95	45	2	45	2	45	0	0	1	45
	point15	15	2410	95	45	2	45	2	45	0	0	1	45
	point16	16	2410	95	45	2	45	2	45	0	0	1	45
	point17	17	2410	95	45	2	45	2	45	0	0	1	45
	point41	41	2410	95	45	2	45	2	45	0	0	1	45
	point42	42											
Main St SB - Santa Luna to Proj Access	point52	52	2410	95	45	2	45	2	45	0	0	1	45
	point51	51	2410	95	45	2	45	2	45	0	0	1	45
	point35	35	2410	95	45	2	45	2	45	0	0	1	45
	point34	34	2410	95	45	2	45	2	45	0	0	1	45
	point33	33	2410	95	45	2	45	2	45	0	0	1	45
	point32	32	2410	95	45	2	45	2	45	0	0	1	45
	point31	31	2410	95	45	2	45	2	45	0	0	1	45
	point30	30	2410	95	45	2	45	2	45	0	0	1	45
	point29	29											
Roadway21	point76	76	0	0	0	0	0	0	0	0	0	0	0
	point78	78	0	0	0	0	0	0	0	0	0	0	0
	point79	79	0	0	0	0	0	0	0	0	0	0	0

INPUT: TRAFFIC FOR LAeq1h Percentages **8190**

	point80	80	0	0	0	0	0	0	0	0	0	0	0
	point81	81	0	0	0	0	0	0	0	0	0	0	0
	point77	77											

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M Greene

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INPUT: BARRIERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village 4 Fut wPro Rev w Mit

Barrier									Points										
Name	Type	Height		If Wall	If Berm			Add'tnl	Name	No.	Coordinates (bottom)			Height	Segment				
		Min	Max	$ per Unit Area	$ per Unit Vol.	Top Width	Run:Rise	$ per Unit Length			X	Y	Z	at Point	Seg Ht Increment	Perturbs #Up	Perturbs #Dn	On Struct?	Important Reflections?
		ft	ft	$/sq ft	$/cu yd	ft	ft:ft	$/ft			ft	ft	ft	ft	ft				
Barrier2	W	0.00	99.99	0.00				0.00	point1	1	42,390.0	47,500.0	460.00	6.00	0.00	0	0		
									point2	2	42,390.0	44,000.0	460.00	6.00					
Barrier3	W	0.00	99.99	0.00				0.00	point3	3	42,390.0	43,990.0	460.00	6.00	0.00	0	0		
									point4	4	42,390.0	42,500.0	460.00	6.00					
Barrier6	W	0.00	99.99	0.00				0.00	point8	8	42,405.0	47,550.0	470.00	6.00	0.00	0	0		
									point9	9	42,405.0	49,500.0	470.00	6.00					
Barrier18	W	0.00	99.99	0.00				0.00	point26	33	40,694.0	42,094.3	451.44	6.00	0.00	0	0		
									point27	34	40,671.8	42,161.9	451.44	6.00	0.00	0	0		
									point28	35	40,648.5	42,188.8	451.44	6.00	0.00	0	0		
									point29	36	40,585.1	42,143.2	451.44	6.00	0.00	0	0		
									point30	37	40,579.6	42,145.8	448.16	6.00	0.00	0	0		
									point31	38	40,524.1	42,100.9	448.16	6.00	0.00	0	0		
									point32	39	40,514.0	42,101.2	444.23	6.00	0.00	0	0		
									point33	40	40,339.7	41,929.1	444.23	6.00	0.00	0	0		
									point34	41	40,374.2	41,892.1	444.23	6.00					
Barrier19	W	0.00	99.99	0.00				0.00	point43	43	40,287.1	41,783.8	439.96	6.00	0.00	0	0		
									point44	44	40,240.5	41,821.9	439.96	6.00	0.00	0	0		
									point45	45	40,151.2	41,704.4	439.96	6.00	0.00	0	0		
									point46	46	40,061.4	41,536.4	446.00	6.00	0.00	0	0		
									point47	47	40,000.0	41,455.1	446.00	6.00	0.00	0	0		
									point48	48	39,960.3	41,395.3	445.21	6.00	0.00	0	0		
									point49	49	39,875.0	41,285.1	445.21	6.00	0.00	0	0		
									point50	50	39,844.5	41,288.4	437.66	6.00	0.00	0	0		
									point51	51	39,747.0	41,166.3	429.46	6.00	0.00	0	0		
									point52	52	39,658.5	41,054.8	429.46	6.00	0.00	0	0		
									point53	53	39,687.7	41,024.3	429.46	6.00					
Barrier20	W	0.00	99.99	0.00				0.00	point54	54	39,610.2	40,904.5	430.12	6.00	0.00	0	0		
									point55	55	39,573.5	40,931.1	430.12	6.00	0.00	0	0		
									point56	56	39,487.2	40,798.6	432.40	6.00	0.00	0	0		
									point57	57	39,404.9	40,676.2	432.09	6.00	0.00	0	0		
									point58	58	39,321.5	40,553.5	429.79	6.00	0.00	0	0		
									point59	59	39,231.6	40,435.0	426.51	6.00	0.00	0	0		
									point60	60	39,141.4	40,324.1	426.51	6.00	0.00	0	0		
									point61	61	39,047.9	40,216.9	426.18	6.00	0.00	0	0		
									point62	62	39,081.4	40,187.9	426.18	6.00					

Barrier21	W	0.00	99.99	0.00				0.00	point63	63	40,582.2	42,418.2	441.27	6.00	0.00	0	0		
									point64	64	40,604.2	42,363.0	441.27	6.00	0.00	0	0		
									point65	65	40,510.4	42,289.6	439.85	6.00	0.00	0	0		
									point66	66	40,416.5	42,216.3	440.00	6.00	0.00	0	0		
									point67	67	40,322.7	42,142.9	437.01	6.00	0.00	0	0		
									point68	68	40,265.2	42,105.5	436.35	6.00	0.00	0	0		
									point69	69	40,095.0	41,927.3	434.06	6.00	0.00	0	0		
									point70	70	39,871.2	41,621.6	431.10	6.00	0.00	0	0		
									point71	71	39,853.2	41,634.0	431.10	6.00					
Barrier22	W	0.00	99.99	0.00				0.00	point72	72	42,410.0	49,600.0	480.00	6.00	0.00	0	0		
									point73	73	42,410.0	51,000.0	480.00	6.00					

Dudek 20 February 2017
M Greene TNM 2.5

INPUT: BUILDING ROWS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village 4 Fut wPro

