

APPENDIX D
NOISE TECHNICAL REPORT

Noise Technical Report

**Property Specific Requests General Plan Amendment and Rezone
(GPA 12-005; REZ 14-006)**

PDS2012-3800-12-005; PDS2014-REZ-14-006; PDS2012-ER-12-00-003

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GLOSSARY OF TERMS AND ACRONYMS

The following terms and acronyms are used in this report.

ALUCP	Airport Land Use Compatibility Plan
Board	San Diego County Board of Supervisors
BO	Bonsall
Caltrans	California Department of Transportation
CD	Crest/Dehesa
CEQA	California Environmental Quality Act
CG	Champagne Gardens
CNEL	community noise equivalent level
County Guidelines	County of San Diego Guidelines for Determining Significance for Noise
CPA	community planning area
dB	decibel
dBA	A-weighted Sound Pressure Level
Desert Line	San Diego & Arizona Eastern Railway's Desert Line
DNL or L_{dn}	Day-Night Average Sound Level
DS	Desert
DU	dwelling unit
FAA	Federal Aviation Administration
FB	Fallbrook
FHWA	Federal Highway Administration
FRA	Federal Railroad Administration
FTA	Federal Transit Authority
General Plan	San Diego County General Plan
GP	General Plan
GPA	General Plan Amendment
GPU NTR	General Plan Update Noise Technical Report
HVAC	heating, ventilating, and air conditioning
Hz	Hertz
I-	Interstate
in/sec	inches per second
L_{eq}	equivalent sound level
L_{eq(h)}	one-hour equivalent sound level
L_{MAX}	Maximum sound level
ME	Mountain Empire
MM	Mitigation Measure

MTS	Metropolitan Transit System
NC	North County Metro
Noise Ordinance	County of San Diego Noise Ordinance
NSLU	noise sensitive land use
OSM	U.S. Office of Surface Mining Reclamation and Enforcement
PIR	Pacific Imperial Railroad
PP	Pala/Pauma
PSR	Property Specific Request
PPV	peak particle velocity
RMS	root mean square
SANDAG	San Diego Association of Governments
SanGIS	San Diego Geographic Information Source
SD	San Dieguito
SDCRAA	San Diego County Regional Airport Authority
SR-	State Route
Subregion	subregional planning areas
TNM 2.5	FHWA Traffic Noise Model Version 2.5
VC	Valley Center

EXECUTIVE SUMMARY

The proposed project is the implementation of a General Plan Amendment (GPA) to the San Diego County General Plan (General Plan) for revisions to the existing General Plan land use and zoning designations on private properties in 21 analysis areas. The land use revisions are the result of Property Specific Requests (PSRs) made during hearings for the General Plan Update.

Implementation of the General Plan Update would have the potential to expose Noise Sensitive Land Uses (NSLUs) to excessive noise, expose people to excessive groundborne vibration or noise, and result in a permanent or temporary increase in ambient noise. Therefore, the proposed project would result in potentially significant direct impacts. Additionally, the proposed project would result in a cumulatively considerable contribution to a significant cumulative impact for each issue, with the exception of temporary construction noise. However, implementation of adopted General Plan Update policies, mitigation measures, and compliance with applicable regulations, such as that future development projects prepare a Noise Impact Analysis that identifies impacts and mitigation, would mitigate the proposed project's direct and cumulative impacts to a level below significant, with the exception of impacts related to permanent increases in noise along area roadways, which would remain significant and unavoidable for direct and cumulative impacts.

This report is prepared in accordance with the County Guidelines for Determining Significance (County 2009a) and Report Format and Content Requirements (County 2009b). This report is tiered from the Noise Technical Report prepared for the County of San Diego General Plan Update (GPU NTR) (County 2009c).

1 INTRODUCTION

1.1 Project Description

During the San Diego County Board of Supervisors (Board) hearings for the General Plan Update conducted between October 2010 and August 2011, a number of individual property owners petitioned the Board to consider changes to the proposed General Plan Update land use designations for their properties. Following public testimony, the Board directed staff to review the PSRs made during the hearings. Some requests were incorporated into the General Plan Update that was ultimately adopted on August 3, 2011; however, many could not be accommodated without additional environmental review which the County is now undertaking.

The proposed project is a PSR GPA to the General Plan. The proposed project would result in revisions to the existing General Plan land use and zoning designations on private properties including their surrounding study areas, totaling approximately 9,336 acres within 882 parcels throughout the unincorporated County. Study area parcels were included in the areas proposed for changes in order to ensure mapping consistency and avoid spot designations. The private properties and study areas were consolidated into 21 analysis areas for the purposes of planning and environmental analysis (see Table 1). In addition, the proposed project includes an update to the land use designations and zoning for the properties comprising the former Champagne Gardens Specific Plan which expired in 2007, to ensure consistency with the General Plan. These revisions necessitate a zoning ordinance amendment. Lastly, revisions to Residential Policy 8 of the Valley Center Community Plan are proposed that would change the minimum lot sizes allowed in the SR-2 designation, from one acre to one-half acre and change the minimum lot size allowed in the SR-4 designation from two acres to one acre. The revision to this policy would not result in a change in the number of allowable dwelling units.

The GPA will change certain land use designations within the following community planning areas (CPAs) and subregional planning areas (Subregions):

- Bonsall CPA
- Crest/Dehesa CPA
- Desert Subregion
- Fallbrook CPA
- Mountain Empire Subregion
- North County Metro Subregion
- Pala/Pauma Subregion
- San Dieguito CPA
- Valley Center CPA

Generally, the proposed project would result in amendments to land use designations that would result in increased residential densities; however, some proposed land use amendments would result in reassignment from current residential designations to commercial or industrial designations. The proposed project would result in an increase of approximately 1,826 potential residential dwelling units above the number currently adopted in the General Plan. There are no development entitlement applications or development proposals associated with the proposed project. The estimated total net potential dwelling unit increases for each PSR area are shown in Table 1 below.

Table 1. Dwelling Unit Changes by PSR

Property Specific Request Analysis Area ID	Current GP Designation ^a	PSR GPA Designation ^a	Area (acres)	Existing Potential DU	Proposed Potential DU	Est. Potential DU Increase
1. Bonsall						
BO18, 20, 29, 32, 33 (referred to as BO18+)	SR10	SR4	136	10	27	17
Study Area BO 18+	SR10	SR4	785	119	169	50
2. Crest/Dehesa						
CD14	SR1/RL20	SR2/RL20	101	10	17	7
3. Desert 8						
DS8	VR2	VR4.3	34	67	144	77
Study Area DS8	VR2	VR4.3	135	270	581	311
4. Desert 24						
DS24	SR10	SR1	169	16	169	153
5. Fallbrook 2+						
FB2, 18 (referred to as FB2+)	RL20 / RL40	SR4/RL20	410	10	23	13
Study Area FB2+	RL20	SR4	81	16	19	3
6. Fallbrook 17						
FB17	SR2	SR1/SR2	107	49	82	33
7. Fallbrook 19+						
FB19, 25, 26 (referred to as FB19+)	RL20	SR10	66	3	3	0
Study Area FB19+	RL20	SR10	513	58	59	1
8. Fallbrook 21+						
FB21, 22, 23 (referred to as FB21+)	RL20	SR10	261	12	18	6
Study Area FB21+	RL20	SR10	418	49	50	1
9. Mountain Empire 26						
ME26	RL20	SR10	199	9	19	10
Study Area ME26	RL20	SR10	479	24	40	16
10. Mountain Empire 30A						
ME30-A	RL40	SR4/RL40	262	6	35	29
11. North County Metro 3A						
NC3-A	RL20	SR10	248	24	25	1
Study Area NC3-A	RL20	SR10	767	42	52	10

Property Specific Request Analysis Area ID	Current GP Designation ^a	PSR GPA Designation ^a	Area (acres)	Existing Potential DU	Proposed Potential DU	Est. Potential DU Increase
12. North County Metro 18A						
NC18-A	SR2	SR1/SR2	93	43	77	34
13. North County Metro 22						
NC22	SR10	SR1/SR10	126	10	56	46
Study Area NC22	SR10	SR1	28	11	17	6
14. North County Metro 37						
NC37	SR10	SR1	28	2	6	4
Study Area NC37	SR10	SR4	130	17	25	8
15. North County Metro 38+						
NC38, 41, 48	SR2	SR1	77	37	75	38
16. Pala/Pauma 30						
PP30	RL40	SR2/RL40	518	12	134	122
17. San Diegoito 15						
SD15	SR1	C-1/VR10.9 /SR.5	69	61	362	301
18. Valley Center 7+						
VC7, 9, 11, 20A, 20B, 54, 60, 61 (referred to as VC7+)	SR4	SR2	340	70	142	72
Study Area VC7+	SR4	SR2	1,125	296	477	181
19. Valley Center 51						
VC51	RL20	SR4	16	1	2	1
Study Area VC51	RL20	SR4	150	13	25	12
20. Valley Center 57+						
VC57, 63, 64	SR4	SR2	276	62	125	63
Study Area VC57+	SR4	SR2	1,061	312	480	168
21. Valley Center 67+						
VC67	SR2	I-2	4	n/a	n/a	n/a
Study Area VC67	SR2	I-2	9	n/a	n/a	n/a
Champagne Gardens^{b,c}						
Champagne Gardens (CG) 1, 6, 7, 8 (Referral Map)	SPA / RL20	SR10/C-4	44	1	8	7
CG 5 (Referral Map)	SPA	SR4	15	0	2	2
CG 2, 3, 4 (Referral Map)	SPA	SR4	56	0	10	10
Totals			9,336			1,826^b
^a For a complete description of the land use designations of Table 1-1, please refer to the General Plan, Chapter 3, Land Use Element. ^b The approximate increase in potential dwelling units (DUs) for Champagne Gardens (CG) properties is based on the difference between the Referral Map (highest density/intensity to be considered) for CG properties in the GPA and the existing Specific Plan designation (map error) with a zero density on the Land Use Map. CG7 is the exception, with a current designation of RL-20. ^c CG Areas 1, 6, 7, and 8 are located in the Bonsall planning area. Areas 2 and 3 are located in the Valley Center planning area. Area 4 is in both the Valley Center and Hidden Meadows (NC Metro Subregion) planning areas. Area 5 is in the NC Metro planning area. Source: San Diego County PSR General Plan Update Draft EIR Table 1-1 Property Specific Request General Plan Amendment – Proposed Land Use Changes and Table 1-3 Proposed PSRs.						

1.2 Environmental Settings & Existing Conditions

1.2.1 Settings & Locations

The 21 PSR analysis areas and Champagne Gardens Specific Plan area are located across unincorporated San Diego County. Most of the development in San Diego County is centered in the incorporated cities, while the unincorporated region of the County is relatively rural and undeveloped. Within the PSR analysis areas, the majority of land is undeveloped or consists of rural residential development and/or agricultural uses. In addition to the relatively high occurrence of sensitive plant or animal species, limited availability of infrastructure (e.g., fire protection, law enforcement) constrains potential development in the PSR analysis areas. The locations and existing and proposed land use designations of each of the PSRs are shown in the land use maps in Appendix A of the San Diego County PSR General Plan Update Draft EIR (County 2016b).

Land uses in the Bonsall Analysis Area (BO18+ and Study Area BO18+) are currently a mix of agriculture, rural residential, and undeveloped land. Surrounding land uses are similar and include nurseries, ranches, and rural residential. The BO18+ Study Area is located directly east of a development of approximately 60-70 houses. The PSR analysis area is situated directly to the west of the Interstate 15 (I-15) freeway.

The Crest/Dehesa CPA PSR analysis area (CD14) is located immediately to the east and northeast of existing detached single-family residential developments. To the east is land described as open space park and to the southeast is the Singing Hills Memorial Park cemetery. The land within the PSR is mostly undeveloped with a handful of rural residential units.

The PSRs and study areas in the Desert Subregion near Borrego Springs (DS8, Study Area DS8, and DS24) are currently undeveloped. Nearby surrounding land uses include low-density rural residential, a golf resort with a residential community, a Boys and Girls Club, and Borrego Springs High School.

There are four PSR analysis areas in Fallbrook (FB2+, FB17, FB19+, and FB21+) and all of them are currently characterized by a mix of low-density rural residential development, agriculture, and natural habitat. The surrounding land uses are essentially the same, except for a mobile home park located across a road from one of the proposed PSRs (FB17). Three of the PSRs (FB2+, FB17, and FB19) are located within approximately one mile of I-15 and FB2+ would be adjacent to State Route 76 (SR-76).

In the Mountain Empire Subregion, the PSRs and study area are currently occupied by a handful of rural residential units. The ME30-A PSR is located next to a relatively dense development of approximately 200 single-family detached homes. It also straddles a freight railroad line that is not currently in operation, is located within 600 feet of a fire station, and is situated just south of State Route 94 (SR-94).

The proposed PSRs in the North County Metro Subregion (NC3-A, NC18-A, NC22, NC37, and NC-38+) are located in areas that are relatively more developed than the other PSRs, particularly NC3-A, NC18-A, and NC38+, which are within a few miles of the cities of Escondido and San Marcos. While the existing land uses in NC3-A, NC18-A, and NC38+ consist of rural residential, agriculture, and undeveloped land, the surrounding land uses include a school and residential

communities with single-family detached units and multi-family units. The study area for NC3-A encompasses the Deer Park Monastery. The current land uses in and around the more rural North County Metro Subregion PSRs, NC22 and NC37, include a mix of low-density rural residential, natural habitat, agriculture, and undeveloped land. NC37 is less than two miles west of I-15 and NC18-A would be located within approximately half of a mile of two major arterial roads: San Pasqual Valley Road and Bear Valley Parkway.

The Pala/Pauma Subregion PSR analysis area (PP30) is undeveloped. The proposed PSR is west of the Rincon Indian Reservation and an associated wellness health center. PP30 is immediately south of the Lazy H Ranch retreat. The PSR is also located southwest of a fire station and south of SR-76.

The PSR proposed in the San Dieguito CPA (SD15), located east of the incorporated cities of Carlsbad and Encinitas and southwest of San Marcos, is currently undeveloped land. It is situated immediately to the west of land that is currently used as a junkyard. The PSR is located approximately 200 yards east and 400 yards south of two distinct detached single-family residential developments. It is also situated approximately 300 yards to the southwest of a development of multi-family units and commercial land use. However, the existing land use immediately surrounding the proposed PSR is open space park or preserve. San Elijo Road, a major regional artery, runs along the northern border of the PSR.

In Valley Center, there are four PSR analysis areas (VC7+, VC51, VC57+, and VC67+). The PSRs in the northern region of the CPA (VC7+ and VC51) are currently less developed than the two PSRs to the south (VC67+ and VC57+). Current land uses in and surrounding the northern Valley Center PSRs are a mix of agriculture, rural residential, open space preserves, and undeveloped land. VC7+ is adjacent to a mobile home and recreational vehicle (RV) park. It is also situated next to I-15. VC67+, in the southern region of Valley Center, is the only proposed PSR that contains existing light industrial use, although it also currently has a few rural residential units. It is adjacent to other light industrial and rural residential land uses. VC57+, like the other PSRs, is characterized primarily by agriculture and rural residential use. However, its study area includes a small amount of commercial land use. The VC57+ PSR is located adjacent to a commercial/light industrial area, a fire station and sheriff's department, rural residential development, and a middle school. It is also located next to a major local artery, Valley Center Road.

The proposed Champagne Gardens Specific Plan area is located within the borders of three separate planning areas: Bonsall, North County Metro, and Valley Center. Current land use within Champagne Gardens is a mix of open space preserve, agriculture, public storage, and undeveloped land. Surrounding land uses include agriculture and low-density rural residential. The Champagne Gardens Specific Plan area is located directly north of a winery and golf course resort. The Specific Plan area is located immediately east of I-15.

1.2.2 Noise Terminology

As described in the County Guidelines (County 2009a), environmental noise is comprised of infinite combinations of sound intensities of varying frequency and duration. The following weighted and averaging terms are used to reasonably characterize environmental noise, as defined in the County Guidelines:

A-weighted Sound Pressure Level (dB or dBA)

Some frequencies of noise are more noticeable than others. To compensate for this fact, different sound frequencies are weighted more heavily (A-weighted) so that the response of the average human ear is simulated.

Equivalent Sound Level (L_{eq})

Environmental noise often fluctuates over time. To be able to describe this in a practicable manner the L_{eq} was developed. L_{eq} is the A-weighted steady sound level that contains the same total acoustical energy as the actual fluctuating sound level.

One-Hour Equivalent Noise Level ($L_{eq(h)}$)

A one-hour equivalent noise level is a measurement of noise intensity, which is the equivalent sound level (L_{eq}) over a one-hour averaging period.

Community Noise Equivalent Level (CNEL)

This term applies weights to noise during evening and nighttime hours to compensate for the increased sensitivity of people to noise at those times. CNEL is the equivalent sound level for a 24-hour period with a +5 dB weighting applied to all sound occurring between 7:00 p.m. and 10:00 p.m. and a +10 dB weighting applied to all sound occurring between 10:00 p.m. and 7:00 a.m. CNEL is expressed in the A-weighting frequency scale. In the case of airport or aircraft noise, CNEL is often expressed as a 365-day average.

Day-Night Average Sound Level (DNL or L_{dn})

This term is similar to CNEL except it does not apply any weights to the evening hours to compensate for the increased sensitivity to noise. DNL is a 24-hour weighted average and also uses an A-weighted frequency scale. DNL is normally within 1 dB of CNEL using the same 24-hour data.

Noise Sensitive Land Use (NSLU)

Noise Sensitive Land Uses (NSLUs) are land uses where an excessive amount of noise would interfere with normal operations or activities. An NSLU is any residence, hospital, school, hotel, resort, library, nature preserve, or similar facility where quiet is an important attribute of the environment.

Impulsive Noise

Any single noise event or a series of single noise events, which causes a high peak noise level of short duration (one second or less), measured at a specific location. Examples include, but are not limited to, a gunshot, an explosion or a noise generated by construction equipment.

Maximum Sound Level (L_{MAX})

The highest sound level reached when measuring noise with a sound level meter using the A-weighted network and slow time weighting. The maximum sound level is equivalent to the industry standard known as L_{MAX} .

Ground-borne Vibration

Ground-borne vibration propagates from a source through the ground to adjacent receptors by surface waves which are transmitted through solid material. The frequency of a vibrating object, measured in Hertz (Hz), describes how rapidly it is oscillating. The rumbling sound caused by the vibration of building structures is referred to as ground-borne noise.

Vibration Sensitive Land Uses

Vibration sensitive land uses include buildings where vibration would interfere with operations within the building, such as vibration-sensitive research and manufacturing, hospitals with vibration-sensitive equipment, and university research operations. Residential uses are also sensitive to excessive levels of vibration of either a regular or intermittent nature.

1.2.3 General Noise Principles

Noise is typically defined as unwanted sound. The main characteristics of sound are intensity, frequency and duration. The decibel (dB) is the typical measurement of sound intensity. A sound level of 0 dB approximates the threshold of hearing for people. The average person can perceive a change of +/-3 dB. A change of +/-5 dB is readily perceptible and a change of +10 dB is perceived as twice as loud. Noise can have both human health and quality of life effects. At 130 to 140 dB, sound becomes extremely painful to the average person. Data show that long exposure to noise levels exceeding 85 dB can result in hearing loss and other health-related problems. The community noise environment is normally unacceptable for residential sites that are exposed to noise where the day-night average sound level (DNL) exceeds 75 dB. From a quality of life standpoint, noise can interfere with speech, disturb sleep and cause annoyance. Studies on the relationship between noise exposure and percentage of community highly annoyed by noise demonstrate that approximately four percent of a community is highly annoyed by community noise levels equivalent to 55 dB CNEL, and about fourteen percent of a community can be highly annoyed by community noise levels equivalent to 65 dB CNEL. Additionally, an increase in the ambient or periodic noise level can cause quality of life impacts even when the absolute noise level does not exceed 55-65 dB CNEL. A study by the International Standard Organization found that sound level changes of 5-10 dB generated sporadic complaints from existing residents. Changes of 10 dB or more generated widespread complaints (County 2009a).

Frequency of sound is measured in Hz or cycles per second. The generally accepted range of human hearing ranges from approximately a low of 20 Hz to a high of 20,000 Hz. Some frequencies are more noticeable and unpleasant than others (County 2009a).

1.2.4 Existing Regulations and Standards

Federal, State, and local agencies have established limits for community noise and occupational noise. These standards are generally the result of socioeconomic studies that balance quality of life issues with reasonable development needs. The County of San Diego has two principal noise regulations: the Noise Element of the General Plan and the County of San Diego Noise Ordinance (Noise Ordinance). The following summarizes the regulations described in the County Guidelines that typically apply to projects within the unincorporated area of San Diego County (County 2009a).

1.2.4.1 Federal Regulations and Standards

Federal Aviation Administration (FAA) Standards [Federal Aviation Regulations Part 150, Section 150.21]. The FAA establishes 65 dB CNEL as the noise standard associated with aircraft noise.

Federal Highway Administration (FHWA) Standards [23 CFR Chapter 1, Part 772, Section 772.19]. For federally funded road construction projects, the FHWA standards preempt County standards. The FHWA establishes specific noise standards for different land use categories for federal highway projects. The State of California protocol describes implementation of these FHWA standards.

Federal Railroad Administration (FRA) Standards [High-speed Ground Transportation and Vibration Impact Assessment Manual, October 2012, www.fra.dot.gov/Page/P0216] For high-speed ground transportation projects, responsible agencies require methods in the manual for NEPA evaluation of a project's potential impacts considering the adjacent land use categories, existing ambient conditions, and future exposure levels. The assessment provides methods to assist in the evaluation of high-speed designs in contrast to more standard mass transit developments. For a federally funded project, the FRA standards preempt County standards.

Federal Transit Authority Standards (FTA) [Transit Noise and Vibration Impact Assessment Manual, May 2006, www.transit.dot.gov/regulations-and-guidance/environmental-programs/noise-and-vibration]. For federally funded mass transit projects, the FTA has guidance on how to assess noise and vibration impacts. These standards preempt County standards for federally funded projects. The County currently relies on the vibration standards listed in this document.

U.S. Office of Surface Mining Reclamation and Enforcement (OSM) [Public Law 95-87, Surface Mining Control and Reclamation Act of 1977, <http://www.osmre.gov/lrg/docs/SMCRA.pdf>]. The OSM has established guidelines related to blasting for surface mining activities. The OSM guidelines require the operator to distribute a blasting schedule, post blasting signs, and control access within the blasting area. OSM has established air blast and ground vibration limits at the location of any dwelling, public building, school, church, or community building outside the permit area. The standard PPV damage threshold for residential structures is 2.0 inches per second. This requirement is based on the findings and recommendations of several reports made by the former U.S. Bureau of Mines.

1.2.4.2 State Regulations and Standards

California Environmental Quality Act (CEQA) [California Code of Regulations, Guidelines for Implementation of CEQA, Appendix G, Title 14, Chapter 3 §15000-15387 and 21000-21178, <http://resources.ca.gov/ceqa/>]. CEQA requires lead agencies to consider noise impacts. Under CEQA, lead agencies are directed to assess conformance to locally established noise standards or other agencies' noise standards; measure and identify the potentially significant exposure of people to or generation of excessive ground borne vibration or noise levels; measure and identify potentially significant permanent or temporary increases in ambient noise levels; and measure and identify potentially significant impacts associated with air traffic.

California Noise Control Act [California Health and Safety Code 46000-46080 <http://www.leginfo.ca.gov/calaw.html>]. This section of the California Health and Safety Code finds that excessive noise is a serious hazard to the public health and welfare and that exposure to certain levels of noise can result in physiological, psychological, and economic damage. It also finds that there is a continuous and increasing bombardment of noise in the urban, suburban, and rural areas. The California Noise Control Act declares that the State of California has a responsibility to protect the health and welfare of its citizens by the control, prevention, and abatement of noise. It is the policy of the State to provide an environment for all Californians free from noise that jeopardizes their health or welfare.

California Noise Insulation Standards [California's Title 24 Noise Standards. Cal. Adm. Code Title 24, Chap. 2-35 <http://ccr.oal.ca.gov/>]. In 1974, the California Commission on Housing and Community Development adopted noise insulation standards for multi-family residential buildings (Title 24, Part 2, California Code of Regulations). Title 24 establishes standards for interior room noise (attributable to outside noise sources). The regulations specify that acoustical studies must be prepared whenever a residential building or structure is proposed to be located near an existing or adopted freeway route, expressway, parkway, major street, thoroughfare, rail line, rapid transit line, or industrial noise source, and where such noise source or sources create an exterior CNEL (or L_{dn}) of 60 dB or greater. Such acoustical analysis must demonstrate that the residence has been designed to limit intruding noise to an interior CNEL (or L_{dn}) of at least 45 dB.

1.2.4.3 Local Regulations and Standards

San Diego County General Plan, Noise Element (Chapter 8) [<http://www.sandiegocounty.gov/content/dam/sdc/pds/gpupdate/docs/GP/NoiseElement.pdf>].

The Noise Element of the County of San Diego General Plan establishes limitations on sound levels to be received by NSLUs. New development may cause an existing NSLU to be affected by noise caused by the new development, or it may create or locate an NSLU in such a place that it is affected by noise. The Noise Element identifies airports and traffic on public roadways as the major sources of noise.

The Noise Element states that an acoustical study is required if it appears that an NSLU would be subject to noise levels of CNEL equal to 60 dBA or greater. If that study confirms that greater than 60 dB CNEL would be experienced, modifications that reduce the exterior noise level to less than 60 dB CNEL and the interior noise levels to below 45 dB CNEL must be made to the development. If these modifications are not made, the development shall not be approved unless a finding is made that specific social or economic considerations warrant project approval; provided, that if the noise level would exceed 75 dB CNEL even with such modifications, the development shall not be approved irrespective of such social or economic considerations.

“Development” is defined as any physical development including but not limited to residences, commercial or industrial facilities, roads, civic buildings, hospitals, schools and airports. An “NSLU” is defined in the General Plan Noise Element as any residence, hospital, school, hotel, resort, library, or any other facility where quiet is an important attribute of the environment. “Exterior Noise” is defined in the General Plan Noise Element as noise measured at an outdoor living area that meets specified minimum area requirements for single family detached dwelling projects, and for other projects it means noise measured at all exterior areas which are provided for group or private usable open space.

The Noise Element includes special provisions for County road construction projects and interior noise levels in rooms that are usually occupied only a part of the day (schools, libraries, etc.).

County of San Diego Noise Ordinance [San Diego County Code of Regulatory Ordinances. Title 3. Division 6. Chapter 4. Section 36.401 www.sandiegocounty.gov/cob/ordinances/ord9962.doc]. The Noise Ordinance establishes prohibitions for disturbing, excessive, or offensive noise, and provisions such as sound level limits for the purpose of securing and promoting the public health, comfort, safety, peace, and quiet for its citizens. Planned compliance with sound level limits and other specific parts of the ordinance allows presumption that the noise is not disturbing, excessive, or offensive. Limits are specified depending on the zoning placed on a property (e.g., varying densities and intensities of residential, industrial and commercial zones). Where two adjacent properties have different zones, the sound level limit at a location on a boundary between two properties is the arithmetic mean of the respective limits for the two zones, except for extractive industries. It is unlawful for any person to cause or allow the creation of any noise that exceeds the applicable limits of the Noise Ordinance at any point on or beyond the boundaries of the property on which the sound is produced. Furthermore, the Noise Ordinance allows the County to grant variances from the noise limitations for temporary on-site noise sources, subject to terms and conditions intended to achieve compliance. Finally, the Noise Ordinance establishes additional noise limitations for operation of construction equipment.

1.2.5 Existing Noise Conditions

Unincorporated San Diego County is characterized as a predominantly rural environment with low-density development that contributes significantly to the perceived quality of life and the peace and tranquility that exists within it. Major sources of noise in the unincorporated area include transportation and non-transportation related activities, as discussed below.

A community noise survey was conducted during February and March of 2008 for the GPU NTR (County 2009c) to establish baseline ambient noise levels for transportation and non-transportation noise generators throughout the County. Land uses and associated noise levels in the vicinity of measurement locations in PSR planning areas have remained largely unchanged since 2008. Therefore, the 2008 community noise survey is considered representative of existing conditions for the purposes of this analysis.

A total of 44 short-term (15-minute) measurements were conducted to provide a “snapshot” of baseline noise levels at a given point in time. Sample sites were selected to represent the varied land uses within the County, including roadways, agricultural areas, high density and low density residential, schools, hospitals and parks. Two 24-hour noise measurements were also conducted as part of the community noise survey to sample the fluctuation in noise levels that occur throughout the day. One 24-hour sample site was located near I-15 and the other near Wildcat Canyon Road, which provides access to a casino and was determined to be a representative heavily traveled roadway. The 24-hour noise measurement at I-15 found a CNEL of 66 dBA and 24-hour L_{eq} of 62 dBA, while the 24-hour noise measurement at Wildcat Canyon Road found a CNEL of 73 dBA and 24-hour L_{eq} of 67 dBA (County 2009c).

All nine of the CPAs and Subregions with proposed PSRs had at least one noise sample site. Figure 1 of the GPU NTR, Community Noise Survey Locations, shows the location of the short-

term measurement locations (County 2009c). Results of the short-term noise measurements are shown in Table 2. In general, freeways and highways, major arterials, and the SPRINTER railroad were the land use categories where the highest noise levels were measured. Lower short-term noise levels were measured near residential areas, the resort, and schools (County 2009c).

Table 2. 2008 Noise Survey Results

CPA/Subregion	Location	Land Use Category	Noise Source	L_{eq}
Bonsall	SR-76 (Mission Rd), btw Via Montellano-Olive Hill Rd	Prime arterial	Traffic	70.9
Crest/Dehesa	Sycuan Casino (Dehesa Rd - 500ft west of entrance)	Casino	Passenger buses	66.3
Crest/Dehesa	John F. Kennedy Park	Park	Recreational activity	58.9
Desert	Borrego Springs Resort	Hotels/resorts	Traffic, sprinklers	42.6
Desert	Borrego Springs High School	Schools	Bells, students	55.3
Fallbrook	Monserate Hill Rd	Residential (Semi-Rural)	Traffic, birds	49.5
Fallbrook	Fallbrook Hospital	Hospital	Parking lot	64.2
Mountain Empire	Tecate Rd, btw SR-94 and state border	Major Road	Traffic	65.5
N. County Metro	S. Santa Fe Ave, btw Monte Vista Dr-Sycamore Ave	Major Road	Traffic	68.5
N. County Metro	Twin Oaks Valley Rd, n/o of Deer Springs Rd	Agriculture (greenhouses)	Delivery trucks	68.3
N. County Metro	Harmony Grove Village	Transitional Residential	Traffic, poultry farm	54.7
N. County Metro	San Pasqual Valley Rd/Bear Valley Rd	Residential (Low Dens)	Traffic	50.0
N. County Metro	SPRINTER Station – Vista Transit Center	Railroad	Light Rail	70.2
Pala/Pauma	Pauma Elementary School	Schools	Bells, students	49.5
San Dieguito	Rancho Bernardo Rd/Camino Del Norte	Residential (High Dens)	Traffic	46.3
Valley Center	Blueberry Hill Lane	Residential (Low Dens)	Traffic	55.1
Valley Center	Lilac Rd, btw Old Castle Rd-Anthony Rd	Community Collector	Traffic	68.6

Source: Noise Technical Report for the County of San Diego General Plan Update, May 21, 2009.

1.2.5.1 Transportation Noise Sources

The most common source of noise in the rural and semi-rural environment in unincorporated San Diego County is transportation related. The following sections describe existing noise from roadways, airports, and railroads.

Roadways

Traffic noise sources include automobiles, trucks, and other motor vehicles. Traffic on San Diego County's roadways is the most substantial and pervasive source of noise in San Diego County. There are several key factors associated with roadway or traffic noise including traffic volumes, the speed of the traffic, the type or "mix" of vehicles using a particular roadway, and pavement

conditions. The roadway network in the unincorporated County consists of State highways, interstate highways, regional arterials, local public roads, and private roads. Highways and arterials generally accommodate high speed, high volume traffic, and are designed to provide for the movement of people and goods between and within communities in the County. The interstate highways in the unincorporated County in the vicinity of the proposed project include I-15, and I-8. I-15 traverses the western portion of the County from north to south, while I-8 crosses the southern portion of the County from west to east. Major state highways include SR-94, SR-78, SR-79, and SR-76. SR-94 is located in south unincorporated County, while SR-78, SR-79, and SR-76 all serve the eastern portion of unincorporated County. Examples of major arterials include Tecate Road in Mountain Empire Subregion and South Santa Fe Avenue in North County Metro Subregion (County 2009c).

Local roads serve lower speed, lower volume traffic and provide access to local residential neighborhoods and commercial and industrial areas in each of the communities throughout the unincorporated County. Local roads also feed traffic onto the larger highways and arterials. Examples of local roads are Gopher Canyon Road in Bonsall CPA and Olive Hill Road in Fallbrook CPA. Private roads are generally not available to the public and serve a limited number of travelers. Examples of private roads are private driveways or maintenance roads (County 2009c).

In the Noise Element of its General Plan, the County identifies existing and future roadway noise contours in Figures N-1 and N-2 (County 2011a). Existing roadway noise contours were determined from 2007 traffic levels and expressed in terms of CNEL. As shown in the Existing Noise Contours figure provided in Appendix B, and based on GIS data provided by the County of San Diego (County 2016a), portions of PSR analysis areas BO18+, DS8, DS24, FB2+, FB17, FB19+, NC38+, PP30, SD15, VC7+, VC57+, and the Champagne Gardens Specific Plan area are located within a General Plan noise contour and traffic noise levels in these areas are estimated to be 55 dBA CNEL or higher. Table 3 provides the acreages within each PSR analysis area located in a designated roadway noise contour. PSR analysis areas CD14, FB21+, ME26, ME30A, NC-3A, NC18-A, NC22, NC37, VC51, and VC67+ are not located within a noise contour. Overall traffic noise levels in these areas is generally lower due to the absence of freeways and major arterials; however, as demonstrated by the community noise measurements summarized in Table 2, traffic noise is experienced throughout the analysis areas, including along roadways that do not have designated contours.

Table 3. PSR Analysis Area within Existing Roadway Noise Contours

PSR Analysis Area	55 dBA CNEL (acres)	60 dBA CNEL (acres)	65 dBA CNEL (acres)	70 dBA CNEL (acres)	75 dBA CNEL (acres)
BO18+	354	198	100	39	6
Champagne Gardens	2	39	35	39	24
DS8	1	0	0	0	0
DS24	7	1	0	0	0
FB2+	18	11	5	0	0
FB17	95	11	0	0	0
FB19+	373	139	37	4	0
NC38+	2	0	0	0	0
PP30	8	4	1	0	0
SD15	19	10	5	2	0
VC7+	379	0	0	0	0
VC57+	139	80	23	0	0

Source: San Diego County GIS Services, October 26, 2016.

Airports

Another transportation-related noise source across the County is aviation operation. Noise generated from aviation operations is concentrated around airport buildings, runways, and along approach and departure routes. Six public airports are located in the unincorporated County, two of which are in the vicinity of proposed PSRs: Borrego Valley Airport (near DS8 and DS24) and Fallbrook Community Airpark (near FB17). The County also owns Gillespie Field in the City of El Cajon near Crest/Dehesa CPA approximately 5 miles from CD14. Additionally, 29 smaller private-use airports are scattered throughout the unincorporated County two of which are within two miles of a PSR area: Blackinton airstrip, located 1.5 miles from the VC7+ study area, and Hoag heliport, located 0.5 miles from the VC57+ study area. Additionally, a private airstrip is in Mountain Empire Subregion near, but more than two miles from, ME26 and ME30-A; Lake Wohlford airstrip in North County Metro Subregion is near NC3-A, NC67, NC57+ and NC18-A; and Pauma Valley Airpark in Pala/Pauma Valley Subregion is near PP30. The McClellan-Palomar Airport is approximately five miles from SD15 and approximately six miles from NC22 (County 2009c and SanGIS 2016).

The Noise Contours figure provided in Appendix C presents the location of airports in San Diego County and either their published noise contours or a two-mile noise contour approximation. As shown in the figure, no airport noise contours overlap with a proposed PSR or the Champagne Gardens Specific Plan area. As described above, two PSR study areas are located within two miles of a private airstrip.

Railroads

The extent of the noise generated from passenger and freight trains depend on many factors, including the frequency of train operations, the number of railway cars, the type of engine, and the number of grade crossings that require warning bells or horns. In addition, train pass-by events may cause adjacent land uses to be affected by ground-borne vibration (County 2009c).

Only one railroad line is located near any PSR area, the San Diego & Arizona Eastern Railway's Desert Line (Desert Line). The Desert Line bisects PSR ME30-A and is located less than three miles from PSR ME26 (SANDAG GIS 2015a). It is the primary freight rail line that traverses the unincorporated County and has been operated intermittently since 1906. The Desert Line has been out of operation since 2008 due to the need for bridge and tunnel repairs. Pacific Imperial Railroad (PIR) is the operator for freight services on the Desert Line between the International Border and Plaster City. PIR was granted the long-term contract for freight operations on the Desert Line in December 2012. Since then, PIR has submitted reconstruction plans (PIR 2015) but the future of operations on the Desert Line remain uncertain (Bloomekatz 2014).