Building Row Name	Average Height	Building Percent	Points No.	Coordinates (ground) X	Y	Z
	ft	%		ft	ft	ft
Building3	25.00	80	10	39,610.1	40,874.7	430.12
			11	39,543.6	40,769.6	432.40
			12	39,461.2	40,647.2	432.09
			13	39,377.9	40,524.5	429.79
			14	39,288.0	40,406.1	426.51
			15	39,197.8	40,295.2	426.51
			16	39,104.3	40,187.9	426.18
Building4	25.00	70	17	40,656.2	42,113.1	451.44
			18	40,624.3	42,091.9	451.44
			19	40,568.3	42,068.2	444.23
			20	40,394.1	41,895.6	444.23
Building5	25.00	80	21	40,209.1	41,677.0	439.96
			22	40,119.3	41,509.0	446.00
			23	40,057.9	41,427.6	446.00
			24	40,018.2	41,367.9	445.21
			25	39,932.9	41,257.7	445.21
Building8	25.00	80	29	40,543.7	42,391.5	441.27
			30	40,291.2	42,191.1	437.01
			31	40,212.4	42,137.0	436.35
			32	40,042.1	41,958.8	434.06
			33	39,864.1	41,718.6	431.10
Building9	25.00	80	34	40,422.8	42,512.0	441.30
			36	40,261.0	42,354.5	437.00
			37	40,099.2	42,197.1	436.40

INPUT: BUILDING ROWS **8190**

			38	39,937.5	42,039.6	434.10
			35	39,775.7	41,882.1	431.10
Building10	25.00	80	39	40,672.8	42,011.5	450.00
			40	40,609.8	41,948.5	450.00
			41	40,512.5	41,834.0	455.00
			42	40,489.6	41,811.1	455.00
Building11	25.00	80	43	40,289.2	41,587.8	455.00
			44	40,231.9	41,467.6	455.00
			45	40,191.8	41,416.0	455.00
			46	40,128.9	41,341.6	455.00
			47	40,037.2	41,221.3	455.00
Building12	25.00	80	48	39,688.0	40,814.8	445.00
			49	39,636.4	40,706.0	445.00
			50	39,556.3	40,585.7	440.00
			51	39,493.3	40,494.1	440.00
			52	39,367.3	40,345.2	435.00
			53	39,292.9	40,242.2	432.00
			54	39,212.7	40,144.8	430.00

Dudek			**20 February 2017**	
M Greene			**TNM 2.5**	
INPUT: TERRAIN LINES				
PROJECT/CONTRACT:	**8190**			
RUN:	**Otay Ranch Village 4 Fut wPro Rev w Mit**			
Terrain Line	**Points**			
Name	**No.**	**Coordinates (ground)**		
		X	**Y**	**Z**
		ft	ft	ft
Terrain Line2	1	39,079.7	40,187.7	426.18
	2	39,047.9	40,216.9	426.18
	3	39,141.4	40,324.1	426.51
	4	39,231.6	40,435.0	426.51
	6	39,321.5	40,553.5	429.79
	8	39,404.9	40,676.2	432.09
	10	39,487.2	40,798.6	432.40
	12	39,573.5	40,931.1	430.12
	13	39,610.2	40,904.5	430.12
Terrain Line3	14	39,687.7	41,024.3	429.46
	16	39,658.5	41,054.8	429.46
	17	39,747.0	41,166.3	429.46
	18	39,754.6	41,176.8	437.66
	19	39,844.5	41,288.4	437.66
	20	39,875.0	41,285.1	445.21
	21	39,960.3	41,395.3	445.21
	23	40,000.0	41,455.1	446.00
	26	40,061.4	41,536.4	446.00
	28	40,151.2	41,704.4	439.96
	29	40,240.5	41,821.9	439.96
	15	40,287.1	41,783.8	439.96
Terrain Line4	30	40,373.7	41,892.1	444.23
	32	40,339.2	41,929.1	444.23
	33	40,513.5	42,101.7	444.23

	34	40,523.6	42,101.4	448.16
	35	40,579.1	42,146.3	448.16
	36	40,584.6	42,143.7	451.44
	37	40,648.6	42,189.3	451.44
	38	40,671.9	42,162.4	451.44
	31	40,694.2	42,094.8	451.44
Terrain Line5	39	40,461.6	42,599.1	444.23
	41	40,583.7	42,417.7	441.27
	42	40,604.7	42,362.5	441.27
	43	40,323.2	42,142.4	437.01
	44	40,265.7	42,105.0	436.35
	45	40,095.5	41,926.8	434.06
	46	39,871.7	41,621.1	431.10
	47	39,852.7	41,633.5	431.10
	48	39,830.1	41,693.2	431.76
	40	39,830.7	41,770.3	432.09

Dudek 20 February 2017
M Greene TNM 2.5

INPUT: RECEIVERS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village 4 Fut wPro Rev w Mit

Receiver Name	No.	#DUs	Coordinates (ground) X	Y	Z	Height above Ground	Input Sound Levels and Criteria: Existing LAeq1h	Impact Criteria LAeq1h	Impact Criteria Sub'l	NR Goal	Active in Calc.
			ft	ft	ft	ft	dBA	dBA	dB	dB	
R1: Resi -La Mdia - Olympc to Santa Ver	1	1	42,420.0	50,300.0	480.00	5.00	0.00	65	10.0	8.0	
R2: Resi -La Media Santa Venetia toBirc	2	1	42,415.0	48,500.0	470.00	5.00	0.00	65	10.0	8.0	
R3: Resi - La Media Birch to Santa Luna	3	1	42,400.0	45,800.0	460.00	5.00	0.00	65	10.0	8.0	
R4: Potential Future Resi - La Media Birc	4	1	42,400.0	43,400.0	460.00	5.00	0.00	65	10.0	8.0	
R5: Lot R-3 N side	6	1	40,567.6	42,347.2	441.11	5.00	0.00	65	10.0	8.0	
R6: Lot R-3 N central	7	1	40,401.4	42,215.6	439.76	5.00	0.00	65	10.0	8.0	
R7: Lot R-3 central	8	1	40,202.3	42,056.4	435.73	5.00	0.00	65	10.0	8.0	
R8: Lot R-3 S central	9	1	40,015.6	41,841.5	433.10	5.00	0.00	65	10.0	8.0	
R9: Lot R-3 S side	10	1	39,903.5	41,673.9	431.46	5.00	0.00	65	10.0	8.0	
R10: Lot R-3 N side 2nd flr	11	1	40,557.6	42,347.2	441.11	15.00	0.00	65	10.0	8.0	
R11: Lot R-3 N central 2nd flr	12	1	40,391.4	42,215.6	439.76	15.00	0.00	65	10.0	8.0	
R12: Lot R-3 central 2nd flr	13	1	40,192.3	42,056.4	435.73	15.00	0.00	65	10.0	8.0	
R13: Lot R-3 S central 2nd flr	14	1	40,005.6	41,841.5	433.10	15.00	0.00	65	10.0	8.0	
R14: Lot R-3 S side 2nd flr	15	1	39,893.5	41,673.9	431.46	15.00	0.00	65	10.0	8.0	
R15 Lot 68	16	1	40,631.1	42,164.7	451.38	5.00	0.00	65	10.0	8.0	
R16: Lot 69	17	1	40,565.8	42,123.4	448.16	5.00	0.00	65	10.0	8.0	
R17: Lot 72	18	1	40,398.2	41,973.0	444.23	5.00	0.00	65	10.0	8.0	
R18: Lot R-2a N side	19	1	40,235.5	41,800.1	440.00	5.00	0.00	65	10.0	8.0	
R19: Lot R-2a N central	20	1	40,147.3	41,650.1	444.00	5.00	0.00	65	10.0	8.0	
R20: Lot R-2a central	21	1	40,062.7	41,502.7	446.00	5.00	0.00	65	10.0	8.0	
R21: Lot R-2a central 2	24	1	39,948.1	41,363.9	445.21	5.00	0.00	65	10.0	8.0	Y
R22: Lot R-2a S central	25	1	39,831.3	41,256.3	437.66	5.00	0.00	65	10.0	8.0	Y

INPUT: RECEIVERS **8190**

R23: Lot R-2a S side	26	1	39,703.1	41,094.7	429.46	5.00	0.00	65	10.0	8.0	Y
R24: Lot R-2b N side	27	1	39,520.5	40,837.8	431.12	5.00	0.00	65	10.0	8.0	Y
R25: Lot R-2b N Central	29	1	39,448.9	40,715.7	434.38	5.00	0.00	65	10.0	8.0	Y
R26: Lot R-2b Central	30	1	39,358.1	40,590.5	432.09	5.00	0.00	65	10.0	8.0	Y
R27: Lot R-2b Central 2	31	1	39,271.9	40,465.5	429.79	5.00	0.00	65	10.0	8.0	Y
R28: Lot R-2b S Central	32	1	39,168.2	40,340.8	426.51	5.00	0.00	65	10.0	8.0	Y
R29: Lot R-2b S	34	1	39,089.1	40,247.1	426.08	5.00	0.00	65	10.0	8.0	Y
R30: Lot 68 2nd flr	35	1	40,641.1	42,164.7	451.38	15.00	0.00	65	10.0	8.0	Y
R31: Lot 69 2nd flr	36	1	40,575.8	42,123.4	448.16	15.00	0.00	65	10.0	8.0	Y
R32: Lot 72 2nd flr	37	1	40,408.2	41,973.0	444.23	15.00	0.00	65	10.0	8.0	Y
R33: Lot R-2a N 2nd flr	38	1	40,245.5	41,800.1	440.00	15.00	0.00	65	10.0	8.0	Y
R34: Lot R-2a N central 2nd flr	39	1	40,157.3	41,650.1	444.00	15.00	0.00	65	10.0	8.0	Y
R35: Lot R-2a central 2nd flr	40	1	40,072.7	41,502.7	446.00	15.00	0.00	65	10.0	8.0	Y
R36: Lot R-2a central 2 2nd flr	41	1	39,958.1	41,363.9	445.21	15.00	0.00	65	10.0	8.0	Y
R37: Lot R-2a S central Lot 23 2nd flr	42	1	39,841.3	41,256.3	437.66	15.00	0.00	65	10.0	8.0	Y
R38: Lot R-2a S 2nd flr	43	1	39,713.1	41,094.7	429.46	15.00	0.00	65	10.0	8.0	Y
R39: Lot R-2b N side 2nd flr	44	1	39,530.5	40,837.8	431.12	15.00	0.00	65	10.0	8.0	Y
R40: Lot R-2b N Central 2nd flr	45	1	39,458.9	40,715.7	434.38	15.00	0.00	65	10.0	8.0	Y
R41: Lot R-2b Central 2nd flr	66	1	39,368.1	40,590.5	432.09	15.00	0.00	65	10.0	8.0	Y
R42: Lot R-2b Central 2 2nd flr	68	1	39,281.9	40,465.5	429.79	15.00	0.00	65	10.0	8.0	Y
R43: Lot R-2b S Central 2nd flr	71	1	39,178.2	40,340.8	426.51	15.00	0.00	65	10.0	8.0	Y
R44: Lot R-2b S 2nd flr	75	1	39,099.1	40,247.1	426.08	15.00	0.00	65	10.0	8.0	Y
R-3 N 50'	77	1	40,477.2	42,322.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 100'	78	1	40,442.1	42,361.9	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 150'	79	1	40,410.0	42,401.2	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 200'	80	1	40,371.8	42,438.3	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 250'	81	1	40,338.9	42,477.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 300'	83	1	40,299.8	42,511.1	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 50'	84	1	40,359.6	42,232.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 100'	85	1	40,327.6	42,270.4	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 150'	86	1	40,292.3	42,307.4	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 200'	87	1	40,259.6	42,344.4	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 250'	89	1	40,225.1	42,380.5	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 N Central 300'	90	1	40,190.9	42,417.6	440.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 50'	91	1	40,152.0	42,054.2	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 100'	92	1	40,116.7	42,092.1	435.00	5.00	0.00	65	10.0	8.0	Y

INPUT: RECEIVERS **8190**

R-3 Central 150'	93	1	40,084.7	42,125.7	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 200'	96	1	40,048.6	42,163.5	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 250'	97	1	40,014.1	42,199.6	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 Central 300'	98	1	39,980.6	42,236.7	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 50'	99	1	39,954.4	41,818.9	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 100'	100	1	39,920.0	41,857.2	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 150'	102	1	39,887.8	41,893.9	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 200'	104	1	39,851.8	41,930.7	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 250'	106	1	39,818.8	41,966.7	432.00	5.00	0.00	65	10.0	8.0	Y
R-3 S 300'	109	1	39,784.1	42,005.5	432.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 50'	111	1	40,516.7	42,027.9	444.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 100'	112	1	40,549.6	41,991.1	444.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 150'	113	1	40,583.4	41,955.2	446.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 200'	114	1	40,618.2	41,916.4	450.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 250'	115	1	40,650.1	41,880.6	455.00	5.00	0.00	65	10.0	8.0	Y
SF Lots 300'	117	1	40,687.8	41,840.5	455.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 50'	118	1	40,111.1	41,515.7	446.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 100'	119	1	40,144.5	41,480.5	446.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 150'	120	1	40,180.6	41,443.6	446.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 200'	121	1	40,213.9	41,406.8	450.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 250'	124	1	40,243.8	41,367.2	455.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2a 300'	125	1	40,279.7	41,331.0	455.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 50'	126	1	39,515.5	40,769.2	431.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 100'	127	1	39,552.1	40,732.0	432.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 150'	128	1	39,588.0	40,694.1	432.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 200'	130	1	39,627.8	40,656.2	445.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 250'	131	1	39,660.4	40,619.6	448.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 300'	132	1	39,695.1	40,580.5	450.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 50'	133	1	39,255.5	40,382.4	428.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 100'	134	1	39,291.8	40,346.8	428.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 150'	136	1	39,328.1	40,315.8	430.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 200'	137	1	39,369.8	40,280.2	430.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 250'	138	1	39,404.1	40,244.6	435.00	5.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 300'	139	1	39,441.9	40,207.3	435.00	5.00	0.00	65	10.0	8.0	Y
R-3 N 50' 2nd Flr	140	1	40,478.7	42,326.9	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 100' 2nd Flr	141	1	40,444.4	42,366.9	440.00	15.00	0.00	65	10.0	8.0	Y