Noise from the Desert Line was analyzed as part of the Las Aldeas project for the City of El Centro in October 2006. The Las Aldeas Specific Plan EIR found that, as of 2006, existing traffic conditions on the line consisted of four trains per day in each direction with a typical train length of 15 to 30 cars and a typical speed of 20 mph. It expected the recent opening of the Carrizo Gorge Railroad line east of Plaster City to induce a considerable increase in freight traffic, up to a total of eight trains per day in each direction within the next 10 years. The Noise Technical report prepared for the Las Aldeas project included estimation of train noise impacts within the Las Aldeas development, assuming a future condition of eight trains per day in each direction. The closest row of homes was 170 feet away from the tracks. At this distance, without mitigation, the CNEL was found to be 65 dBA and the L_{MAX} (representing horn blasts) was found to be 103 dBA. Models indicated the horn blasts noise impact zone at an at-grade crossing would extend 200 feet to the north and south of the track (City of El Centro 2009).

The GPU NTR (County 2009c) calculated the acreages of potential NSLUs that would occur within the 60 dBA L_{dn} contour of railroads. One planning area that contains a PSR analysis area, Mountain Empire, was identified within a railroad contour. A total of 1,561 acres of land uses in the Mountain Empire area that were proposed to accommodate NSLUs were expected to occur within the 60 L_{dn} contour of the Desert Line as a result of implementation of the General Plan Update.

1.2.5.2 Non-Transportation Noise Sources

Non-transportation related noise generators are commonly called “stationary,” “fixed,” “area,” or “point” sources of noise. Industrial processing, mechanical equipment, pumping stations, and heating, ventilating, and air conditioning (HVAC) equipment are examples of fixed location, non-transportation noise sources within the County of San Diego. Some non-transportation sources are not stationary but are typically assessed as point or area sources due to the limited area in which they operate, such as truck deliveries, agricultural field machinery, and mining equipment (County 2009c). Existing non-transportation noise sources that affect the PSR areas are described below.

Industrial, Commercial, Extractive, and Agricultural Operations

Noise generated by industrial and commercial operations, maintenance, manufacturing, truck traffic (loading docks), and warehousing noise can affect surrounding NSLUs. According to the GPU NTR, industrial and commercial operations are located in Fallbrook CPA, Mountain Empire Subregion, North County Metro Subregion, and Pala/Pauma Valley Subregion. However, the only

PSR analysis areas within the vicinity of existing industrial and commercial operations are VC57+ and VC67+ in the southern portion of Valley Center CPA.

Heavy equipment used in quarry and mining activities and blasting operations may generate noise levels that would expose surrounding land uses to noise levels exceeding noise standards. Additionally, off-site noise may be generated by the transportation of materials to and from the mining facility. Ground-borne vibrations from blasting, manufacturing and other extractive operations may also affect vibration-sensitive land uses. Extractive uses are located in Mountain Empire Subregion, Desert Subregion, Crest/Dehesa Subregion, North County Metro Subregion, and Pala/Pauma Valley Subregion (County 2009c). While mining operations are located in subregions that contain PSR analysis areas, the mine sites themselves are not in close proximity to any PSR.

Noise perceived as disruptive by residents in proximity to existing agricultural operations may result from the operation of agricultural machinery in the evening or early morning hours when many residents desire a quiet environment. In addition, operation of exterior exhaust and cooling system equipment typically used in greenhouse operations can be a source of noise that may affect surrounding land uses. It is estimated that of the County's approximately 2.7 million acres of land, 366,500 acres are in active agricultural use. The proposed PSR analysis areas in Bonsall, Fallbrook, North County Metro, Valley Center and Champagne Gardens either have existing on-site agricultural operations or are located adjacent to existing operations.

Temporary and/or Nuisance Noise

Intermittent or temporary neighborhood noise from amplified music, public address systems, barking dogs, landscape maintenance, stand-by power generators, and construction activities are disturbing to residents but are difficult to attenuate and control. The most recent published noise complaint statistics by community in the County are shown in Table 4 (County 2009c). This table shows that the highest majority (approximately 72 percent) of noise complaints in the unincorporated County are associated with dogs. Roosters and machinery are also common sources of noise complaints, accounting for approximately ten percent and seven percent of complaints, respectively. The least common source of noise complaints in CPAs with proposed PSRs was construction, accounting for approximately two percent of noise complaints. Noise complaints occur more frequently in areas that are relatively developed, such as Crest/Dehesa and San Dieguito, and heavily agricultural, such as Fallbrook and Valley Center. Note that the table only includes complaints that were received by the County's Office of Noise Control. Other noise complaints may have been reported to the San Diego County Sheriff's Department or were not reported (County 2009c).

Table 4. Noise Complaints by Community (2006)

Community	Bird	Construction	Dog	Machinery	Music	Off-road Vehicles	Rooster	Total
Bonsall		1	16	3	1		5	26
Borrego Springs			2	1				3
Crest	3		32	3		2	2	42
Fallbrook		1	34	3	1	1	8	48
Pala/Pauma			1	1				2
San Dieguito	1	1	31	3	4		1	41
Twin Oaks Valley			5				1	6
Valley Center	2	2	38	2		5	5	54
Total	6	5	159	16	6	8	22	222

Source: Noise Technical Report for the County of San Diego General Plan Update, May 21, 2009.

1.3 Methodology and Equipment

1.3.1 Noise Modeling Software

The potential for implementation of the proposed project to permanently increase ambient noise levels as a result of increased traffic noise compared to the existing General Plan land use designations is assessed using standard noise modeling equations adapted from the FHWA noise prediction model. The modeling calculations take into account the posted vehicle speed, average daily traffic volume, and the estimated vehicle mix. The noise model assumes that roadways would experience a decrease of approximately 3 dBA for every doubling of distance from the roadway. Traffic data is provided by the project-specific traffic study prepared by Chen Ryan Associates (2016). The analysis estimates future noise levels under four scenarios, as defined in the project-specific traffic study:

- Current General Plan Buildout
- Current General Plan Buildout + Additional PSR Traffic
- Current General Plan Buildout + County of San Diego GPAs in Process
- Current General Plan Buildout + County of San Diego GPAs in Process + Additional PSR Traffic

Thirty-five roadway segments included in the traffic study area were selected for modeling to represent the worst-case traffic noise impacts of the proposed project. The selected roadways would experience the greatest direct and relative increases in traffic volumes under the proposed PSRs. The selected roadways are roadways where the proposed project would result in an increase of more than 500 ADT and a 20 percent increase or more in ADT compared to conditions without the project. Other roadway segments may experience changes in noise level as a result of implementation of the PSRs; however, the modeled roadway segments are intended to represent the worst-case increases in noise levels compared to conditions under buildout of the adopted General Plan. Based on preliminary modeling, roadways that would experience an increase of less than or 500 ADT or less than a 20 percent increase in ADT would not experience a significant increase in noise level and were therefore excluded from additional modeling.

Estimated CNEL values from vehicular noise are estimated at 50 feet from roadway centerlines. The median width and vehicle mix for each modeled roadway were determined based on the roadway's General Plan Mobility Element classification and the classification assumptions utilized in the GPU NTR (County 2009c). Roadway speed limits and number of lanes were provided in the project-specific traffic analysis. Model input and output is provided in Appendix D.

1.3.2 Noise Formulas and Calculations

The decibel level of a sound decreases (or attenuates) as the distance from the source of that sound increases. For a single point source such as a piece of mechanical equipment, the sound level normally decreases by about 6 dBA for each doubling of distance from the source, as calculated by the following formula (Caltrans 2013):

$$dBA_2 = dBA_1 + 10\log_{10}[(D_1/D_2)]^2 = dBA_1 + 20\log_{10}(D_1/D_2)$$

Where:

dBA₁ = noise level at distance D₁

dBA₂ = noise level at distance D₂

Sound that originates from a linear, or "line" source such as vehicular traffic, attenuates by approximately 3 dBA per doubling of distance, as calculated by the following formula (Caltrans 2013):

$$dBA_2 = dBA_1 + 10\log_{10}(D_1/D_2)$$

Where:

dBA₁ = noise level at distance D₁

dBA₂ = noise level at distance D₂

2 NOISE SENSITIVE LAND USES (NSLU) AFFECTED BY AIRBORNE NOISE

2.1 Guidelines for the Determination of Significance

Based on the County Guidelines (County 2009a) and a recent Draft Supplemental EIR for the Forest Conservation Initiative Lands (County 2016c), development under the proposed project would be considered to have a significant impact if it would result in the exposure of any on- or off-site, existing or reasonably foreseeable future NSLUs to exterior or interior noise (including noise generated from the project, together with noise from roads [existing and planned roadways], railroads, airports, heliports and all other noise sources) in excess of any of the following:

- For exterior locations:
 - (a) 60 dB (CNEL); or
 - (b) An increase of 10 dBA CNEL over pre-existing noise in areas where the ambient noise level is 49 dBA CNEL or less.

In the case of single-family residential detached NSLUs, exterior noise shall be measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum area:

- Net lot area up to 4,000 square feet: 400 square feet
- Net lot area 4,000 sf to 10 acres: 10% of net lot area
- Net lot area over 10 acres: 1 acre

For all other projects, exterior noise shall be measured at all exterior areas provided for group or private usable open space.

- For interior locations:

45 dB (CNEL) except for the following cases:

- (a) Rooms which are usually occupied only a part of the day (schools, libraries, or similar facilities), the interior one-hour average sound level due to noise outside should not exceed 50 dBA.
- (b) Corridors, hallways, stairwells, closets, bathrooms, or any room with a volume less than 490 cubic feet.

The General Plan Noise Element (County 2011a) defines noise exposure criteria. The criteria specify acceptable noise exposure ranges for various land uses throughout the County. The Noise Compatibility Guidelines and Noise Standards from the General Plan Noise Element, shown in Tables 5 and 6, are intended to be flexible enough to apply to a range of projects and environments.

Table 5. San Diego County Noise Compatibility Guidelines




Land Use Category		Exterior Noise Level (CNEL)					
		55	60	65	70	75	80
A	Residential – single family residences, mobile homes, senior housing, convalescent homes						
B	Residential – multi-family residences, mixed-use (commercial / residential)						
C	Transient lodging – motels, hotels, resorts						
D*	Schools, churches, hospitals, nursing homes, child care facilities						
E*	Passive recreational parks, nature preserves, contemplative spaces, cemeteries						
F*	Active parks, golf courses, athletic fields, outdoor spectator sports, water recreation						
G*	Office / professional, government, medical / dental, commercial, retail, laboratories						
H*	Industrial, manufacturing, utilities, agriculture, mining, stables, ranching, warehouse, maintenance / repair						
	ACCEPTABLE - —Specified land use is satisfactory, based upon the assumption that any buildings involved are of normal construction, without any special noise insulation requirements.						
	CONDITIONALLY ACCEPTABLE - —New construction or development should be undertaken only after a detailed noise analysis is conducted to determine if noise reduction measures are necessary to achieve acceptable levels for land use. Criteria for determining exterior and interior noise levels are listed in Table 6, Noise Standards. If a project cannot mitigate noise to a level deemed Acceptable, the appropriate county decision-maker must determine that mitigation has been provided to the greatest extent practicable or that extraordinary circumstances exist.						
	UNACCEPTABLE – New construction or development shall not be undertaken.						
*Denotes facilities used for part of the day; therefore, an hourly standard would be used rather than CNEL (refer to Table 6)							
Note: For projects located within an Airport Influence Area of an adopted Airport Land Use Compatibility Plan (ALUCP), additional Noise Compatibility Criteria restrictions may apply as specified in the ALUCP.							

Table 6. San Diego County Noise Standards

1.	The exterior noise level (as defined in Item 3) standard for Category A shall be 60 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
2.	The exterior noise level standard for Categories B and C shall be 65 CNEL, and the interior noise level standard for indoor habitable rooms shall be 45 CNEL.
3.	The exterior noise level standard for Categories D and G shall be 65 CNEL and the interior noise level standard shall be 50 dBA L_{eq} (one hour average).
4.	For single-family detached dwelling units, "exterior noise level" is defined as the noise level measured at an outdoor living area which adjoins and is on the same lot as the dwelling, and which contains at least the following minimum net lot area: (i) for lots less than 4,000 square feet in area, the exterior area shall include 400 square feet, (ii) for lots between 4,000 square feet to 10 acres in area, the exterior area shall include 10 percent of the lot area; (iii) for lots over 10 acres in area, the exterior area shall include 1 acre.
5.	For all other residential land uses, "exterior noise level" is defined as noise measured at exterior areas which are provided for private or group usable open space purposes. "Private Usable Open Space" is defined as usable open space intended for use of occupants of one dwelling unit, normally including yards, decks, and balconies. When the noise limit for Private Usable Open Space cannot be met, then a Group Usable Open Space that meets the exterior noise level standard shall be provided. "Group Usable Open Space" is defined as usable open space intended for common use by occupants of a development, either privately owned and maintained or dedicated to a public agency, normally including swimming pools, recreation courts, patios, open landscaped areas, and greenbelts with pedestrian walkways and equestrian and bicycle trails, but not including off-street parking and loading areas or driveways.
6.	For non-residential noise sensitive land uses, exterior noise level is defined as noise measured at the exterior area provided for public use.
7.	For noise sensitive land uses where people normally do not sleep at night, the exterior and interior noise standard may be measured using either CNEL or the one-hour average noise level determined at the loudest hour during the period when the facility is normally occupied.
8.	The exterior noise standard does not apply for land uses where no exterior use area is proposed or necessary, such as a library.
9.	For Categories E and F the exterior noise level standard shall not exceed the limit defined as "Acceptable" in Table 5 or an equivalent one-hour noise standard.
Note: Exterior Noise Level compatibility guidelines for Land Use Categories A-H are identified in Table 5, Noise Compatibility Guidelines.	

2.2 Potential Noise Impacts

2.2.1 Potential Build-out Noise Conditions & Impacts

2.2.1.1 Roadways

As defined in Section 1.2.2, NSLU are uses where an excessive amount of noise would interfere with normal operations or activities and where a high degree of noise control may be necessary. Examples include schools, hospitals, and residential areas. Recreational areas may be considered noise-sensitive where quiet and solitude are an important aspect of the specific recreational experience. The Noise Compatibility Guidelines in Table 5 establish the noise levels that are acceptable for the proposed PSR land uses designations, based on the noise sensitivity of the land use.

Noise level contours are used as a guide for minimizing the exposure of community residents to noise. Noise contours represent lines of equal noise exposure, just as the lines on a weather map

indicate equal temperature or atmospheric pressure. Contours are used to provide a general visualization of sound levels and should not be considered as absolute lines of demarcation. Noise contours for roadway noise sources in the County were developed for existing conditions (2007) and General Plan Update (Referral Map) conditions as part of the GPU NTR and are expressed as CNEL values. Traffic noise levels were predicted using the FHWA Traffic Noise Model Version 2.5 (TNM 2.5). The contours represent conservative noise levels that do not account for any noise-attenuating features of the topography. The purpose of the contour map is to identify areas where noise may be a potential concern. The modeling completed for the proposed project, described in Section 1.3.1, indicates that there would be no significant change in future noise level contour distances with implementation of the proposed project compared to conditions under buildout of the adopted General Plan. Therefore, roadway noise contours from the General Plan Noise Element (see Figure N-2) and GIS data provided by the County of San Diego (2016) were used to estimate the acreage of proposed PSR land uses within future (2030) roadway noise contours.

The Noise Element contour maps identify 55 dBA CNEL, 60 dBA CNEL, 65 dBA CNEL, 70 dBA CNEL, and 75 dBA CNEL noise contours. Table 5 identifies land uses that would be acceptable within each contour. As shown in this table, the 55 dBA CNEL noise contour would be acceptable for all proposed land uses. According to the General Plan Update Noise Element, single family residential use, or semi-rural or rural residential development, would not be compatible with noise levels greater than 60 dBA CNEL; therefore, the 60 dBA CNEL noise contour is the appropriate noise contour for the analysis of impacts to proposed single-family residential land uses. Village residential land uses would be compatible with noise levels up to 65 dBA CNEL, and conditionally acceptable up to 75 dBA. Commercial land uses are compatible with noise levels up to 70 dBA, and conditionally acceptable up to 75 dBA. As noted in Table 5, land uses that are only in use during the day, such as commercial developments, would typically use an hourly standard to determine noise compatibility. Therefore, the weighted CNEL contours represent a conservative estimate of impacts to these land uses.

As seen on the Future Noise Contour map provided in Appendix B, the areas near freeways and major arterials may be exposed to noise levels that equal or exceed noise compatibility guidelines. The contour with the greatest amount of potential impacts is the 60 dBA CNEL contour because this contour encompasses the largest area. The 75 dBA CNEL is the contour with the fewest potential impacts because this contour encompasses only land very close to the roadways. Table 7 provides the acreages of land uses that would be accommodated within PSR analysis areas that may be exposed to noise levels that exceed the noise compatibility guidelines.

Table 7. PSR Land Uses within Future Roadway Noise Contours that Exceed Noise Compatibility Guidelines

PSR Analysis Area	Land Use	Total Analysis Area (Acres)	Acres Within Contour
BO18+	Semi-Rural Residential	921	454
Champagne Gardens	Rural Commercial	5	5
	Semi-Rural Residential	110	110
	Champagne Gardens Total	115	115
DS24	Semi-Rural Residential	169	1
FB17	Semi-Rural Residential	107	28
FB19+	Semi-Rural Residential	579	299
FB2+	Rural Residential	391	59
	Semi-Rural Residential	100	14
	FB2+ Total	491	73
ME30A	Rural Residential	262	7
NC22	Semi-Rural Residential	154	13
NC3A	Semi-Rural Residential	1,015	3
PP30	Semi-Rural Residential	518	5
SD15	General Commercial	69	2
VC51	Semi-Rural Residential	166	4
VC57+	Semi-Rural Residential	1,337	105
VC67+	Semi-Rural Residential	13	5
VC7+	Semi-Rural Residential	1,465	123
Total PSR Areas			1,262

Source: San Diego County GIS Services, October 26, 2016.

In 2030, the PSR analysis areas would accommodate development of 1,262 acres of land uses that potentially exceed the noise level deemed as “Acceptable” in the noise compatibility guidelines. As shown in Table 7, the planning area with the greatest amount of acreage within an impact area is the Valley Center CPA, which is traversed by I-15. A total of 237 acres would be within a potential impact area in Valley Center. The PSR analysis area with the greatest amount of acreage within a potential impact area is the BO19+ planning area, with a total of 454 acres. This planning area is also traversed by I-15. This total is a conservative estimate because it includes both existing and future development, and it does not take into account any noise attenuation that may have been incorporated into the development to reduce exterior noise levels to an acceptable level. As shown in Table 7, a potentially significant impact to NSLU, specifically new rural and semi-rural residential uses, would have the potential to occur as a result of vehicular noise exposure in the proposed PSR areas.