R-3 N 150' 2nd Flr	142	1	40,413.9	42,407.7	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 200' 2nd Flr	143	1	40,374.1	42,441.7	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 250' 2nd Flr	144	1	40,339.7	42,481.8	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N 300' 2nd Flr	145	1	40,303.7	42,516.1	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 50' 2nd Flr	146	1	40,359.6	42,237.6	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 100' 2nd Flr	147	1	40,327.6	42,275.4	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 150' 2nd Flr	148	1	40,292.3	42,312.4	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 200' 2nd Flr	149	1	40,259.6	42,349.4	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 250' 2nd Flr	150	1	40,225.1	42,385.5	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 N Central 300' 2nd Flr	151	1	40,190.9	42,422.6	440.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 50' 2nd Flr	152	1	40,152.0	42,059.2	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 100' 2nd Flr	153	1	40,116.7	42,097.1	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 150' 2nd Flr	154	1	40,084.7	42,130.7	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 200' 2nd Flr	155	1	40,048.6	42,168.5	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 250' 2nd Flr	156	1	40,014.1	42,204.6	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 Central 300' 2nd Flr	157	1	39,980.6	42,241.7	435.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 50' 2nd Flr	158	1	39,954.4	41,823.9	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 100' 2nd Flr	159	1	39,920.0	41,862.2	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 150' 2nd Flr	160	1	39,887.8	41,898.9	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 200' 2nd Flr	161	1	39,851.8	41,935.7	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 250' 2nd Flr	162	1	39,818.8	41,971.7	432.00	15.00	0.00	65	10.0	8.0	Y
R-3 S 300' 2nd Flr	163	1	39,784.1	42,010.5	432.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 50' 2nd Flr	164	1	40,516.7	42,032.9	444.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 100' 2nd Flr	165	1	40,549.6	41,996.1	444.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 150' 2nd Flr	166	1	40,583.4	41,960.2	446.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 200' 2nd Flr	167	1	40,618.2	41,921.4	450.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 250' 2nd Flr	168	1	40,650.1	41,885.6	455.00	15.00	0.00	65	10.0	8.0	Y
SF Lots 300' 2nd Flr	169	1	40,690.7	41,845.3	455.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 50' 2nd Flr	170	1	40,111.1	41,520.7	446.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 100' 2nd Flr	171	1	40,144.5	41,485.5	446.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 150' 2nd Flr	172	1	40,180.6	41,448.6	446.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 200' 2nd Flr	173	1	40,213.9	41,411.8	450.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 250' 2nd Flr	174	1	40,243.8	41,372.2	455.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2a 300' 2nd Flr	175	1	40,279.7	41,336.3	455.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 50' 2nd Flr	176	1	39,520.1	40,774.2	431.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 100' 2nd Flr	177	1	39,554.1	40,735.0	432.00	15.00	0.00	65	10.0	8.0	Y

INPUT: RECEIVERS **8190**

Lot R-2b N side 150' 2nd Flr	178	1	39,591.9	40,697.8	432.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 200' 2nd Flr	179	1	39,630.5	40,660.6	445.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 250' 2nd Flr	182	1	39,664.4	40,624.6	448.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b N side 300' 2nd Flr	183	1	39,698.0	40,586.4	450.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 50' 2nd Flr	185	1	39,255.5	40,387.4	428.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 100' 2nd Flr	186	1	39,291.8	40,351.8	428.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 150' 2nd Flr	188	1	39,328.1	40,320.8	430.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 200' 2nd Flr	189	1	39,369.8	40,285.2	430.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 250' 2nd Flr	191	1	39,404.1	40,249.6	435.00	15.00	0.00	65	10.0	8.0	Y
Lot R-2b S side 300' 2nd Flr	192	1	39,443.8	40,209.9	435.00	15.00	0.00	65	10.0	8.0	Y

Dudek
M Greene

20 February 2017
TNM 2.5
Calculated with TNM 2.5

RESULTS: SOUND LEVELS
PROJECT/CONTRACT: 8190
RUN: Otay Ranch Village 4 Fut wPro Rev w Mit
BARRIER DESIGN: INPUT HEIGHTS
ATMOSPHERICS: 68 deg F, 50% RH

Average pavement type shall be used unless a State highway agency substantiates the use of a different type with approval of FHWA.