2.2.1.2 Railroads

The relevant railroad line to this analysis is the Desert Line, which extends though the Mountain Empire Subregion. As described in further detail in Section 1.2.5, Existing Conditions, the noise technical report for the Las Aldeas project determined that the noise level at 170 feet from the Desert Line freight railroad under future operations would be 65 dBA CNEL and the noise impact would extend 200 feet to the north and south of the track (City of El Centro 2009). This analysis

provides the most recent, relevant study of railroad noise impacts on NSLUs from the Desert Line. This analysis is conservative for the proposed project because it assumes that the Desert Line will become operational in the future with a higher number of trains per day compared to previous operations.

PSR ME30-A is located adjacent to the Desert Line. According to the General Plan Update Noise Element Noise Compatibility Guidelines, single family residential use, or semi-rural or rural residential development, would not be compatible with noise levels greater than 60 dBA CNEL. As such, noise levels in PSR ME30-A would have the potential to be exposed to roadway noise levels in excess of the acceptable noise compatibility standard. A potentially significant impact would occur in PSR ME30-A.

2.2.1.3 Airports

Public airports and private airstrips may result in excessive noise impacts to NSLUs from activities such as aircraft takeoffs and landings. NSLUs should generally not be located within the 60 dBA annual CNEL noise contour of a public airport, or within two miles of a private airstrip. The two mile buffer is generally conservatively assumed to represent a 60 dBA CNEL noise contour for private airstrips. As shown in the Noise Contour figure provided in Appendix C, none of the proposed PSRs or the Champagne Gardens Specific Plan area are located within any airport noise contour. Two PSR study areas are located within two miles of a private airstrip: VC7+, located 1.5 miles from Blackinton airstrip, and VC57+, located 0.5 mile from Hoag heliport. However, these airstrips accommodate only small planes and experience minimal air traffic. The Blackinton airstrip experiences approximately 12 single-engine flights per year and the Hoag heliport experiences approximately two helicopter landings per year (AirNav 2017). Due to the minimal operations at these facilities and distance from the PSR study areas, it is unlikely that new development in the VC7+ and VC57+ study areas would be exposed to excessive noise levels from operation of these private facilities. Therefore, no significant impact would occur as a result of the implementation of the proposed project.

2.2.1.4 Extractive Industries

Heavy equipment used in quarry and mining activities and blasting operations may generate noise levels that exceed County noise standards and expose surrounding land uses to noise levels exceeding noise standards. Additionally, off-site noise may be generated by the transportation of materials to and from the mining facility (County 2009c). Typical noise levels from common extraction activity equipment are provided in Table 8. Ground-borne vibrations from blasting, manufacturing and other extractive operations may also affect vibration-sensitive land uses, as discussed further in Section 4.

Table 8. Typical Extraction Equipment Noise Levels

Description	Distance from Source (ft)	Hourly L_{eq} (dBA)
Aggregate Washing Plant	50	75
Asphalt Plant	50	82
Bridge Saw	50	78
Bulldozer	50	81
Concrete Batch Plant	50	81
Diamond Wire Block Saw	50	68
Drill Rig	50	85
Front End Loader	50	72
Hydraulic Excavator	50	77
Motor Grader	50	91
Power Screen	50	76
Power Shovel	50	75
Rock Crusher	50	75
Wheel Polisher	50	50

Source: Noise Technical Report for the County of San Diego General Plan Update, May 21, 2009.

According to Chapter 2.10, Minerals, of the County General Plan Update Final EIR (County of San Diego 2011b), a general noise setback area of approximately 1,300 feet is an adequate distance for most extractive operations to avoid exceedance of allowable noise levels. At this distance, typical heavy equipment noise levels of 75 to 90 dBA would attenuate to below the Noise Ordinance standard of 50 dBA for daytime residential land use (County 2011b). None of the proposed PSRs are within the general 1,300 feet setback area described in the General Plan EIR. Any future extractive facilities would be subject to the noise standards within the General Plan Noise Element at the proposed site and adjacent uses. Therefore, new NSLUs accommodated by the proposed PSRs are unlikely to be exposed to noise levels in excess of County standards from extractive industries. A potentially significant impact would not occur.

2.2.1.5 Industrial and Commercial Industries

Operation of a commercial/industrial facility can cause the exposure of on- or off- site areas to increased noise associated with mechanical equipment (pumps, rooftop equipment, condenser units, A/C units, pneumatic equipment), operation-related traffic (vehicle movement, engine noise), speakers, bells, chimes, and outdoor human activity in defined limited areas. The Community Noise Survey for the GPU NTR (County 2009c) identified a range in noise level of 65 - 69 dBA L_{eq} for commercial uses, indicating that commercial/industrial activities may be incompatible with the presence of nearby NSLUs. Assuming a noise level of 69 dBA at 50 feet from the source, commercial and industrial activities would have the potential to exceed the most conservative noise level limit of 50 dBA for single-family residential use up to 450 feet from the source.

PSR VC57+ (which includes VC57, VC63 and VC64) would accommodate future semi-rural residential development near existing commercial land use. However, the existing

commercial/light industrial center is located more than 450 feet to the west/northwest of the proposed PSRs, outside the distance at which noise from the commercial/light industrial center would reasonably be expected to occur. The VC67+ PSR analysis area is also adjacent to existing light industrial land uses. However, as VC67+ would accommodate the development of future industrial land uses, which generally would not be considered NSLUs and would be compatible with the existing setting. A significant noise exposure impact would not occur in this PSR analysis area. However, the Champagne Gardens Specific Plan would accommodate on-site mixed use development to allow commercial land use adjacent to semi-rural residential development. On-site residential uses may be exposed to excessive noise levels from commercial land uses. A potentially significant impact would occur.

2.2.1.6 Agricultural Operations

Truck deliveries and operation of farming equipment such as tractors are the noise sources associated with agricultural operations. The 2008 Community Noise Survey described in Section 1.2.5, Existing Noise Conditions, identified agricultural operations as having a noise level range of 44.4 – 68.3 dBA, which may exceed the daytime noise level limit for residential land uses identified in the Noise Ordinance (50 dBA). Proposed PSRs in Bonsall, Fallbrook, North County Metro, Valley Center and Champagne Gardens would accommodate future residential development in areas that either have existing on-site agricultural operations or are adjacent to such operations. As such, new NSLUs that would be accommodated in the PSR analysis areas would have the potential to be exposed to noise levels in excess of Noise Ordinance standards. A potentially significant impact would occur.

2.2.2 Design Considerations and Mitigation Measures

Compared to conditions under the General Plan, the proposed PSRs would have the potential to introduce additional NSLUs to noise impacts from roadways, railroads, commercial land use, and agricultural operations.

Compliance with existing regulations and the General Plan policies, guidelines and standards identified in Tables 5 and 6 above would reduce potential noise impacts in most locations to a less than significant level. Future discretionary projects under the proposed PSRs would be required to conduct a Noise Impact Analysis report consistent with the County of San Diego Report Format and Content Requirements to demonstrate consistency with these standards. Furthermore, compliance with the adopted General Plan Noise Element policies, listed below, would reduce noise impacts to NSLUs. No modification to these General Plan policies is proposed under the PSR GPA. Future development would be required to comply with all standards established by the County. Mitigation measures would be required for any significant impacts. Therefore, the impacts to noise sensitive land uses related to the proposed PSRs would be reduced to below a significant level.

General Plan Noise Element Policies

N-2.1 Development Impacts to Noise Sensitive Land Uses. Require an acoustical study to identify inappropriate noise level where development may directly result in any existing or future noise sensitive land uses being subject to noise levels equal to or greater than

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- 60 CNEL and require mitigation for sensitive uses in compliance with the noise standards listed in Table 6.
- N-2.2 Balconies and Patios. Assure that in developments where the exterior noise level on patios or balconies for multi-family residences or mixed-use developments exceed 65 CNEL, a solid noise barrier is incorporated into the building design of the balconies and patios while still maintaining the openness of the patio or balcony.
- N-4.2 Traffic Calming. Include traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise in development that may impact noise sensitive land uses.
- N-4.6 Road Improvement Projects. For County road improvement projects, evaluate the proposed project against ambient noise levels to determine whether the project would increase ambient noise levels by more than 3 dBA. If so, apply the limits in the noise standards listed in Table 6 for noise sensitive land uses that may be affected by the increased noise levels. For federally-funded roadway construction projects, use the limits in the applicable Federal Highway Administration Standards.
- N-4.7 Railway Jurisdictional Coordination. Work with the San Diego Association of Governments (SANDAG), California Department of Transportation (Caltrans), Metropolitan Transit System (MTS), California High-Speed Rail Authority, and passenger and freight train operators as appropriate to install noise attenuation features to minimize impacts to adjacent residential or other noise sensitive uses from railroad operations.
- N-4.8 Train Horn Noise. Establish train horn “quiet zones” with new rail projects consistent with federal regulations, where applicable. Promote community programs for existing at-grade crossings by working with rail operators.
- N-5.1 Truck Access. Design development so that automobile and truck access to industrial and commercial properties abutting residential properties is located at the maximum practical distance from residential zones.
- N-5.2 Noise-Generating Industrial Facilities. Locate noise-generating industrial facilities at the maximum practical distance from residential zones. Use setbacks between noise generating equipment and noise sensitive uses and limit the operation of noise generating activities to daytime hours as appropriate where such activities may affect residential uses.

2.3 Cumulative Noise Impacts

2.3.1 Cumulatively Significant Noise Impacts

A cumulative noise impact would occur if construction and development associated with cumulative regional land use projects combined would exceed the standards of the General Plan Noise Element. As discussed above, development associated with buildout of the proposed PSRs would result in potentially significant impacts related to exposure of NSLU to excessive noise levels from roadway, railroad, commercial, and agricultural noise sources. Development and

construction proposed by cumulative projects in the County would potentially be exposed to similar noise sources. Therefore, the proposed project, in combination with the identified cumulative projects, would have the potential to result in a significant cumulative impact associated with noise. The proposed project's contribution would be cumulatively considerable.

2.3.2 Design Considerations & Mitigation Measure Calculations

Similar to the proposed project, development and construction proposed under most cumulative projects would be subject to regulations that require compliance with noise standards, such as those contained in the State of California Code of Regulations and County policies and regulations. In addition to the policies listed in Section 2.2.2 that would reduce noise exposure at individual future projects, the General Plan Noise Element contains several policies that would reduce cumulative noise impacts to NSLU to below a level of significance by requiring coordination with other jurisdictions and local agencies.

General Plan Noise Element Policies

- LU-2.8 Mitigation of Development Impacts. Require measures that minimize significant impacts to surrounding areas from uses or operations that cause excessive noise, vibrations, dust, odor, aesthetic impairment and/or are detrimental to human health and safety.
- M-1.3 Treatment of High-Volume Roadways. To avoid bisecting communities or town centers, consider narrower rights-of-way, flexibility in design standards, and lower design speeds in areas planned for substantial development. Reduce noise, air, and visual impacts of new freeways, regional arterials, and Mobility Element roads, through landscaping, design, and/or careful location of facilities
- M-2.4 Roadway Noise Buffers. Incorporate buffers or other noise reduction measures consistent with standards established in the Noise Element into the siting and design of roads located next to sensitive noise-receptors to minimize adverse impacts from traffic noise. Consider reduction measures such as alternative road design, reduced speeds, alternative paving, and setbacks or buffers, prior to berms and walls.
- N-1.4 Adjacent Jurisdiction Noise Standards. Incorporate the noise standards of an adjacent jurisdiction into the evaluation of a proposed project when it has the potential to impact the noise environment of that jurisdiction.
- N-1.5 Regional Noise Impacts. Work with local and regional transit agencies and/or other jurisdictions, as appropriate, to provide services or facilities to minimize regional traffic noise and other sources of noise in the County.
- N-2.1: Development Impacts to Noise Sensitive Land Uses. Require an acoustical study to identify inappropriate noise level where development may directly result in any existing or future noise sensitive land uses being subject to noise levels equal to or greater than 60 CNEL and require mitigation for sensitive uses in compliance with the noise standards listed in Table 6.
- N-2.2: Balconies and Patios. Assure that in developments where the exterior noise level on patios or balconies for multi-family residences or mixed-use developments exceed 65

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- CNEL, a solid noise barrier is incorporated into the building design of the balconies and patios while still maintaining the openness of the patio or balcony.
- N-4.2: Traffic Calming. Include traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise in development that may impact noise sensitive land uses.
- N-4.3 Jurisdictional Coordination. Coordinate with Caltrans, the City of San Diego, and other adjacent jurisdictions, as appropriate, for early review of proposed new and expanded State freeways, highways, and road improvement projects within or affecting the unincorporated County to (1) locate facilities where the impacts to noise sensitive land uses would be minimized and to (2) develop and include noise abatement measures in the projects to minimize and/or avoid the impacts to noise sensitive land uses.
- N-4.6: Road Improvement Projects. For County road improvement projects, evaluate the proposed project against ambient noise levels to determine whether the project would increase ambient noise levels by more than 3 dBA. If so, apply the limits in the noise standards listed in Table 6 for noise sensitive land uses that may be affected by the increased noise levels. For federally-funded roadway construction projects, use the limits in the applicable Federal Highway Administration Standards.
- N-4.7 Railway Jurisdictional Coordination. Work with the SANDAG, Caltrans, MTS, California High-Speed Rail Authority, and passenger and freight train operators as appropriate to install noise attenuation features to minimize impacts to adjacent residential or other noise sensitive uses from railroad operations.
- N-4.8: Train Horn Noise. Establish train horn “quiet zones” with new rail projects consistent with federal regulations, where applicable. Promote community programs for existing at-grade crossings by working with rail operators. Policy N-5.1: Truck Access. Design development so that automobile and truck access to industrial and commercial properties abutting residential properties is located at the maximum practical distance from residential zones.
- Policy N-5.2: Noise-Generating Industrial Facilities. Locate noise-generating industrial facilities at the maximum practical distance from residential zones. Use setbacks between noise generating equipment and noise sensitive uses and limit the operation of noise generating activities to daytime hours as appropriate where such activities may affect residential uses.

3 PROJECT-GENERATED AIRBORNE NOISE

3.1 Guidelines for the Determination of Significance

Based on the County Guidelines and the County of San Diego Code of Regulatory Ordinances, development under the proposed project would be considered to have a significant impact if it would generate airborne noise which, together with noise from all sources, will be in excess of the following limits. Exemptions are listed in San Diego County Code Section 36.417 and apply to certain cases of emergency work, school activities, public events, emergency generators, agricultural operations and property maintenance.

- For non-construction noise: The limit specified in San Diego County Code Section 36.404, General Sound Level Limits, at the property line of the property on which the noise is produced or at any location on a property that is receiving the noise. Table 9 summarizes the limits identified in Section 36.404.
- For construction noise: The limit specified by San Diego County Code Section 36.408, Hours of Operation of Construction Equipment, and 36.409, Sound Level Limitations on Construction Equipment. Sections 36.408 and 36.409 state: Except for emergency work, it shall be unlawful for any person to operate construction equipment or cause construction equipment to be operated, that exceeds an average sound level of 75 dBA for an eight-hour period, between 7a.m. and 7p.m., when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is being received. Furthermore, it shall be unlawful for any person to operate, or cause to be operated, construction equipment on Sundays and holidays, or on any other day between 7p.m. and 7a.m. unless that construction is operated at a person's residence or for the purpose of constructing a residence for himself, on a Sunday or holiday between the hours of 10a.m. and 5p.m.

Table 9. San Diego County Code Section 36.404 (Noise Ordinance) Sound Level Limits

Zone	Time	One-Hour Average Sound Level Limits (dBA)
(1) R-S, R-D, R-R, R-MH, A-70, A-72, S-80, S-81, S-87, S-90, S-92 and R-V and R-U with a density of less than 11 dwelling units per acre.	7 a.m. to 10 p.m.	50
	10 p.m. to 7 a.m.	45
(2) R-RO, R-C, R-M, S-86, V5 and R-V and R-U with a density of 11 or more dwelling units per acre.	7 a.m. to 10 p.m.	55
	10 p.m. to 7 a.m.	50
(3) S-94, V4 and all other commercial zones.	7 a.m. to 10 p.m.	60
	10 p.m. to 7 a.m.	55
(4) V1, V2	7 a.m. to 7 p.m.	60
V1, V2	7 p.m. to 10 p.m.	55
V1	10 p.m. to 7 a.m.	55
V2	10 p.m. to 7 a.m.	50
V3	7 a.m. to 10 p.m.	70
	10 p.m. to 7 a.m.	65
(5) M-50, M-52 and M-54	Anytime	70
(6) S-82, M-56 and M-58	Anytime	75
(7) S88 (see subsection (c) below)		
<p>(a) If the measured ambient level exceeds the applicable limit noted above, the allowable one hour average sound level shall be the ambient noise level, plus 3 dBA. The ambient noise level shall be measured when the alleged noise violation source is not operating.</p> <p>(b) The sound level limit at a location on a boundary between two zones is the arithmetic mean of the respective limits for the two zones; provided however, that the one-hour average sound level limit applicable to extractive industries, including but not limited to borrow pits and mines, shall be 75 dBA at the property line regardless of the zone which the extractive industry is actually located.</p> <p>(c) S88 zones are Specific Planning Areas which allow for different uses. The sound level limits in Table 36.404 above that apply in an S88 zone depend on the use being made of the property. The limits in Table 36.404, subsection (1) apply to property with a residential, agricultural or civic use. The limits in subsection (3) apply to property with a commercial use. The limits in subsection (5) apply to property with an industrial use that would only be allowed in an M50, M52 or M54 zone. The limits in subsection (6) apply to all property with an extractive use or a use that would only be allowed in an M56 or M58 zone.</p> <p>(d) A fixed-location public utility distribution or transmission facility located on or adjacent to a property line shall be subject to the sound level limits of this section, measured at or beyond six feet from the boundary of the easement upon which the facility is located.</p>		

- For impulsive noise: The limit specified by San Diego County Code Section 36.410, Sound Level Limitations on Impulsive Noise. Section 36.410 states: In addition to the general limitations on sound levels in section 36.404 and the limitations on construction equipment in section 36.409, the following additional sound level limitations shall apply:
 - (a) Except for emergency work or work on a public road project, no person shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 9, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 10 are as described in the County Zoning Ordinance.

Table 10. San Diego County Code Section 36.410, Maximum Sound Level (Impulsive) Measured at Occupied Property in Decibels (dBA)

Occupied Property Use	Decibels (dBA)
Residential, village zoning or civic use	82
Agricultural, commercial or industrial use	85

- (b) Except for emergency work, no person working on a public road project shall produce or cause to be produced an impulsive noise that exceeds the maximum sound level shown in Table 10, when measured at the boundary line of the property where the noise source is located or on any occupied property where the noise is received, for 25 percent of the minutes in the measurement period, as described in subsection (c) below. The maximum sound level depends on the use being made of the occupied property. The uses in Table 11 are as described in the County Zoning Ordinance.

Table 11. San Diego County Code Section 36.410, Maximum Sound Level (Impulsive) Measured at Occupied Property in Decibels (dBA) for Public Road Projects

Occupied Property Use	Decibels (dBA)
Residential, village zoning or civic use	85
Agricultural, commercial or industrial use	90

- (c) The minimum measurement period for any measurements conducted under this section shall be one hour. During the measurement period a measurement shall be conducted every minute from a fixed location on an occupied property. The measurements shall measure the maximum sound level during each minute of the measurement period. If the sound level caused by construction equipment or the producer of the impulsive noise exceeds the maximum sound level for any portion of any minute, it will be deemed that the maximum sound level was exceeded during that minute.
- For disturbing, excessive and offensive noises: San Diego County Code of Regulatory Ordinances Section 36.414, General Noise Prohibitions, specifies additional general limitations for disturbing, excessive and offensive noises including from vehicle horns, radios, televisions, verbal communication, animals, steam whistles, and motor vehicles.

For transportation-related noise, development under the proposed project would be considered to have a significant impact if it would result in a substantial permanent increase in ambient noise levels, defined as raising the noise levels above the County Guidelines Section 4.1-A-ii of 60 dB CNEL or an increase of 10 dB CNEL over pre-existing noise in areas where the ambient noise level is 49 dBA CNEL or less. In areas where the existing noise level without the project is above 60 dBA but below 65 dBA, the proposed project would result in a significant impact if it would result in an increase of more than 3 dBA, in accordance with the FTA noise impact criteria. Where the existing noise exposure is between 65 dBA and 70 dBA, a significant impact would occur if the proposed project would exceed the existing noise level by more than 1 dBA. Where the

existing noise exposure exceeds 70 dBA, any increase in the noise level would be considered significant (County 2016c).

3.2 Potential Operational Noise Impacts

3.2.1 Potential Build-out Noise Conditions without Mitigation

Future development in the County consistent with the PSRs would result in a significant impact if it would substantially increase ambient noise levels above existing conditions. Additional vehicle trips compared to adopted General Plan land use designations would have the potential to increase traffic noise above existing and anticipated future conditions. Operation noise from industrial, agricultural or other noise-generating uses may result in permanent increases in noise that may affect surrounding land uses.

3.2.1.1 Roadways

As described in Section 3.2 of the GPU NTR (County 2009c), buildout of the adopted General Plan would have the potential to result in significant increases in noise levels on roadways throughout the unincorporated county as a result of increased roadway capacities, additional vehicle trips from new development, and construction of new roadways. The proposed PSRs would have the potential to add more vehicle trips to the surrounding roadways than what is accounted for in the General Plan. Table 12 compares noise levels on roadway segments with and without the proposed PSRs. As explained in Section 1.3.1, noise levels were analyzed on roadways that would have the greatest increase in traffic under the proposed PSRs. The list below is not meant to be exhaustive; the intent is to show generally those areas that can expect a substantial increase in noise levels as compared to impacts identified for the adopted General Plan.

Table 12. Noise Levels Increases on Heaviest-Impacted Roadways

CPA / Subregion	Roadway	Segment	Current GP Buildout (CNEL)	+PSR (CNE*)	Δ
Julian	Wynola Road	SR-78 to unknown rd.	51	55	+4
Julian	Wynola Road	Unknown road to Farmer Rd.	56	58	+2
Julian	Wynola Road	Farmer Rd. to SR-78	56	58	+2
San Dieguito	Avenida Del Diablo	Harmony Grove Rd. to Citracado Pkwy.	65	65	0
North County Metro	Idaho Avenue	San Pasqual Valley Rd. to zone connector	61	62	+1
Ramona	Julian Road	Julian Bridge to public rd.	61	63	+2
Ramona	Julian Road	Public rd. to Ramona Trails	61	63	+2
Ramona	Julian Road	Ramona Trails to zone connector	61	63	+2
Ramona	Julian Road	Zone connector to Sutherland	60	62	+2
Ramona	Julian Road	Sutherland to unknown rd.	54	58	+4
Ramona	Julian Road	Unknown rd. to Old Julian Hwy.	54	58	+4
North Mountain	Montezuma Valley Road	San Felipe Rd. to Grapevine Canyon	63	64	+1
North Mountain	Montezuma Valley Road	Grapevine Canyon to unknown rd.	63	64	+1
Desert	Montezuma Valley Road	Unknown rd. to Palm Canyon Dr.	63	64	+1
Desert	Palm Canyon Drive	Montezuma Valley Rd. to unknown rd.	65	66	+1
North Mountain	San Felipe Road	SR-79 to Camino San Ignacio	63	64	+1
North Mountain	San Felipe Road	Cam. San Ignacio to Montezuma Valley Rd.	64	64	0
Desert	SR-78	Unknown rd. to SC 860	60	62	+2
North Mountain	SR-78	SC 860 to Great So. Overland Stage Rte.	60	61	+1
North Mountain	SR-78	Great Southern Overland Stage Rte. to San Felipe Rd.	60	62	+2
Desert	SR-78	San Felipe Rd. to Yaqui Pass Rd.	62	63	+1
Julian	SR-78	Wynola Rd. to unknown rd.	60	62	+2
Julian	Julian Bridge	Julian Rd. to Old Julian Hwy.	65	65	0
Desert	Yaqui Pass Road	Rams Hill to unknown rd.	59	61	+2
Desert	Yaqui Pass Road	Unknown rd. to unknown rd.	59	61	+2
Desert	Yaqui Pass Road	Unknown rd. to SR-78	59	61	+2
North County Metro	Buena Creek Road	Fredas Hill to Las Posas Road	74	74	0
North County Metro	Deer Springs Road	Mulberry to Marilyn	83	83	0
North County Metro	Deer Springs Road	Marilyn to unknown rd.	84	84	0
North County Metro	Deer Springs Road	Unknown rd. to unknown rd.	84	84	0
North County Metro	Deer Springs Road	Unknown rd. to unknown rd.	83	84	+1
Bonsall	West Lilac Road	Old Highway 395 to unknown rd.	67	69	+2
Bonsall	West Lilac Road	Unknown rd. to Shirley	67	68	+1
Valley Center	West Lilac Road	Shirley to Lilac Rd.	67	68	+1
Valley Center	West Lilac Road	Lilac Rd. to unknown rd.	66	68	+2

Notes: CNEL sound level at 50 feet from roadway centerline; results in **bold** and shading indicate a significant impact. Model input and output provided in Appendix D.

Most of the anticipated significant noise increases occur in CPAs or Subregions where the PSRs would substantially increase the number of allowable dwelling units compared to the land uses currently accommodated under the General Plan. For example, DS8 and Study Area DS8 in the Desert Subregion would increase the number of potential dwelling units by 77 and 311, respectively, and DS24 would increase the number of potential dwelling units by 153. The associated increase in traffic would result in an increase in noise levels on Yaqui Pass Road to above 60 dBA. Likewise, VC7+ and Study Area VC7+ in the Valley Center CPA would increase the number of potential dwelling units by 72 and 181, respectively, resulting in additional traffic on West Lilac Road that would significantly increase noise levels. NC38+ in the North County Metro Subregion would increase the number of potential dwelling units by 38 next to Deer Springs Road, which is anticipated to experience noise levels above 80 dBA CNEL under buildout of the adopted General Plan. Therefore, implementation of the PSRs would result in a potentially significant impact related to permanent increase in traffic noise levels.

3.2.1.2 Non-Transportation Noise Sources

Industrial and Commercial Activities

An example of a potential noise impact from future development of land uses designated under the proposed PSRs would be the development of industrial land uses in areas that are relatively quiet or contain, or are designated for, NSLUs. Operation of an industrial facility can cause the exposure of on- or off- site areas to increased noise associated with mechanical equipment (pumps, rooftop equipment, condenser units, A/C units, pneumatic equipment), operation-related traffic (vehicle movement, engine noise), speakers, bells, chimes, and outdoor human activity in defined limited areas. The only PSR that proposes a land use designation that could accommodate industrial land uses is VC67, in the southern region of Valley Center, which proposes to change the land use designation from SR-2 (Semi-Rural, 1 unit per 2, 4, or 8 gross acres) to I-2 (Medium Impact Industrial). VC67 and Study Area VC67 would be located adjacent to existing industrial and rural residential land uses. Therefore, new industrial facilities that may be accommodated in the VC67 analysis area may result in a significant impact to adjacent NSLU.

Commercial development and mixed-use development containing commercial use would be accommodated within PSR SD15 and the Champagne Gardens Specific Plan area. The Community Noise Survey for the GPU NTR (County 2009c) identified a range in noise level of 65 - 69 dBA for commercial uses. Therefore, commercial land uses may generate noise that exceeds the daytime exterior noise limits of 50 to 60 dBA for residential land uses described in Table 9. Both PSR SD15 and the Champagne Gardens Specific Plan area are located within the vicinity of existing residential development and would have the potential to accommodate new residential development. Therefore, a potentially significant impact would occur.

Agricultural Operations

The General Plan allows for agricultural operations within any land use designation. As such, the proposed PSRs would have the potential to accommodate new agricultural operations, which may be located near residences or other NSLU. Truck deliveries and operation of farming equipment such as tractors are the primary agricultural noise sources. As shown in Table 2, the Community Noise Survey identified agricultural operations as having a noise level range of 44.4 – 68.3 dBA, which may exceed the noise limit identified in Table 9 for residential land uses. However, under Section 36.417 of the Noise Ordinance, agricultural operations are generally exempt from the

noise standards, provided that each piece of equipment and machinery powered by an internal-combustion engine is equipped with an appropriate muffler and air intake silencer in good working order and one of the following applies: operations do not take place between 7:00 p.m. and 7:00 a.m.; the operations and equipment are utilized for the preparation, planting, harvesting, protection or salvage of agricultural crops during adverse weather conditions; or the operations and equipment are used for agricultural pest control in accordance with regulations and procedures administered by the County Department of Agriculture. Therefore, agricultural operations would not result in a significant impact.

Nuisance Noise

The land use designations proposed by the PSRs would accommodate primarily residential development, which has the potential to generate nuisance noise. Intermittent or temporary neighborhood nuisance noise from amplified music, public address systems, barking dogs, landscape maintenance, and stand-by power generators are disturbing to residents but are difficult to attenuate and control. These noise sources would result in a significant impact if they would exceed the noise standards included in Section 36.414 of the Noise Ordinance. As shown in Table 4, noise complaints by residents show that the highest number of complaints is due to barking dogs. Nuisance noise impacts are more likely to occur in the more densely developed areas of the unincorporated County, where residences would be closer together and neighbors would be more likely to hear a neighbor's dog or music. All of the proposed PSR analysis areas, except VC67+, would accommodate future intensified residential development, above what is currently proposed under the General Plan, increasing the potential for residents registering noise complaints. Additionally, implementation of the Valley Center Community Plan Residential Policy 8 Revision would allow clustering of new residences, which would increase the likelihood of exposure to nuisance noise. While the PSR analysis areas are likely to experience an increase in temporary or nuisance noises, an attempt to quantify the potential number of future complaints would be speculative. Continuing enforcement of the Noise Ordinance would reduce potential nuisance noise impacts to the extent feasible.

Other Noise-Generating Activities

Other noise-generating uses in the County include extractive operations, casinos, shooting ranges, and landfills. Similar to the adopted General Plan, no new mining operations are directly envisioned as part of the PSR GPA. The land use designations proposed by the PSRs would accommodate primarily residential development, and some commercial and medium industrial use. The proposed land use designations and existing surrounding land uses would generally be considered incompatible with new extractive, casino, shooting range, and landfill operations. As such, new facilities would be unlikely to be accommodated by the proposed project and a significant impact would not occur.

3.2.2 Design Considerations and Mitigation Measures

Development associated with the proposed PSRs would add vehicles to County roadways above and beyond what is anticipated under the General Plan, leading to increased roadway noise levels on some road segments. In addition, the proposed PSRs would allow potentially noise-generating industrial and commercial land uses in areas that are designated for residential use under the current General Plan. Nuisance noise could increase from future residential development. Compliance with policies in the General Plan Noise Element, in addition to compliance with the

Noise Compatibility Guidelines and Noise Standards listed in Tables 5 and 6, would reduce noise impacts from roadways and other non-transportation noise sources. General Plan Noise Element policies that address project-generated transportation and non-transportation noise are listed below. No changes to these policies are included in the proposed GPA.

Future discretionary projects under the proposed PSRs would be required to conduct a Noise Impact Analysis report consistent with the County of San Diego Report Format and Content Requirements. Future development would be required to comply with all standards established by the County. Mitigation measures would be required for any significant impacts. Therefore, impacts associated with non-transportation related permanent noise increases would be reduced to below a significant level.

Noise levels associated with roadways would increase with implementation of the proposed PSRs, compared to noise levels associated with implementation of the General Plan. Specifically, the proposed PSRs would have a significant noise impact to Yaqui Pass Road, Deer Springs Road, and West Lilac Road. Additionally, the significant impacts identified for buildout of the adopted General Plan compared to existing conditions would also be anticipated to occur under buildout of the General Plan with PSR implementation. Therefore, similar to the findings of the GPU NTR, permanent noise increases associated with increases in traffic noise are considered significant and unavoidable.

General Plan Noise Element Policies

- N-4.1 Traffic Noise. Ensure that projects proposing amendments to the San Diego County General Plan that increase the Average Daily Traffic beyond what is anticipated in the General Plan do not substantially increase cumulative traffic noise to off-site noise sensitive land uses.
- N-4.2 Traffic Calming. Support traffic calming design, traffic control measures, and low-noise pavement surfaces that minimize motor vehicle traffic noise for new development that may impact noise sensitive land uses.
- N-5.1 Truck Access. Encourage automobile and truck access to industrial and commercial properties abutting residential properties to be located at the maximum practical distance from residential zones.
- N-5.2 Noise-Generating Industrial Facilities. Encourage noise-generating industrial facilities to be located at the maximum practical distance from residential zones. Promote the use of setbacks between noise generating equipment and noise sensitive uses and limit the operation of noise generating activities to daytime hours as appropriate where such activities may affect residential uses.
- N-6.1 Noise Regulations. Develop and regularly update codes and ordinances as necessary to regulate impacts from point, intermittent, and other disruptive noise sources.
- N-6.2 Recurring Intermittent Noise. Minimize impacts from noise to land uses in areas where recurring intermittent noise may not exceed the noise standards listed in Table 6, but can have other adverse effects.

- N-6.3 High-Noise Equipment. Require development to limit the frequency of use of motorized landscaping equipment, parking lot sweepers, and other high-noise equipment if their activity will result in noise that affects residential zones.
- N-6.4 Hours of Construction. Require development to limit the hours of operation as appropriate for non-emergency construction and maintenance, trash collection, and parking lot sweeper activity near noise sensitive land uses.
- N-6.6 Code Enforcement. Provide sufficient resources within the County for effective enforcement of County codes and ordinances.

3.3 Potential General Construction Noise Impacts

3.3.1 Potential Temporary Construction Noise Impacts without Mitigation

The future development of land uses consistent with the proposed PSRs would have the potential to result in the exposure of on- or off- site areas to noise in excess of the standards listed in San Diego County Code Sections 36.408 and 36.409. Construction equipment associated with project-related development activities would include, but are not limited to; site grading, truck/construction equipment movement, engine noise, rock excavation, rock crushing, and blasting. Typical construction equipment noise levels are provided in Table 13.

Table 13. Typical Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA) at 50 feet from source
Air Compressor	81
Backhoe	80
Compactor	82
Concrete Mixer	85
Crane, Derrick	88
Dozer	85
Grader	85
Jack Hammer	88
Loader	85
Paver	89
Pile-driver (impact)	101
Pump	76
Roller	74
Scraper	89
Truck	88
Source: Noise Technical Report for the County of San Diego General Plan Update, May 21, 2009.	

Future development that would be accommodated under the PSRs would be located in relatively rural areas of the eastern portion of the County (e.g. the Desert and Mountain Empire

Subregions), as well as in denser, more populated areas in the western portion of the County (e.g. San Dieguito, Crest-Dehesa, North County Metro, Bonsall and Valley Center planning areas). While the relatively built-out areas in the western portion of the County are more likely to be affected by increases in ambient noise from construction related to future development under the proposed PSRs, growth in any of these areas would have the potential for temporary, construction-related noise impacts. The future development patterns that would be accommodated by the PSRs are similar to what is currently anticipated under the General Plan. That is, most future growth will occur in the western portions of the County, but construction-related noise anywhere could potentially result in significant impacts.

3.3.2 Design Considerations and Mitigation Measures

As future development locations and types accommodated within the PSRs would be similar to that under the current General Plan, the mitigation measures identified in the GPU NTR would be sufficient to reduce construction noise to a level consistent with the General Plan. No changes to these policies are included in the proposed GPA. Additionally, the Noise Ordinance establishes specific noise level limits for construction activities in Sections 36.408 and 36.409. Specifically, the Noise Ordinance prohibits nighttime construction and requires construction activities to not exceed an average sound level of 75 dBA for an eight-hour period. Compliance with the Noise Ordinance and the following policies from the General Plan Noise Element would reduce noise impacts from construction to a less than significant level.

General Plan Noise Element Policies

- N-6.1 Noise Regulations. Develop and regularly update codes and ordinances as necessary to regulate impacts from point, intermittent, and other disruptive noise sources.
- N-6.2 Recurring Intermittent Noise. Minimize impacts from noise to land uses in areas where recurring intermittent noise may not exceed the noise standards listed in Table 6, but can have other adverse effects.
- N-6.3: High-Noise Equipment. Require development to limit the frequency of use of motorized landscaping equipment, parking lot sweepers, and other high-noise equipment if their activity will result in noise that affects residential zones.
- N-6.4 Hours of Construction. Require development to limit the hours of operation as appropriate for non-emergency construction and maintenance, trash collection, and parking lot sweeper activity near noise sensitive land uses.
- N-6.6 Code Enforcement. Provide sufficient resources within the County for effective enforcement of County codes and ordinances.

3.4 Cumulative Noise Impacts

3.4.1 Potential Combined Noise Impacts

Roadways

As discussed above in Section 3.2.1.1, the proposed PSRs would have the potential to result in a permanent increase in ambient noise levels beyond those identified for the adopted General Plan. In addition, as described in Section 1.3.1, the proposed project's potential to result in cumulatively considerable impacts is also demonstrated by comparing noise levels with implementation of the proposed PSRs compared to estimated noise levels at General Plan buildout, with the implementation of additional GPAs that are currently in process. The results of this analysis are presented in Table 14. As shown in this table, future noise levels without the proposed project would result in noise levels that exceed County noise compatibility guidelines. Therefore, the General Plan Update, in combination with the identified cumulative projects (GPAs currently in process), would have the potential to result in a significant cumulative impact. The proposed project would result in significant additional noise on several roadways in the North County Metro and Bonsall planning areas (Buena Creek Road, Deer Springs Road, and West Lilac Road). Therefore, the proposed project would result in a cumulatively considerable increase in roadway noise levels.