Receiver Name	No.	#DUs	Existing LAeq1h	No Barrier LAeq1h		Increase over existing		Type Impact	With Barrier Calculated LAeq1h	Noise Reduction		
				Calculated	Crit'n	Calculated	Crit'n Sub'l Inc			Calculated	Goal	Calculated minus Goal
			dBA	dBA	dBA	dB	dB		dBA	dB	dB	dB
R1: Resi -La Mdia - Olympc to Santa Vene	1	1	0.0	57.6	65	57.6	10	----	57.6	0.0	8	-8.0
R2: Resi -La Media Santa Venetia toBirch	2	1	0.0	58.7	65	58.7	10	----	58.7	0.0	8	-8.0
R3: Resi - La Media Birch to Santa Luna	3	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
R4: Potential Future Resi - La Media Birch	4	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
R5: Lot R-3 N side	6	1	0.0	65.0	65	65.0	10	Snd Lvl	65.0	0.0	8	-8.0
R6: Lot R-3 N central	7	1	0.0	65.1	65	65.1	10	Snd Lvl	65.1	0.0	8	-8.0
R7: Lot R-3 central	8	1	0.0	64.7	65	64.7	10	----	64.7	0.0	8	-8.0
R8: Lot R-3 S central	9	1	0.0	64.1	65	64.1	10	----	64.1	0.0	8	-8.0
R9: Lot R-3 S side	10	1	0.0	64.0	65	64.0	10	----	64.0	0.0	8	-8.0
R10: Lot R-3 N side 2nd flr	11	1	0.0	72.3	65	72.3	10	Snd Lvl	72.3	0.0	8	-8.0
R11: Lot R-3 N central 2nd flr	12	1	0.0	72.8	65	72.8	10	Snd Lvl	72.8	0.0	8	-8.0
R12: Lot R-3 central 2nd flr	13	1	0.0	72.1	65	72.1	10	Snd Lvl	72.1	0.0	8	-8.0
R13: Lot R-3 S central 2nd flr	14	1	0.0	71.9	65	71.9	10	Snd Lvl	71.9	0.0	8	-8.0
R14: Lot R-3 S side 2nd flr	15	1	0.0	72.3	65	72.3	10	Snd Lvl	72.3	0.0	8	-8.0
R15 Lot 68	16	1	0.0	62.4	65	62.4	10	----	62.4	0.0	8	-8.0
R16: Lot 69	17	1	0.0	62.7	65	62.7	10	----	62.7	0.0	8	-8.0
R17: Lot 72	18	1	0.0	62.3	65	62.3	10	----	62.3	0.0	8	-8.0
R18: Lot R-2a N side	19	1	0.0	62.6	65	62.6	10	----	62.6	0.0	8	-8.0
R19: Lot R-2a N central	20	1	0.0	63.8	65	63.8	10	----	63.8	0.0	8	-8.0
R20: Lot R-2a central	21	1	0.0	60.0	65	60.0	10	----	60.0	0.0	8	-8.0
R21: Lot R-2a central 2	24	1	0.0	60.5	65	60.5	10	----	60.5	0.0	8	-8.0
R22: Lot R-2a S central	25	1	0.0	66.1	65	66.1	10	Snd Lvl	66.1	0.0	8	-8.0
R23: Lot R-2a S side	26	1	0.0	62.8	65	62.8	10	----	62.8	0.0	8	-8.0
R24: Lot R-2b N side	27	1	0.0	60.5	65	60.5	10	----	60.5	0.0	8	-8.0

R25: Lot R-2b N Central	29	1	0.0	62.2	65	62.2	10	----	62.2	0.0	8	-8.0
R26: Lot R-2b Central	30	1	0.0	61.3	65	61.3	10	----	61.3	0.0	8	-8.0
R27: Lot R-2b Central 2	31	1	0.0	60.8	65	60.8	10	----	60.8	0.0	8	-8.0
R28: Lot R-2b S Central	32	1	0.0	58.2	65	58.2	10	----	58.2	0.0	8	-8.0
R29: Lot R-2b S	34	1	0.0	57.4	65	57.4	10	----	57.4	0.0	8	-8.0
R30: Lot 68 2nd flr	35	1	0.0	71.8	65	71.8	10	Snd Lvl	71.8	0.0	8	-8.0
R31: Lot 69 2nd flr	36	1	0.0	72.0	65	72.0	10	Snd Lvl	72.0	0.0	8	-8.0
R32: Lot 72 2nd flr	37	1	0.0	71.3	65	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R33: Lot R-2a N 2nd flr	38	1	0.0	71.3	65	71.3	10	Snd Lvl	71.3	0.0	8	-8.0
R34: Lot R-2a N central 2nd flr	39	1	0.0	70.4	65	70.4	10	Snd Lvl	70.4	0.0	8	-8.0
R35: Lot R-2a central 2nd flr	40	1	0.0	69.7	65	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R36: Lot R-2a central 2 2nd flr	41	1	0.0	70.2	65	70.2	10	Snd Lvl	70.2	0.0	8	-8.0
R37: Lot R-2a S central Lot 23 2nd flr	42	1	0.0	71.6	65	71.6	10	Snd Lvl	71.6	0.0	8	-8.0
R38: Lot R-2a S 2nd flr	43	1	0.0	71.7	65	71.7	10	Snd Lvl	71.7	0.0	8	-8.0
R39: Lot R-2b N side 2nd flr	44	1	0.0	70.9	65	70.9	10	Snd Lvl	70.9	0.0	8	-8.0
R40: Lot R-2b N Central 2nd flr	45	1	0.0	70.0	65	70.0	10	Snd Lvl	70.0	0.0	8	-8.0
R41: Lot R-2b Central 2nd flr	66	1	0.0	69.7	65	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R42: Lot R-2b Central 2 2nd flr	68	1	0.0	69.1	65	69.1	10	Snd Lvl	69.1	0.0	8	-8.0
R43: Lot R-2b S Central 2nd flr	71	1	0.0	68.6	65	68.6	10	Snd Lvl	68.6	0.0	8	-8.0
R44: Lot R-2b S 2nd flr	75	1	0.0	68.2	65	68.2	10	Snd Lvl	68.2	0.0	8	-8.0
R-3 N 50'	77	1	0.0	63.2	65	63.2	10	----	63.2	0.0	8	-8.0
R-3 N 100'	78	1	0.0	58.2	65	58.2	10	----	58.2	0.0	8	-8.0
R-3 N 150'	79	1	0.0	57.3	65	57.3	10	----	57.3	0.0	8	-8.0
R-3 N 200'	80	1	0.0	59.0	65	59.0	10	----	59.0	0.0	8	-8.0
R-3 N 250'	81	1	0.0	54.3	65	54.3	10	----	54.3	0.0	8	-8.0
R-3 N 300'	83	1	0.0	54.1	65	54.1	10	----	54.1	0.0	8	-8.0
R-3 N Central 50'	84	1	0.0	64.0	65	64.0	10	----	64.0	0.0	8	-8.0
R-3 N Central 100'	85	1	0.0	57.1	65	57.1	10	----	57.1	0.0	8	-8.0
R-3 N Central 150'	86	1	0.0	55.8	65	55.8	10	----	55.8	0.0	8	-8.0
R-3 N Central 200'	87	1	0.0	55.0	65	55.0	10	----	55.0	0.0	8	-8.0
R-3 N Central 250'	89	1	0.0	52.2	65	52.2	10	----	52.2	0.0	8	-8.0
R-3 N Central 300'	90	1	0.0	53.1	65	53.1	10	----	53.1	0.0	8	-8.0
R-3 Central 50'	91	1	0.0	62.9	65	62.9	10	----	62.9	0.0	8	-8.0
R-3 Central 100'	92	1	0.0	59.0	65	59.0	10	----	59.0	0.0	8	-8.0
R-3 Central 150'	93	1	0.0	57.3	65	57.3	10	----	57.3	0.0	8	-8.0
R-3 Central 200'	96	1	0.0	51.8	65	51.8	10	----	51.8	0.0	8	-8.0
R-3 Central 250'	97	1	0.0	52.7	65	52.7	10	----	52.7	0.0	8	-8.0
R-3 Central 300'	98	1	0.0	52.3	65	52.3	10	----	52.3	0.0	8	-8.0
R-3 S 50'	99	1	0.0	62.4	65	62.4	10	----	62.4	0.0	8	-8.0
R-3 S 100'	100	1	0.0	59.8	65	59.8	10	----	59.8	0.0	8	-8.0
R-3 S 150'	102	1	0.0	59.1	65	59.1	10	----	59.1	0.0	8	-8.0

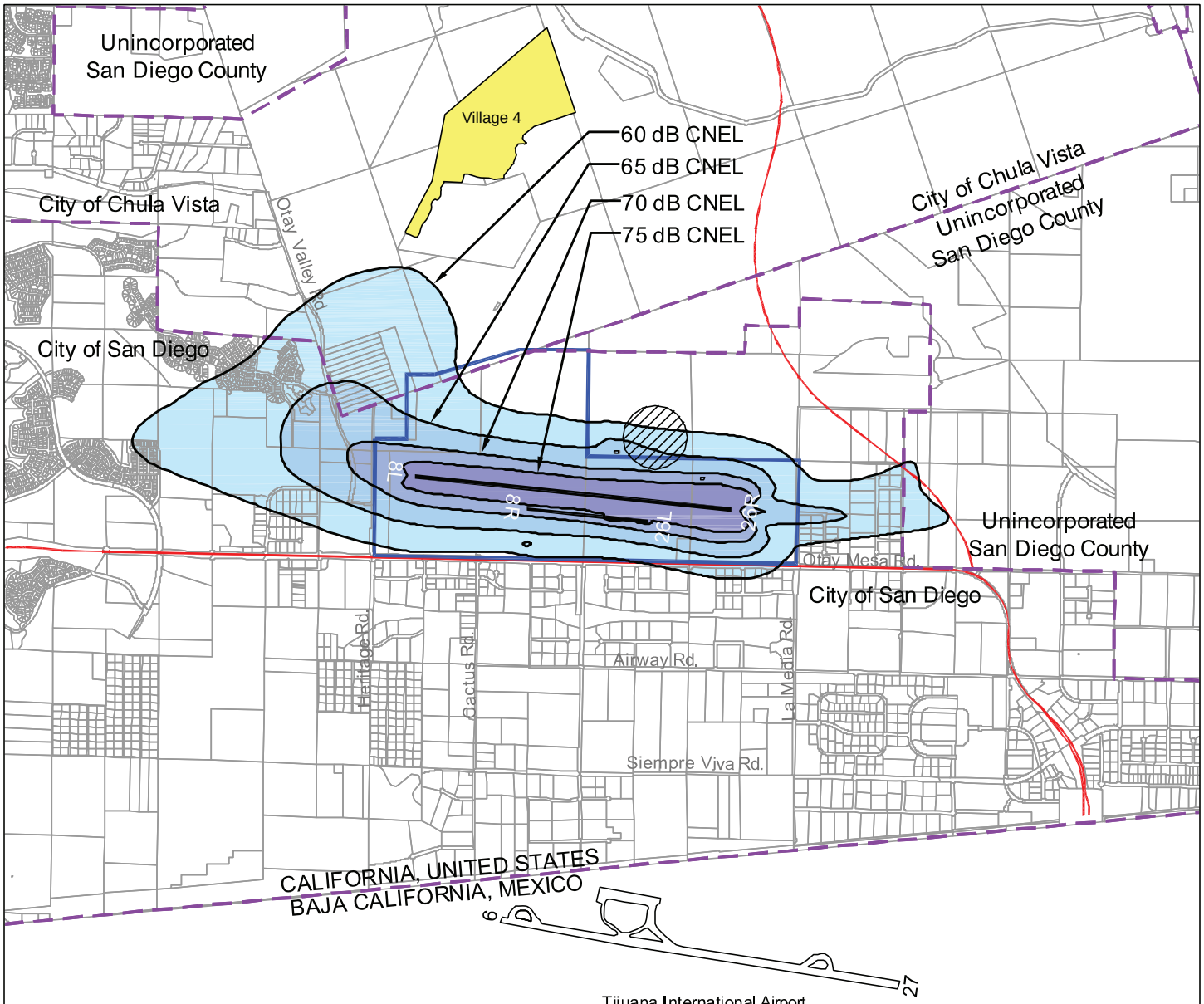
R-3 S 200'	104	1	0.0	58.3	65	58.3	10	----	58.3	0.0	8	-8.0
R-3 S 250'	106	1	0.0	53.7	65	53.7	10	----	53.7	0.0	8	-8.0
R-3 S 300'	109	1	0.0	54.3	65	54.3	10	----	54.3	0.0	8	-8.0
SF Lots 50'	111	1	0.0	59.0	65	59.0	10	----	59.0	0.0	8	-8.0
SF Lots 100'	112	1	0.0	56.6	65	56.6	10	----	56.6	0.0	8	-8.0
SF Lots 150'	113	1	0.0	55.8	65	55.8	10	----	55.8	0.0	8	-8.0
SF Lots 200'	114	1	0.0	54.9	65	54.9	10	----	54.9	0.0	8	-8.0
SF Lots 250'	115	1	0.0	56.0	65	56.0	10	----	56.0	0.0	8	-8.0
SF Lots 300'	117	1	0.0	55.2	65	55.2	10	----	55.2	0.0	8	-8.0
Lot R-2a 50'	118	1	0.0	58.3	65	58.3	10	----	58.3	0.0	8	-8.0
Lot R-2a 100'	119	1	0.0	54.8	65	54.8	10	----	54.8	0.0	8	-8.0
Lot R-2a 150'	120	1	0.0	53.3	65	53.3	10	----	53.3	0.0	8	-8.0
Lot R-2a 200'	121	1	0.0	47.4	65	47.4	10	----	47.4	0.0	8	-8.0
Lot R-2a 250'	124	1	0.0	50.3	65	50.3	10	----	50.3	0.0	8	-8.0
Lot R-2a 300'	125	1	0.0	50.5	65	50.5	10	----	50.5	0.0	8	-8.0
Lot R-2b N side 50'	126	1	0.0	57.7	65	57.7	10	----	57.7	0.0	8	-8.0
Lot R-2b N side 100'	127	1	0.0	54.5	65	54.5	10	----	54.5	0.0	8	-8.0
Lot R-2b N side 150'	128	1	0.0	54.4	65	54.4	10	----	54.4	0.0	8	-8.0
Lot R-2b N side 200'	130	1	0.0	51.9	65	51.9	10	----	51.9	0.0	8	-8.0
Lot R-2b N side 250'	131	1	0.0	50.9	65	50.9	10	----	50.9	0.0	8	-8.0
Lot R-2b N side 300'	132	1	0.0	49.7	65	49.7	10	----	49.7	0.0	8	-8.0
Lot R-2b S side 50'	133	1	0.0	55.4	65	55.4	10	----	55.4	0.0	8	-8.0
Lot R-2b S side 100'	134	1	0.0	50.6	65	50.6	10	----	50.6	0.0	8	-8.0
Lot R-2b S side 150'	136	1	0.0	49.7	65	49.7	10	----	49.7	0.0	8	-8.0
Lot R-2b S side 200'	137	1	0.0	46.1	65	46.1	10	----	46.1	0.0	8	-8.0
Lot R-2b S side 250'	138	1	0.0	46.6	65	46.6	10	----	46.6	0.0	8	-8.0
Lot R-2b S side 300'	139	1	0.0	45.1	65	45.1	10	----	45.1	0.0	8	-8.0
R-3 N 50' 2nd Flr	140	1	0.0	70.1	65	70.1	10	Snd Lvl	70.1	0.0	8	-8.0
R-3 N 100' 2nd Flr	141	1	0.0	62.6	65	62.6	10	----	62.6	0.0	8	-8.0
R-3 N 150' 2nd Flr	142	1	0.0	62.4	65	62.4	10	----	62.4	0.0	8	-8.0
R-3 N 200' 2nd Flr	143	1	0.0	61.2	65	61.2	10	----	61.2	0.0	8	-8.0
R-3 N 250' 2nd Flr	144	1	0.0	56.8	65	56.8	10	----	56.8	0.0	8	-8.0
R-3 N 300' 2nd Flr	145	1	0.0	57.8	65	57.8	10	----	57.8	0.0	8	-8.0
R-3 N Central 50' 2nd Flr	146	1	0.0	69.7	65	69.7	10	Snd Lvl	69.7	0.0	8	-8.0
R-3 N Central 100' 2nd Flr	147	1	0.0	63.4	65	63.4	10	----	63.4	0.0	8	-8.0
R-3 N Central 150' 2nd Flr	148	1	0.0	61.4	65	61.4	10	----	61.4	0.0	8	-8.0
R-3 N Central 200' 2nd Flr	149	1	0.0	59.9	65	59.9	10	----	59.9	0.0	8	-8.0
R-3 N Central 250' 2nd Flr	150	1	0.0	58.2	65	58.2	10	----	58.2	0.0	8	-8.0
R-3 N Central 300' 2nd Flr	151	1	0.0	57.7	65	57.7	10	----	57.7	0.0	8	-8.0
R-3 Central 50' 2nd Flr	152	1	0.0	70.3	65	70.3	10	Snd Lvl	70.3	0.0	8	-8.0
R-3 Central 100' 2nd Flr	153	1	0.0	63.0	65	63.0	10	----	63.0	0.0	8	-8.0