Non-Transportation Noise Sources

A cumulative noise impact would occur if construction and development associated with cumulative regional land use projects combined would result in new permanent noise sources that exceed the standards of the General Plan Noise Element. As discussed above, development associated with buildout of the proposed PSRs would result in potentially significant impacts related to new commercial and nuisance noise sources. Development and construction proposed by cumulative projects in the County would potentially result in new commercial, industrial, or nuisance noise sources with the potential to exceed noise level limits. Therefore, the proposed project, in combination with the identified cumulative projects, would have the potential to result in a significant cumulative impact associated with noise from permanent noise sources. The proposed project's contribution would be cumulatively considerable. However, due to the short-term and event-specific nature of nuisance noise impacts, the proposed PSRs, in combination with cumulative development would not be expected to result in a cumulative nuisance noise impact related to nuisance noise.

Temporary Construction Noise

A cumulative noise impact would occur if construction associated with one or more projects in an area would result in combined noise levels that would temporarily increase ambient noise levels beyond the standards in the Noise Ordinance. However, since there are no specific plans or time scales for individual projects, it is not possible to determine exact noise levels, locations, or time periods for construction. Potential construction noise-related impacts would be temporary and limited to the area immediately surrounding the project. Additionally, future construction projects would be required to comply with the Noise Ordinance, which establishes hours of operation and noise level limits on construction activities. Therefore, a significant cumulative impact would not occur as a result of temporary construction noise.

Table 14. Cumulative Noise Levels Increases on Heaviest-Impacted Roadways

CPA / Subregion	Roadway	Segment	Current GP Buildout +GPAs (CNEL)	+PSR (CNEL)	Δ
Julian	Wynola Road	SR-78 to unknown rd.	55	56	+1
Julian	Wynola Road	Unknown road to Farmer Rd.	58	59	+1
Julian	Wynola Road	Farmer Rd. to SR-78	58	58	0
San Dieguito	Avenida Del Diablo	Harmony Grove Rd. to Citracado Pkwy.	65	66	+1
North County Metro	Idaho Avenue	San Pasqual Valley Rd. to zone connector	62	63	+1
Ramona	Julian Road	Julian Bridge to public rd.	62	62	0
Ramona	Julian Road	Public rd. to Ramona Trails	62	62	0
Ramona	Julian Road	Ramona Trails to zone connector	62	62	0
Ramona	Julian Road	Zone connector to Sutherland	60	60	0
Ramona	Julian Road	Sutherland to unknown rd.	56	56	0
Ramona	Julian Road	Unknown rd. to Old Julian Hwy.	56	56	0
North Mountain	Montezuma Valley Road	San Felipe Rd. to Grapevine Canyon	64	64	0
North Mountain	Montezuma Valley Road	Grapevine Canyon to unknown rd.	64	64	0
Desert	Montezuma Valley Road	Unknown rd. to Palm Canyon Dr.	64	64	0
Desert	Palm Canyon Drive	Montezuma Valley Rd. to unknown rd.	66	66	0
North Mountain	San Felipe Road	SR-79 to Camino San Ignacio	64	64	0
North Mountain	San Felipe Road	Cam. San Ignacio to Montezuma Valley Rd.	65	65	0
Desert	SR-78	Unknown rd. to SC 860	62	62	0
North Mountain	SR-78	SC 860 to Great So. Overland Stage Rte.	63	64	+1
North Mountain	SR-78	Great Southern Overland Stage Rte. to San Felipe Rd.	64	64	0
Desert	SR-78	San Felipe Rd. to Yaqui Pass Rd.	64	64	0
Julian	SR-78	Wynola Rd. to unknown rd.	63	64	+1
Julian	Julian Bridge	Julian Rd. to Old Julian Hwy.	66	66	0
Desert	Yaqui Pass Road	Rams Hill to unknown rd.	61	61	0
Desert	Yaqui Pass Road	Unknown rd. to unknown rd.	61	61	0
Desert	Yaqui Pass Road	Unknown rd. to SR-78	61	61	0
North County Metro	Buena Creek Road	Fredas Hill to Las Posas Road	74	75	+1
North County Metro	Deer Springs Road	Mulberry to Marilyn	83	84	+1
North County Metro	Deer Springs Road	Marilyn to unknown rd.	84	85	+1
North County Metro	Deer Springs Road	Unknown rd. to unknown rd.	84	85	+1
North County Metro	Deer Springs Road	Unknown rd. to unknown rd.	84	85	+1
Bonsall	West Lilac Road	Old Highway 395 to unknown rd.	69	71	+2
Bonsall	West Lilac Road	Unknown rd. to Shirley	69	71	+2
Valley Center	West Lilac Road	Shirley to Lilac Rd.	69	69	0
Valley Center	West Lilac Road	Lilac Rd. to unknown rd.	68	68	0

Notes: CNEL sound level at 50 feet from roadway centerline; results in **bold** and **shading** indicate a significant impact. Model input and output provided in Appendix D.

3.4.2 Design Considerations & Mitigation Measure Calculations

Implementation of General Plan Update Noise Element contains Policy N-1.5, in addition to the policies listed in Section 3.2.2, which would reduce cumulative noise impacts to the extent feasible by requiring coordination with other jurisdictions and local agencies. However, consistent with the conclusion of the GPU NTR, since future noise increases associated with roadway traffic would increase noise levels beyond the standards put forth by the Federal Highway Administration, cumulative noise impacts would remain significant and unavoidable.

Similar to the proposed project, future development projects proposed under most cumulative projects would be subject to regulations that require compliance with noise standards, such as those contained in the State of California Code of Regulations and County policies and regulations. Future discretionary projects would be required to conduct a Noise Impact Analysis report consistent with the County of San Diego Report Format and Content Requirements. Future development would be required to comply with all standards established by the County. Mitigation measures would be required for any significant impacts. Therefore, impacts associated with non-transportation related permanent noise increases would be reduced to below a cumulatively significant level.

General Plan Noise Element Policy

- N-1.5 Regional Noise Impacts. Work with local and regional transit agencies and/or other jurisdictions, as appropriate, to provide services or facilities to minimize regional traffic noise and other sources of noise in the County.

4 GROUND-BORNE VIBRATION AND NOISE IMPACTS

4.1 Guidelines for the Determination of Significance

Based on the County Guidelines, development under the proposed project would be considered to have a significant impact if it would expose the uses listed in Table 15 and Table 16 to ground-borne vibration or noise levels equal to or in excess of the levels shown.

Table 15. Significance Threshold for Ground-borne Vibration and Noise Impacts

Land Use Category	Ground-borne Vibration Impact Levels (inches / sec RMS)		Ground-borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Category 1: Buildings where low ambient vibration is essential for interior operations (research & manufacturing facilities with special vibration constraints)	0.0018 ³	0.0018 ³	Not Applicable ⁵	Not Applicable ⁵
Category 2: Residences and buildings where people normally sleep (hotels, hospitals, residences, & other sleeping facilities)	0.0040	0.010	35 dBA	43 dBA
Category 3: Institutional land uses with primarily daytime use (schools, churches, libraries, other institutions, & quiet offices)	0.0056	0.014	40 dBA	48 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

Notes:

- "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category.
- "Occasional or Infrequent Events" are defined as fewer than 70 vibration events per day. This combined category includes most commuter rail systems.
- This criterion limit is based on levels that are acceptable for most moderately sensitive equipment such as optical microscopes. Vibration sensitive manufacturing or research will require detailed evaluation to define acceptable vibration levels. Ensuring lower vibration levels in a building often requires special design of the HVAC systems and stiffened floors.
- Vibration-sensitive equipment is not sensitive to ground-borne noise.
- There are some buildings, such as concert halls, TV and recording studios, and theaters that can be very sensitive to vibration and noise but do not fit into any of the three categories. Table 16 gives criteria for acceptable levels of ground-borne vibration and noise for these various types of special uses.
- For Categories 2 and 3 with occupied facilities, isolated events such as blasting are significant when the peak particle velocity (PPV) exceeds one inch per second. Non-transportation vibration sources such as impact pile drivers or hydraulic breakers are significant when their PPV exceeds 0.1 inch per second. More specific criteria for structures and potential annoyance were developed by Caltrans (2004) and will be used to evaluate these continuous or transient sources in San Diego County.

Table 16. Significance Threshold for Ground-borne Vibration and Noise Impacts for Special Buildings

Type of Building or Room	Ground-borne Vibration Impact Levels (inches / sec RMS)		Ground-borne Noise Impact Levels (dB re 20 micro Pascals)	
	Frequent Events ¹	Occasional or Infrequent Events ²	Frequent Events ¹	Occasional or Infrequent Events ²
Concert Halls, TV Studios, and Recording Studios	0.0018	0.0018	25 dBA	25 dBA
Auditoriums	0.0040	0.010	30 dBA	38 dBA
Theaters	0.0040	0.010	35 dBA	43 dBA

Source: U.S Department of Transportation, Federal Transit Administration, "Transit Noise and Vibration Impact Assessment," May 2006.

Notes:

1. "Frequent Events" is defined as more than 70 vibration events per day. Most rapid transit projects fall into this category
2. "Occasional or Infrequent Events" are defined as fewer than 70 vibration events per day. This combined category includes most commuter rail systems.
3. If the building will rarely be occupied when the trains are operating, there is no need to consider impact.
4. For historic buildings and ruins, the allowable upper limit for continuous vibration to structures is identified to be 0.056 inches / second rms. Transient conditions (single-event) would be limited to approximately twice the continuous acceptable value.

4.2 Potential and Mitigated Noise Impacts

The proposed PSRs would have the potential to result in significant ground-borne vibration or noise if construction activities associated with the development of land uses proposed under the PSRs would exceed the ground-borne vibration levels listed in Table 15, or if new vibration sensitive land uses would be located in the vicinity of ground-borne vibration inducing land uses such as railroads or mining operations. Ground-borne vibration can disrupt vibration-sensitive land uses by causing movement of buildings, rattling of windows and items inside buildings, rumbling sounds, and even property damage. According to the Transit Noise and Vibration Impact Assessment, prepared by the FTA in 2006, background vibration levels in residential areas are typically 0.00003 inches per second (in/sec) root mean square (RMS), which is lower than 0.0001 in/sec RMS, the threshold of perception for humans (County 2009c).

Table 17. Typical Levels of Ground-Borne Vibration

Vibration Level	Typical Sources (50 ft from Source)	Human / Structural Response
in / sec RMS		
0.01	Blasting from construction projects	Threshold, minor cosmetic damage to fragile buildings
0.003-0.01	Bulldozers and other heavy tracked construction equipment	Difficulty with tasks such as reading
0.001-0.003	Commuter rail and rapid transit, upper range	Residential annoyance, infrequent events (e.g. commuter rail)
0.0003-0.001	Typical commuter rail, bus or truck over bump, typical rapid transit	Residential annoyance, frequent events (e.g. rapid transit)
0.0001-0.0003	Typical bus or truck	Limit for vibration sensitive equipment. Approximate threshold for human perception
0.00003	Typical background vibration	Not detectable
<u>Source:</u> FTA Transit Noise and Vibration Impact Assessment, 2006.		

4.2.1 Construction

As shown in Table 17, construction typically results in ground-borne vibration that ranges from 0.003 to 0.01 in/sec RMS at a distance of 50 feet. These vibration levels would exceed the significant threshold for infrequent events (fewer than 70 vibration events per day) for Category 1 land uses (vibration-sensitive equipment), but would not exceed the threshold level for the land uses within Categories 2 and 3. For isolated events such as blasting, impacts would be significant if the peak particle velocity (PPV) exceeds 1.0 in/sec RMS. For other vibration sources such as pile drivers or hydraulic breakers, impacts would be significant if the PPV exceeds 0.1 in/sec RMS.

It is not possible to determine exact vibration levels associated with the development of land uses proposed under the project because no specific plans or time scales for individual projects are yet available. However, most of the new development associated with the proposed PSRs would be located in the northern region of the unincorporated county near existing development, specifically in the Bonsall CPA, Fallbrook CPA, North County Metro Subregion, Pala/Pauma Subregion, San Dieguito CPA, and Valley Center CPA. These areas are most likely to be affected by ground-borne vibration and noise from construction resulting from the development of land uses accommodated under the PSRs.

A substantial amount of new growth would also be accommodated in the Desert Subregion near Borrego Springs. PSRs DS8 (and its Study Area) and DS24 would result in 725 and 169 potential new dwelling units, respectively. However, most of the surrounding land uses are occupied by low density residential or vacant land. The potential for impacts to surrounding sensitive land uses from construction-related development under the proposed PSRs is less likely in this area, although not negligible.

In all of the planning areas with proposed PSRs, including those with relatively few potential dwelling unit increases such as Crest/Dehesa and Mountain Empire, new development could require infrastructure that would have the potential to result in substantial construction-related ground-borne vibration and noise.

4.2.2 Railroads

The Desert Line is located within the vicinity of the proposed Mountain Empire PSR analysis areas (ME26 and ME30-A). As shown in Table 17, typical vibration levels for commuter rail operations can range from 0.0003 to 0.003 in/sec VMS at a distance of 50 feet. According to the FTA's 2006 Transit Noise and Vibration Impact Assessment, freight trains tend to be similar to commuter and intercity passenger trains in that they are both diesel powered and have the same types of cars. However, freight trains differ in their overall length, number and size of locomotives, and number of heavily loaded cars. In assessing freight train vibration, a dual approach is recommended with separate consideration of the locomotive and rail car vibration. Because the locomotive vibration only lasts for a very short time, the few-event criterion is appropriate for fewer than 30 events per day. However, for a typical line-haul freight train where the rail car vibration lasts for several minutes, the many-event limits should be applied to the rail car vibration (FTA 2006). Therefore, at a distance of 50 feet, vibration levels would likely not exceed the significance threshold for Category 3, but may exceed the significance threshold for Categories 1 and 2 land uses (vibration-sensitive equipment and residences or buildings where people sleep).

Residential development that would be introduced within the Mountain Empire CPAd (ME26 and ME30-A) would be located near the Desert Line. If the Desert Line becomes operational in the future, this development would have the potential to be exposed to vibration impacts, particularly ME30-A, which would be bisected by the freight line. The FTA provides screening distances for land use categories to screen projects that may be subject to vibration impacts from conventional commuter railroads. For Category 2 land uses, which includes residences, the screening distance from a conventional commuter railroad right-of-way is 200 feet. The FTA does not indicate screening distances for land uses from freight railroads, however it can reasonably be assumed that set-backs for the Desert Line would be similar to those for conventional commuter railroads because events would be less frequent than a typical commuter railroad.

ME26 would be located more than two miles from the Desert Line and is therefore located outside of the impact screening distance. However, development in ME30-A could be located within 200 feet of the railroad. Therefore, a potentially significant impact could occur.

4.2.3 Extraction (Mining) Operations

Mining and extraction operations may include blasting or other activities that may result in ground-borne vibration or noise impacts. Equipment used for extraction operations can reasonably be assumed to have similar levels of vibration associated with blasting and heavy equipment used for construction projects. Therefore, vibration levels from mining equipment could potentially range between 0.003 – 0.01 in/sec RMS at a distance of 50 feet.

These levels could exceed the significance threshold for vibration impacts depending on the frequency of occurrences throughout the day. If the frequency of the vibration events exceed 70 per day, impacts would be significant for all three land use categories. If the frequency is less than

70 vibration events per day, impacts would be significant for Category 1 land uses (vibration-sensitive equipment), but may not exceed the significance threshold for Categories 2 and 3. Additionally, isolated events such as blasting may be significant if the PPV exceeds 1.0 in/sec RMS, and the use of impact pile drivers or hydraulic breakers may be significant if the PPB exceeds 0.1 in/sec.

The OSM has also established guidelines related to blasting for surface mining activities, which may result in ground-borne vibration impacts. The OSM guidelines require the operator to distribute a blasting schedule, post blasting signs, and control access within the blasting area. OSM has established air blast and ground vibration limits at the location of any dwelling, public building, school, church, or community building outside the permit area. The standard PPV damage threshold for residential structures is 2.0 in/sec.

As described in Section 2.2.1.4, there are no PSRs areas within one quarter mile (1,300 feet) of an existing extractive operation. As shown above, typical equipment vibration levels would not exceed the damage threshold for residential structures beyond 50 feet of equipment operations. Therefore, the PSRs are unlikely to be exposed to excessive vibration levels from extractive industries. A potentially significant impact would not occur.

4.3 Design Considerations and Mitigation Measures for Ground-borne Vibration Impacts

The General Plan Noise Element Policy N-3.1 minimizes exposure of land uses to ground-borne vibration from construction and railroad operation. In addition, future projects associated with development of the PSRs that have the potential for resulting in ground-borne vibration and noise impacts from construction would be required to conduct a Noise Impact Analysis report consistent with the County of San Diego Report Format and Content Requirements. Mitigation measures would be required for any significant impacts. Compliance with the General Plan Update policy and County rules and regulations would reduce impacts to a less than significant level.

The GPU NTR identified mitigation Measure 1 to reduce ground-borne vibration and noise impacts from the SPRINTER rail line, a commuter line in San Diego County that is not located near a PSR. This mitigation measure has been modified for the purposes of this analysis to reduce ground-borne vibration and noise impacts for PSR development planned near the Desert Line. This measure requires a more stringent screening distance than the FTA criteria. Consistent with the conclusions of the GPU NTR, implementation of PSR MM Noi-1 would reduce impacts related to the Desert Line to a less than significant impact.

General Plan Noise Element Policy

- N-3.1 Ground-borne Vibration. Use the Federal Transit Administration and Federal Railroad Administration guidelines, where appropriate, to limit the extent of exposure that sensitive uses may have to ground-borne vibration from trains, construction equipment, and other sources.
- N-4.7: Railway Jurisdictional Coordination. Work with the San Diego Association of Governments (SANDAG), Caltrans, Metropolitan Transit System (MTS), California High-Speed Rail Authority, and passenger and freight train operators as appropriate to install

noise attenuation features to minimize impacts to adjacent residential or other noise sensitive uses from railroad operations.

- N-5.2: Noise-Generating Industrial Facilities. Locate noise-generating industrial facilities at the maximum practical distance from residential zones. Use setbacks between noise generating equipment and noise sensitive uses and limit the operation of noise generating activities to daytime hours as appropriate where such activities may affect residential uses.
- N-6.3: High-Noise Equipment. Require development to limit the frequency of use of motorized landscaping equipment, parking lot sweepers, and other high-noise equipment if their activity will result in noise that affects residential zones.
- N-6.4: Hours of Construction. Require development to limit the hours of operation as appropriate for non-emergency construction and maintenance, trash collection, and parking lot sweeper activity near noise sensitive land uses

Mitigation Measure

- PSR MM Noi-1 A ground-borne vibration technical study shall be required for proposed land uses within the following distances from the Desert Line right-of-way and the property line: 700 feet from a Category 1 Land Use; 400 feet from a Category 2 Land Use; and 200 feet from a Category 3 Land Use. If necessary, mitigation shall be required for land uses in compliance with the standards listed in Table 6 of the County Guidelines (County 2009a).
- PSR MM Noi-2: Revise the County CEQA determinations of significance to reflect limits in the Noise Compatibility Guidelines and Noise Standards [Policy N-3.1]. Periodically review the Guidelines for Determining Significance to incorporate standards for minimizing effects of groundborne vibration during project operation or construction.
- PSR MM Noi-3 Review project applications for industrial facilities to ensure they are located in areas that would minimize impacts to noise-sensitive land uses. Revise CEQA Guidelines for Determining Significance to incorporate appropriate noise attenuation measures for minimizing industrial-related noise.
- PSR MM Noi-4 Require an acoustical study whenever a proposed extractive land use facility may result in a significant noise impact to existing noise sensitive land uses, or when a proposed noise sensitive land use may be significantly affected by an existing extractive land use facility. The results of the acoustical study may require a “buffer zone” to be identified on all Major Use Permit applications for extractive facilities whenever a potential for a noise impact to noise sensitive land uses may occur.