R-3 Central 150' 2nd Flr	154	1	0.0	61.8	65	61.8	10	----	61.8	0.0	8	-8.0
R-3 Central 200' 2nd Flr	155	1	0.0	55.7	65	55.7	10	----	55.7	0.0	8	-8.0
R-3 Central 250' 2nd Flr	156	1	0.0	57.5	65	57.5	10	----	57.5	0.0	8	-8.0
R-3 Central 300' 2nd Flr	157	1	0.0	57.1	65	57.1	10	----	57.1	0.0	8	-8.0
R-3 S 50' 2nd Flr	158	1	0.0	68.8	65	68.8	10	Snd Lvl	68.8	0.0	8	-8.0
R-3 S 100' 2nd Flr	159	1	0.0	63.6	65	63.6	10	----	63.6	0.0	8	-8.0
R-3 S 150' 2nd Flr	160	1	0.0	62.3	65	62.3	10	----	62.3	0.0	8	-8.0
R-3 S 200' 2nd Flr	161	1	0.0	61.1	65	61.1	10	----	61.1	0.0	8	-8.0
R-3 S 250' 2nd Flr	162	1	0.0	57.4	65	57.4	10	----	57.4	0.0	8	-8.0
R-3 S 300' 2nd Flr	163	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
SF Lots 50' 2nd Flr	164	1	0.0	67.0	65	67.0	10	Snd Lvl	67.0	0.0	8	-8.0
SF Lots 100' 2nd Flr	165	1	0.0	60.5	65	60.5	10	----	60.5	0.0	8	-8.0
SF Lots 150' 2nd Flr	166	1	0.0	59.0	65	59.0	10	----	59.0	0.0	8	-8.0
SF Lots 200' 2nd Flr	167	1	0.0	58.4	65	58.4	10	----	58.4	0.0	8	-8.0
SF Lots 250' 2nd Flr	168	1	0.0	59.7	65	59.7	10	----	59.7	0.0	8	-8.0
SF Lots 300' 2nd Flr	169	1	0.0	59.6	65	59.6	10	----	59.6	0.0	8	-8.0
Lot R-2a 50' 2nd Flr	170	1	0.0	66.3	65	66.3	10	Snd Lvl	66.3	0.0	8	-8.0
Lot R-2a 100' 2nd Flr	171	1	0.0	59.1	65	59.1	10	----	59.1	0.0	8	-8.0
Lot R-2a 150' 2nd Flr	172	1	0.0	57.1	65	57.1	10	----	57.1	0.0	8	-8.0
Lot R-2a 200' 2nd Flr	173	1	0.0	53.9	65	53.9	10	----	53.9	0.0	8	-8.0
Lot R-2a 250' 2nd Flr	174	1	0.0	54.4	65	54.4	10	----	54.4	0.0	8	-8.0
Lot R-2a 300' 2nd Flr	175	1	0.0	54.7	65	54.7	10	----	54.7	0.0	8	-8.0
Lot R-2b N side 50' 2nd Flr	176	1	0.0	64.7	65	64.7	10	----	64.7	0.0	8	-8.0
Lot R-2b N side 100' 2nd Flr	177	1	0.0	58.7	65	58.7	10	----	58.7	0.0	8	-8.0
Lot R-2b N side 150' 2nd Flr	178	1	0.0	57.2	65	57.2	10	----	57.2	0.0	8	-8.0
Lot R-2b N side 200' 2nd Flr	179	1	0.0	54.0	65	54.0	10	----	54.0	0.0	8	-8.0
Lot R-2b N side 250' 2nd Flr	182	1	0.0	54.4	65	54.4	10	----	54.4	0.0	8	-8.0
Lot R-2b N side 300' 2nd Flr	183	1	0.0	53.8	65	53.8	10	----	53.8	0.0	8	-8.0
Lot R-2b S side 50' 2nd Flr	185	1	0.0	62.0	65	62.0	10	----	62.0	0.0	8	-8.0
Lot R-2b S side 100' 2nd Flr	186	1	0.0	52.8	65	52.8	10	----	52.8	0.0	8	-8.0
Lot R-2b S side 150' 2nd Flr	188	1	0.0	51.6	65	51.6	10	----	51.6	0.0	8	-8.0
Lot R-2b S side 200' 2nd Flr	189	1	0.0	48.3	65	48.3	10	----	48.3	0.0	8	-8.0
Lot R-2b S side 250' 2nd Flr	191	1	0.0	50.0	65	50.0	10	----	50.0	0.0	8	-8.0
Lot R-2b S side 300' 2nd Flr	192	1	0.0	50.2	65	50.2	10	----	50.2	0.0	8	-8.0