4.4 Cumulative Ground-borne Vibration Impacts

A cumulative ground-borne vibration impact would occur if one or more projects in the area would result in combined ground-borne vibration impacts that would increase vibration levels beyond the standards in the County significance thresholds. Ground-borne vibration impacts could result from construction operations, railroad operations, or heavy equipment operations such as mining. There are no specific plans or time scales for individual construction projects in the PSRs, therefore it is not possible to determine exact noise levels, locations, or time periods for construction. Potential vibration impacts from construction would need to be analyzed on a case-by-case basis and would be temporary in nature. A significant cumulative impact would not occur.

Implementation of Policy N-3.1 would require coordination with the FTA and FRA and mitigation measure PSR-MM Noi-1 would require vibration technical studies for proposed projects along the Desert Line. This policy and measure minimize potential railroad impacts by reducing cumulative exposure and reducing impacts at individual projects. Therefore, with the incorporation of General Plan policies and mitigation measures, cumulative ground-borne vibration impacts of the proposed PSR land use designations would be less than significant.

At this time, no mining facilities are located at a close enough distance to the proposed PSRs that would potentially exceed ground-borne vibration significance thresholds for vibration-sensitive uses. A significant cumulative impact would not occur related to extraction operations.

5 SUMMARY OF PROJECT IMPACTS, DESIGN CONSIDERATIONS, NOISE MITIGATION, & CONCLUSIONS

Implementation of the General Plan Update would have the potential to expose NSLUs to excessive noise, expose people to excessive groundborne vibration or noise, and result in a permanent or temporary increase in ambient noise. Therefore, the proposed project would result in potentially significant direct impacts. Additionally, the proposed project would result in a cumulatively considerable contribution to a significant cumulative impact for each issue, with the exception of temporary construction noise. However, implementation of adopted General Plan Update policies, mitigation measures, and compliance with applicable regulations, such as that future development projects prepare a Noise Impact Analysis that identifies impacts and mitigation, would mitigate the proposed project's direct and cumulative impacts to a level below significant, with the exception of impacts related to permanent increases in noise along area roadways, which would remain significant and unavoidable for direct and cumulative impacts.

6 CERTIFICATION

This section provides a list of preparers, persons and organizations involved with the above noise assessment, and report certification.

Preparers

Harris & Associates

Diane Sandman, Project Director
Sharon Toland, Project Manager
Haley Johnson, Technical Analyst

Persons & Organizations

County of San Diego – Planning and Development Services

Kevin Johnston, Land Use/Environmental Planner
Andrew Capobianco, Land Use/Environmental Planner (Adjunct Staff)

Atkins

Lisa Mash, Senior Project Manager
Sandra Pentney, Project Manager

Chen Ryan Associates

Stephen Cook, PE
Phuong Nguyen, PE

Certification

The contents of this report represent an accurate depiction of the future acoustical environment and impacts resulting from the proposed PSR GPA. The report was prepared by Sharon Toland; a County approved CEQA Consultant for Acoustics.



Sharon Toland
Project Manager
Harris & Associates

11/11/2016

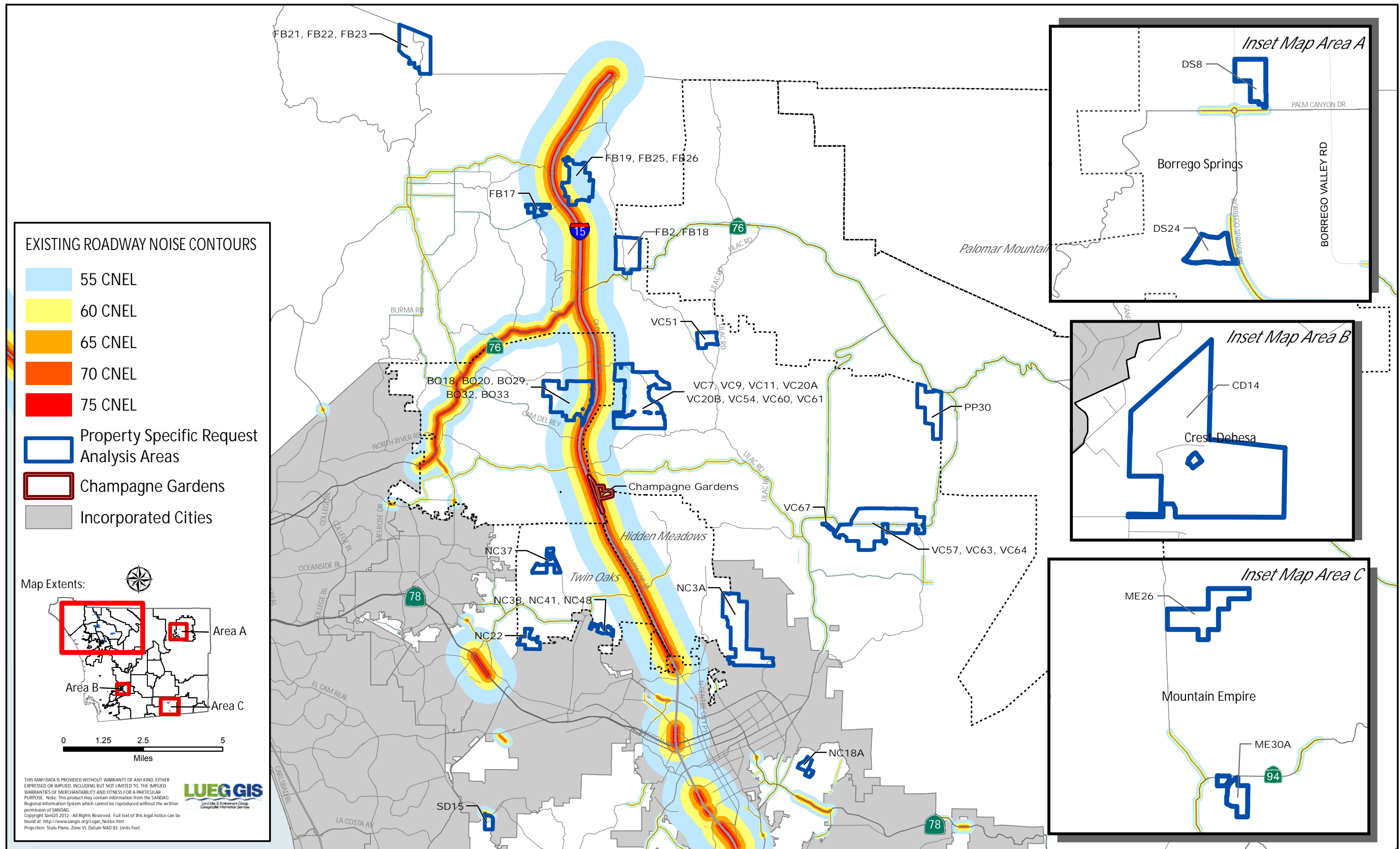
Date

**APPENDIX A
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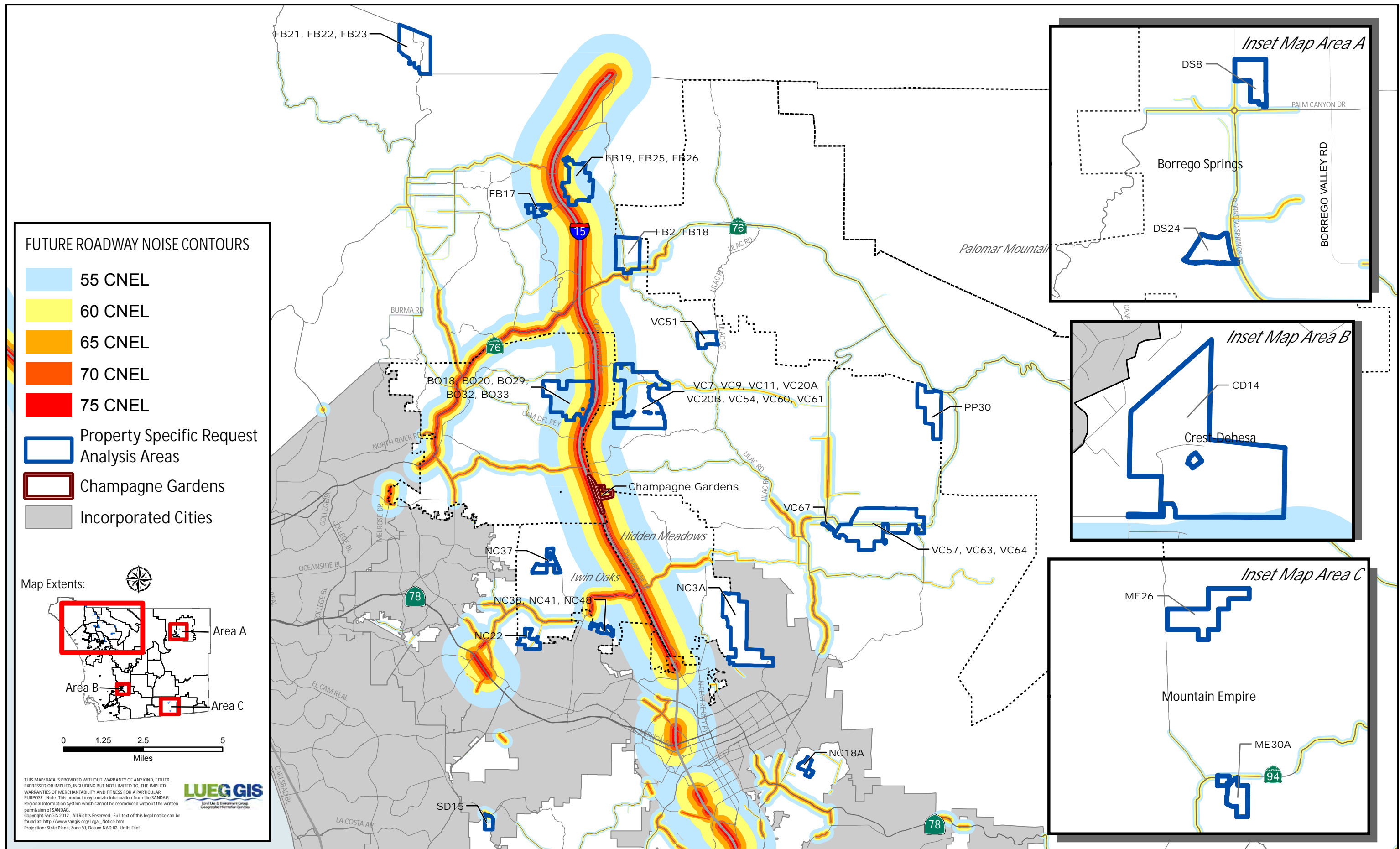
APPENDIX B
ADOPTED GENERAL PLAN NOISE CONTOURS



Source: SanGIS, County of San Diego, 2016

Existing Roadway Noise Contours

Figure B-1

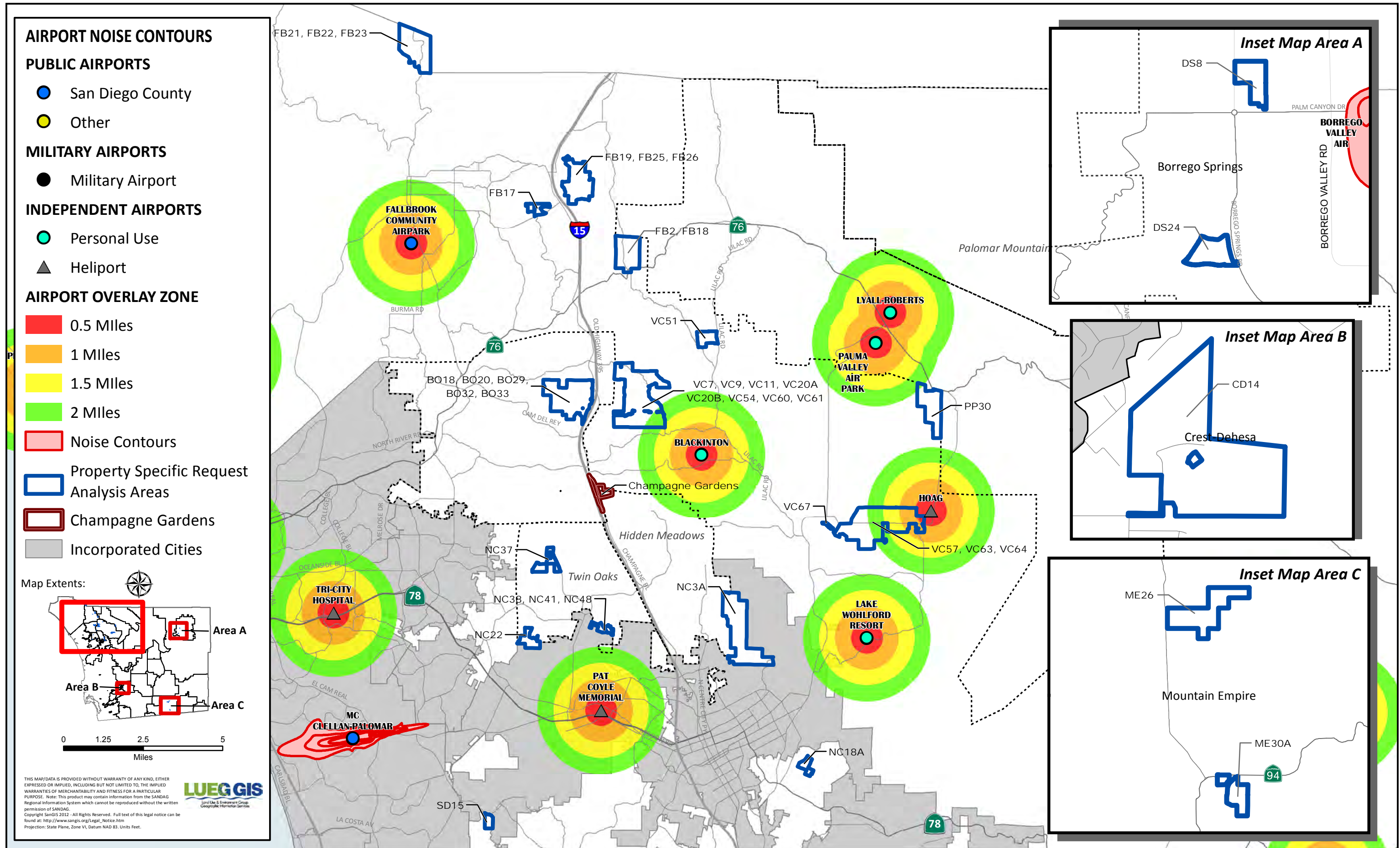


Source: SanGIS, County of San Diego, 2016

Future Roadway Noise Contours

Figure B-2

APPENDIX C
AIRPORT NOISE CONTOURS



Source: SanGIS, County of San Diego, 2016

Airport Noise Contours

Figure C

APPENDIX D
TRAFFIC MODEL INPUT AND OUTPUT

TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number: 150-1256001
Project Name: Property Specific Requests GPA

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
 Source of Traffic Volumes: Chen Ryan, September 2016
 Community Noise Descriptor: L_{dn}: _____ CNEL: X

"-" = contour is located within the roadway right-of-way.
 Distance is from the centerline of the roadway segment to the receptor location.

Assumed 24-Hour Traffic Distribution:	Day	Evening	Night
Total ADT Volumes	77.70%	12.70%	9.60%
Medium-Duty Trucks	87.43%	5.05%	7.52%
Heavy-Duty Trucks	89.10%	2.84%	8.06%

Analysis Condition Roadway, Segment	Lanes	Median Width	ADT Volume	Design Speed (mph)	Alpha Factor	Vehicle Mix		Distance from Centerline of Roadway				
						Medium Trucks	Heavy Trucks	CNEL at 50 Feet	70 CNEL	85 CNEL	100 CNEL	115 CNEL
Wynola Road												
SR-78 to unknown road, Current GP Buildout	2	30	241	40	0.5	3.0%	2.0%	51	-	-	-	-
SR-78 to unknown road, Current GP Buildout + PSR	2	30	744	40	0.5	3.0%	2.0%	55	-	-	-	54
SR-78 to unknown road, Current GP Buildout + GPAs	2	30	744	40	0.5	3.0%	2.0%	55	-	-	-	54
SR-78 to unknown road, Current GP Buildout + GPAs + PSR	2	30	911	40	0.5	3.0%	2.0%	56	-	-	-	61
Wynola Road												
Unknown road to Farmer Road, Current GP Buildout	2	30	897	40	0.5	3.0%	2.0%	56	-	-	-	61
Unknown road to Farmer Road, Current GP Buildout + PSR	2	30	1423	40	0.5	3.0%	2.0%	58	-	-	-	83
Unknown road to Farmer Road, Current GP Buildout + GPAs	2	30	1483	40	0.5	3.0%	2.0%	58	-	-	-	85
Unknown road to Farmer Road, Current GP Buildout + GPAs + PSR	2	30	1648	40	0.5	3.0%	2.0%	59	-	-	-	91
Wynola Road												
Farmer Road to SR-78, Current GP Buildout	2	30	778	40	0.5	3.0%	2.0%	56	-	-	-	55
Farmer Road to SR-78, Current GP Buildout + PSR	2	30	1284	40	0.5	3.0%	2.0%	58	-	-	-	77
Farmer Road to SR-78, Current GP Buildout + GPAs	2	30	1284	40	0.5	3.0%	2.0%	58	-	-	-	77
Farmer Road to SR-78, Current GP Buildout + GPAs + PSR	2	30	1446	40	0.5	3.0%	2.0%	58	-	-	-	84
Avenida Del Diablo												
Harmony Grove Road to Citracado Parkway, Current GP Buildout	2	30	5231	45	0.5	3.0%	2.0%	65	-	50	107	231
Harmony Grove Road to Citracado Parkway, Current GP Buildout + PSR	2	30	5757	45	0.5	3.0%	2.0%	65	-	53	114	246
Harmony Grove Road to Citracado Parkway, Current GP Buildout + GPAs	2	30	5831	45	0.5	3.0%	2.0%	65	-	54	115	249
Harmony Grove Road to Citracado Parkway, Current GP Buildout + GPAs + PSR	2	30	7152	45	0.5	3.0%	2.0%	66	-	61	132	285
Idaho Avenue												
San Pasqual Valley Road to zone connector, Current GP Buildout	2	30	2454	40	0.5	3.0%	2.0%	61	-	-	55	119
San Pasqual Valley Road to zone connector, Current GP Buildout + PSR	2	30	3049	40	0.5	3.0%	2.0%	62	-	-	64	137
San Pasqual Valley Road to zone connector, Current GP Buildout + GPAs	2	30	3228	40	0.5	3.0%	2.0%	62	-	-	66	143
San Pasqual Valley Road to zone connector, Current GP Buildout + GPAs + PSR	2	30	4556	40	0.5	3.0%	2.0%	63	-	-	83	179
Julian Road												
Julian Bridge to public road, Current GP Buildout	2	30	2203	45	0.5	3.0%	2.0%	61	-	-	60	130
Julian Bridge to public road, Current GP Buildout + PSR	2	30	2983	45	0.5	3.0%	2.0%	63	-	-	74	159
Julian Bridge to public road, Current GP Buildout + GPAs	2	30	2498	45	0.5	3.0%	2.0%	62	-	-	66	141
Julian Bridge to public road, Current GP Buildout + GPAs + PSR	2	30	2509	45	0.5	3.0%	2.0%	62	-	-	66	142
Julian Road												
Public road to Ramona Trails, Current GP Buildout	2	30	2203	45	0.5	3.0%	2.0%	61	-	-	60	130
Public road to Ramona Trails, Current GP Buildout + PSR	2	30	2983	45	0.5	3.0%	2.0%	63	-	-	74	159
Public road to Ramona Trails, Current GP Buildout + GPAs	2	30	2498	45	0.5	3.0%	2.0%	62	-	-	66	141
Public road to Ramona Trails, Current GP Buildout + GPAs + PSR	2	30	2509	45	0.5	3.0%	2.0%	62	-	-	66	142
Julian Road												
Ramona Trails to zone connector, Current GP Buildout	2	30	2203	45	0.5	3.0%	2.0%	61	-	-	60	130
Ramona Trails to zone connector, Current GP Buildout + PSR	2	30	2983	45	0.5	3.0%	2.0%	63	-	-	74	159
Ramona Trails to zone connector, Current GP Buildout + GPAs	2	30	2498	45	0.5	3.0%	2.0%	62	-	-	66	141
Ramona Trails to zone connector, Current GP Buildout + GPAs + PSR	2	30	2509	45	0.5	3.0%	2.0%	62	-	-	66	142
Julian Road												
Zone connector to Sutherland, Current GP Buildout	2	30	1577	45	0.5	3.0%	2.0%	60	-	-	48	104
Zone connector to Sutherland, Current GP Buildout + PSR	2	30	2357	45	0.5	3.0%	2.0%	62	-	-	63	136
Zone connector to Sutherland, Current GP Buildout + GPAs	2	30	1849	45	0.5	3.0%	2.0%	60	-	-	54	116
Zone connector to Sutherland, Current GP Buildout + GPAs + PSR	2	30	1852	45	0.5	3.0%	2.0%	60	-	-	54	116
Julian Road												
Sutherland to unknown road, Current GP Buildout	2	30	380	45	0.5	3.0%	2.0%	54	-	-	-	-
Sutherland to unknown road, Current GP Buildout + PSR	2	30	1160	45	0.5	3.0%	2.0%	58	-	-	-	85
Sutherland to unknown road, Current GP Buildout + GPAs	2	30	732	45	0.5	3.0%	2.0%	56	-	-	-	62
Sutherland to unknown road, Current GP Buildout + GPAs + PSR	2	30	732	45	0.5	3.0%	2.0%	56	-	-	-	62
Julian Road												
Unknown road to Old Julian Highway, Current GP Buildout	2	30	380	45	0.5	3.0%	2.0%	54	-	-	-	-
Unknown road to Old Julian Highway, Current GP Buildout + PSR	2	30	1160	45	0.5	3.0%	2.0%	58	-	-	-	85
Unknown road to Old Julian Highway, Current GP Buildout + GPAs	2	30	732	45	0.5	3.0%	2.0%	56	-	-	-	62
Unknown road to Old Julian Highway, Current GP Buildout + GPAs + PSR	2	30	732	45	0.5	3.0%	2.0%	56	-	-	-	62
Montezuma Valley Road												
San Felipe Road to Grapevine Canyon, Current GP Buildout	2	30	4354	40	0.5	3.0%	2.0%	63	-	-	81	174
San Felipe Road to Grapevine Canyon, Current GP Buildout + PSR	2	30	5288	40	0.5	3.0%	2.0%	64	-	-	92	198
San Felipe Road to Grapevine Canyon, Current GP Buildout + GPAs	2	30	5516	40	0.5	3.0%	2.0%	64	-	-	95	204
San Felipe Road to Grapevine Canyon, Current GP Buildout + GPAs + PSR	2	30	5516	40	0.5	3.0%	2.0%	64	-	-	95	204

Montezuma Valley Road												
Grapevine Canyon to unknown road, Current GP Buildout	2	30	3943	40	0.5	3.0%	2.0%	63	-	-	76	163
Grapevine Canyon to unknown road, Current GP Buildout + PSF	2	30	4897	40	0.5	3.0%	2.0%	64	-	-	87	188
Grapevine Canyon to unknown road, Current GP Buildout + GP/	2	30	5123	40	0.5	3.0%	2.0%	64	-	-	90	194
Grapevine Canyon to unknown road, Current GP Buildout + GP/	2	30	5123	40	0.5	3.0%	2.0%	64	-	-	90	194
Montezuma Valley Road												
Unknown road to Palm Canyon Drive, Current GP Buildout	2	30	4483	40	0.5	3.0%	2.0%	63	-	-	82	178
Unknown road to Palm Canyon Drive, Current GP Buildout + PS	2	30	5437	40	0.5	3.0%	2.0%	64	-	-	94	202
Unknown road to Palm Canyon Drive, Current GP Buildout + GF	2	30	5663	40	0.5	3.0%	2.0%	64	-	-	96	207
Unknown road to Palm Canyon Drive, Current GP Buildout + GF	2	30	5663	40	0.5	3.0%	2.0%	64	-	-	96	207
Palm Canyon Drive												
Montezuma Valley Road to unknown road, Current GP Buildout	2	30	5205	45	0.5	3.0%	2.0%	65	-	50	107	230
Montezuma Valley Road to unknown road, Current GP Buildout	2	30	6145	45	0.5	3.0%	2.0%	66	-	55	119	257
Montezuma Valley Road to unknown road, Current GP Buildout	2	30	6177	45	0.5	3.0%	2.0%	66	-	56	120	258
Montezuma Valley Road to unknown road, Current GP Buildout	2	30	6177	45	0.5	3.0%	2.0%	66	-	56	120	258
San Felipe Road												
SR-79 to Camino San Ignacio, Current GP Buildout	2	30	4172	40	0.5	3.0%	2.0%	63	-	-	79	169
SR-79 to Camino San Ignacio, Current GP Buildout + PSR	2	30	5129	40	0.5	3.0%	2.0%	64	-	-	90	194
SR-79 to Camino San Ignacio, Current GP Buildout + GPAs	2	30	5557	40	0.5	3.0%	2.0%	64	-	-	95	205
SR-79 to Camino San Ignacio, Current GP Buildout + GPAs + P	2	30	5618	40	0.5	3.0%	2.0%	64	-	-	96	206
San Felipe Road												
Camino San Ignacio to Montezuma Valley Road, Current GP Build	2	30	4785	40	0.5	3.0%	2.0%	64	-	-	86	185
Camino San Ignacio to Montezuma Valley Road, Current GP Build	2	30	5776	40	0.5	3.0%	2.0%	64	-	-	98	210
Camino San Ignacio to Montezuma Valley Road, Current GP Build	2	30	6146	40	0.5	3.0%	2.0%	65	-	47	102	219
Camino San Ignacio to Montezuma Valley Road, Current GP Build	2	30	6146	40	0.5	3.0%	2.0%	65	-	47	102	219
SR-78												
Unknown road to SC 860, Current GP Buildout	2	30	2043	40	0.5	3.0%	2.0%	60	-	-	49	105
Unknown road to SC 860, Current GP Buildout + PSR	2	30	3036	40	0.5	3.0%	2.0%	62	-	-	64	137
Unknown road to SC 860, Current GP Buildout + GPAs	2	30	3279	40	0.5	3.0%	2.0%	62	-	-	67	144
Unknown road to SC 860, Current GP Buildout + GPAs + PSR	2	30	3395	40	0.5	3.0%	2.0%	62	-	-	68	148
SR-78												
SC 860 to Great Southern Overland Stage Route, Current GP B	2	30	1956	40	0.5	3.0%	2.0%	60	-	-	47	102
SC 860 to Great Southern Overland Stage Route, Current GP B	2	30	2952	40	0.5	3.0%	2.0%	61	-	-	62	134
SC 860 to Great Southern Overland Stage Route, Current GP B	2	30	4629	40	0.5	3.0%	2.0%	63	-	-	84	181
SC 860 to Great Southern Overland Stage Route, Current GP B	2	30	4747	40	0.5	3.0%	2.0%	64	-	-	86	184
SR-78												
Great Southern Overland Stage Route to San Felipe Road, Curr	2	30	2078	40	0.5	3.0%	2.0%	60	-	-	49	106
Great Southern Overland Stage Route to San Felipe Road, Curr	2	30	3189	40	0.5	3.0%	2.0%	62	-	-	66	141
Great Southern Overland Stage Route to San Felipe Road, Curr	2	30	4866	40	0.5	3.0%	2.0%	64	-	-	87	188
Great Southern Overland Stage Route to San Felipe Road, Curr	2	30	5004	40	0.5	3.0%	2.0%	64	-	-	89	191
SR-78												
San Felipe Road to Yaqui Pass Road, Current GP Buildout	2	30	3391	40	0.5	3.0%	2.0%	62	-	-	68	147
San Felipe Road to Yaqui Pass Road, Current GP Buildout + PS	2	30	4543	40	0.5	3.0%	2.0%	63	-	-	83	179
San Felipe Road to Yaqui Pass Road, Current GP Buildout + GF	2	30	4786	40	0.5	3.0%	2.0%	64	-	-	86	185
San Felipe Road to Yaqui Pass Road, Current GP Buildout + GF	2	30	4917	40	0.5	3.0%	2.0%	64	-	-	88	189
SR-78												
Wynola Road to unknown road, Current GP Buildout	2	30	2043	40	0.5	3.0%	2.0%	60	-	-	49	105
Wynola Road to unknown road, Current GP Buildout + PSR	2	30	3036	40	0.5	3.0%	2.0%	62	-	-	64	137
Wynola Road to unknown road, Current GP Buildout + GPAs	2	30	4713	40	0.5	3.0%	2.0%	63	-	-	85	184
Wynola Road to unknown road, Current GP Buildout + GPAs + F	2	30	4829	40	0.5	3.0%	2.0%	64	-	-	87	187
Julian Bridge												
Julian Road to Old Julian Highway, Current GP Buildout	2	30	4727	45	0.5	3.0%	2.0%	65	-	-	100	216
Julian Road to Old Julian Highway, Current GP Buildout + PSR	2	30	5792	45	0.5	3.0%	2.0%	65	-	53	115	247
Julian Road to Old Julian Highway, Current GP Buildout + GPAs	2	30	6760	45	0.5	3.0%	2.0%	66	-	59	127	274
Julian Road to Old Julian Highway, Current GP Buildout + GPAs	2	30	7128	45	0.5	3.0%	2.0%	66	-	61	132	284
Yaqui Pass Road												
Rams Hill to unknown road, Current GP Buildout	2	30	1685	40	0.5	3.0%	2.0%	59	-	-	-	92
Rams Hill to unknown road, Current GP Buildout + PSR	2	30	2768	40	0.5	3.0%	2.0%	61	-	-	60	129
Rams Hill to unknown road, Current GP Buildout + GPAs	2	30	2768	40	0.5	3.0%	2.0%	61	-	-	60	129
Rams Hill to unknown road, Current GP Buildout + GPAs + PSR	2	30	2872	40	0.5	3.0%	2.0%	61	-	-	61	132
Yaqui Pass Road												
Unknown road to unknown road, Current GP Buildout	2	30	1684	40	0.5	3.0%	2.0%	59	-	-	-	92
Unknown road to unknown road, Current GP Buildout + PSR	2	30	2767	40	0.5	3.0%	2.0%	61	-	-	60	129
Unknown road to unknown road, Current GP Buildout + GPAs	2	30	2767	40	0.5	3.0%	2.0%	61	-	-	60	129
Unknown road to unknown road, Current GP Buildout + GPAs +	2	30	2871	40	0.5	3.0%	2.0%	61	-	-	61	132
Yaqui Pass Road												
Unknown road to SR-78, Current GP Buildout	2	30	1684	40	0.5	3.0%	2.0%	59	-	-	-	92
Unknown road to SR-78, Current GP Buildout + PSR	2	30	2767	40	0.5	3.0%	2.0%	61	-	-	60	129
Unknown road to SR-78, Current GP Buildout + GPAs	2	30	2767	40	0.5	3.0%	2.0%	61	-	-	60	129
Unknown road to SR-78, Current GP Buildout + GPAs + PSR	2	30	2871	40	0.5	3.0%	2.0%	61	-	-	61	132
Buena Creek Road												
Fredas Hill to Las Posas Road, Current GP Buildout	4	30	20549	55	0.5	3.0%	2.0%	74	93	201	432	931
Fredas Hill to Las Posas Road, Current GP Buildout + PSR	4	30	21897	55	0.5	3.0%	2.0%	74	97	209	451	971
Fredas Hill to Las Posas Road, Current GP Buildout + GPAs	4	30	22061	55	0.5	3.0%	2.0%	74	98	210	453	976
Fredas Hill to Las Posas Road, Current GP Buildout + GPAs + F	4	30	26504	55	0.5	3.0%	2.0%	75	110	238	512	1,103
Deer Springs Road												
Mulberry to Marilyn, Current GP Buildout	6	30	40516	65	0.5	5.0%	3.0%	83	377	812	1,749	3,767
Mulberry to Marilyn, Current GP Buildout + PSR	6	30	43578	65	0.5	5.0%	3.0%	83	395	852	1,836	3,955
Mulberry to Marilyn, Current GP Buildout + GPAs	6	30	43578	65	0.5	5.0%	3.0%	83	395	852	1,836	3,955
Mulberry to Marilyn, Current GP Buildout + GPAs + PSR	6	30	54274	65	0.5	5.0%	3.0%	84	458	986	2,125	4,578

Deer Springs Road												
Marilyn to unknown road, Current GP Buildout	6	30	43889	65	0.5	5.0%	3.0%	84	397	856	1,844	3,973
Marilyn to unknown road, Current GP Buildout + PSR	6	30	46970	65	0.5	5.0%	3.0%	84	416	896	1,930	4,157
Marilyn to unknown road, Current GP Buildout + GPAs	6	30	46970	65	0.5	5.0%	3.0%	84	416	896	1,930	4,157
Marilyn to unknown road, Current GP Buildout + GPAs + PSR	6	30	58028	65	0.5	5.0%	3.0%	85	479	1,031	2,222	4,787
Deer Springs Road												
Unknown road to unknown road, Current GP Buildout	6	30	43889	65	0.5	5.0%	3.0%	84	397	856	1,844	3,973
Unknown road to unknown road, Current GP Buildout + PSR	6	30	46970	65	0.5	5.0%	3.0%	84	416	896	1,930	4,157
Unknown road to unknown road, Current GP Buildout + GPAs	6	30	46970	65	0.5	5.0%	3.0%	84	416	896	1,930	4,157
Unknown road to unknown road, Current GP Buildout + GPAs +	6	30	58028	65	0.5	5.0%	3.0%	85	479	1,031	2,222	4,787
Deer Springs Road												
Unknown road to unknown road, Current GP Buildout	6	30	43857	65	0.5	5.0%	3.0%	83	397	856	1,843	3,972
Unknown road to unknown road, Current GP Buildout + PSR	6	30	46947	65	0.5	5.0%	3.0%	84	416	895	1,929	4,156
Unknown road to unknown road, Current GP Buildout + GPAs	6	30	46947	65	0.5	5.0%	3.0%	84	416	895	1,929	4,156
Unknown road to unknown road, Current GP Buildout + GPAs +	6	30	58019	65	0.5	5.0%	3.0%	85	479	1,031	2,222	4,786
West Lilac Road												
Old Highway 395 to unknown road, Current GP Buildout	2	30	11574	40	0.5	3.0%	2.0%	67	-	72	155	334
Old Highway 395 to unknown road, Current GP Buildout + PSR	2	30	15309	40	0.5	3.0%	2.0%	69	-	87	187	403
Old Highway 395 to unknown road, Current GP Buildout + GPAs	2	30	15591	40	0.5	3.0%	2.0%	69	-	88	189	408
Old Highway 395 to unknown road, Current GP Buildout + GPAs +	2	30	26329	40	0.5	3.0%	2.0%	71	58	125	268	578
West Lilac Road												
Unknown road to Shirley, Current GP Buildout	2	30	11197	40	0.5	3.0%	2.0%	67	-	70	152	327
Unknown road to Shirley, Current GP Buildout + PSR	2	30	14956	40	0.5	3.0%	2.0%	68	-	85	184	396
Unknown road to Shirley, Current GP Buildout + GPAs	2	30	15244	40	0.5	3.0%	2.0%	69	-	87	186	402
Unknown road to Shirley, Current GP Buildout + GPAs + PSR	2	30	26048	40	0.5	3.0%	2.0%	71	57	124	266	574
West Lilac Road												
Shirley to Lilac Road, Current GP Buildout	2	30	11197	40	0.5	3.0%	2.0%	67	-	70	152	327
Shirley to Lilac Road, Current GP Buildout + PSR	2	30	14932	40	0.5	3.0%	2.0%	68	-	85	184	396
Shirley to Lilac Road, Current GP Buildout + GPAs	2	30	15226	40	0.5	3.0%	2.0%	69	-	86	186	401
Shirley to Lilac Road, Current GP Buildout + GPAs + PSR	2	30	16024	40	0.5	3.0%	2.0%	69	-	89	193	415
West Lilac Road												
Lilac Road to unknown road, Current GP Buildout	2	30	8359	40	0.5	3.0%	2.0%	66	-	58	125	269
Lilac Road to unknown road, Current GP Buildout + PSR	2	30	12094	40	0.5	3.0%	2.0%	68	-	74	160	344
Lilac Road to unknown road, Current GP Buildout + GPAs	2	30	12388	40	0.5	3.0%	2.0%	68	-	75	162	350
Lilac Road to unknown road, Current GP Buildout + GPAs + PSR	2	30	13186	40	0.5	3.0%	2.0%	68	-	79	169	365