Dwelling Units	**# DUs**	**Noise Reduction**		
		Min	**Avg**	**Max**
		dB	**dB**	**dB**
All Selected	140	0.0	0.0	0.0
All Impacted	29	0.0	0.0	0.0
All that meet NR Goal	0	0.0	0.0	0.0

APPENDIX D

Airport Noise Data



EXISTING (2006)	
Annual Operations	141,500
Average Annual Day	384

LEGEND:

- Airport Property Boundary
- Municipal Boundary
- Parcel Line
- No Overflights Below 1,500' MSL

Noise Exposure Range:

- 60 - 65 dB CNEL
- 65 - 70 dB CNEL
- 70 - 75 dB CNEL
- 75 + dB CNEL

north

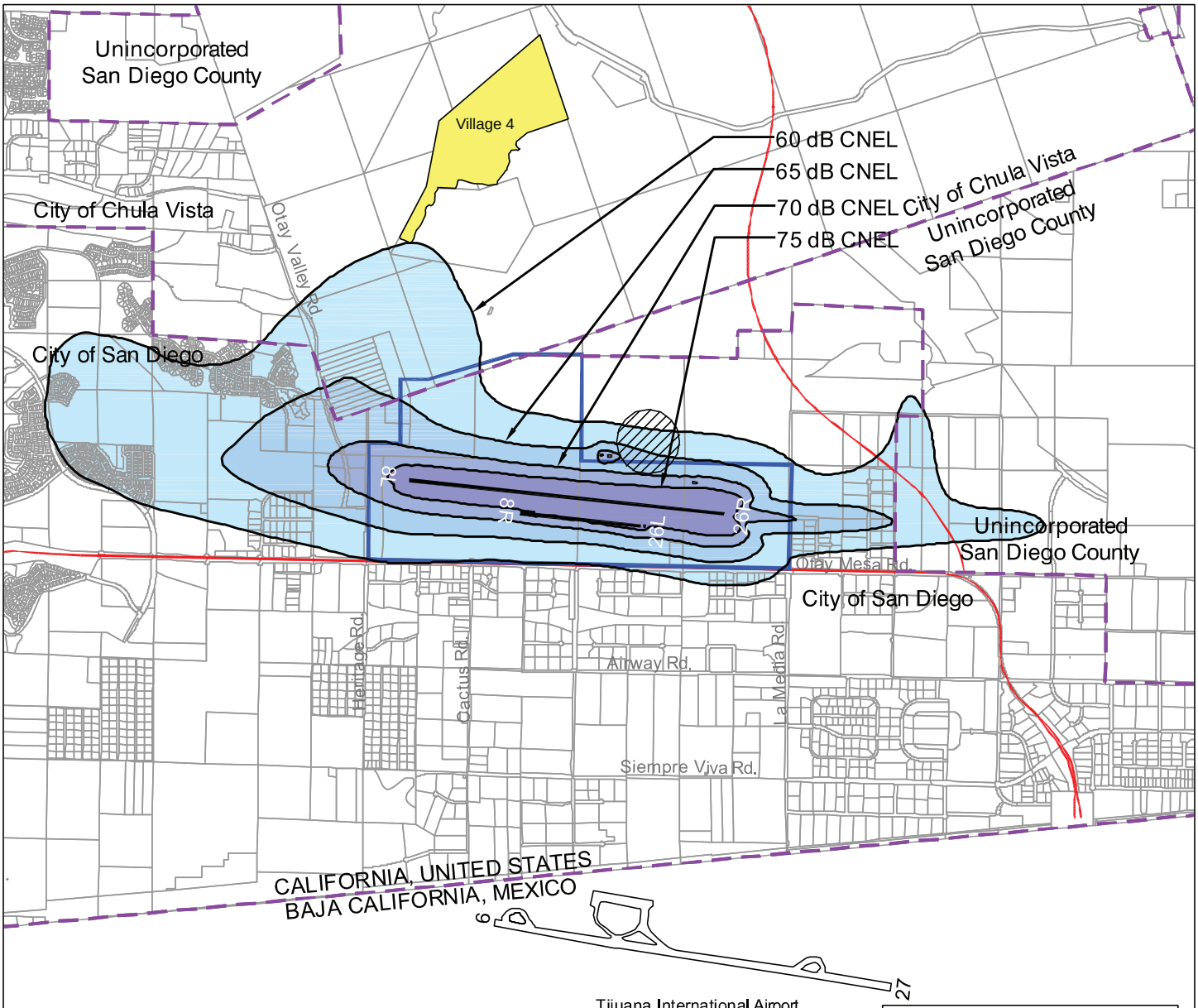
0 4,000 ft.

Note: MSL = Mean Sea Level; CNEL = Community Noise Equivalent Level.
Sources: Parcels - San Diego Geographic Information Source (SanGIS), 2008; Noise Contours - Harris, Miller, Miller & Hanson, January 2007.
Prepared by: Ricondo & Associates, Inc., October 2009.

AIRPORT LAND USE COMMISSION
SAN DIEGO COUNTY

Exhibit IV-4

Airport Noise Contours
Existing Conditions



FUTURE (20+ Years)	
Annual Operations	240,000
Average Annual Day	658

LEGEND:

- Airport Property Boundary
- Municipal Boundary
- Parcel Line
- No Overflights Below 1,500' MSL

Noise Exposure Range:

- 60 - 65 dB CNEL
- 65 - 70 dB CNEL
- 70 - 75 dB CNEL
- 75 + dB CNEL

0 4,000 ft.

Note: MSL = Mean Sea Level; CNEL = Community Noise Equivalent Level.
Sources: Parcels - San Diego Geographic Information Source (SanGIS), 2008; Noise Contours - Harris, Miller, Miller & Hanson, January 2007.
Prepared by: Ricondo & Associates, Inc., October 2009.

AIRPORT LAND USE COMMISSION
SAN DIEGO COUNTY

Exhibit IV-5

Airport Noise Contours
Future Conditions