

Appendix F. Noise Technical Memorandum

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NOISE TECHNICAL MEMORANDUM

To: Adam Finestone, City Planner, City of Escondido
From: Sharon Toland, Senior Technical Specialist, and Kelsey Hawkins, Noise Technical Analyst/
Project Manager
RE: Analysis of Permanent Vehicle Noise Impacts for the East Valley Specific Plan
Date: March 24, 2023
CC: Diane Sandman, Vice President, Environmental + Planning Consulting, Harris & Associates
Att: 1, FHWA Noise Prediction Model Results

Introduction

This memorandum provides the results of Harris & Associates' analysis of the potential vehicle noise impacts from implementation of the East Valley Specific Plan (EVSP or Project) in the City of Escondido (City). The Project is immediately adjacent to and east of downtown. The EVSP is consistent with and implements the vision for the East Valley Target Area as identified in the Escondido General Plan; however, the potential impacts of the land use mix and rezoning were not evaluated at the Specific Plan level in the certified 2012 General Plan Update, Downtown Specific Plan Update, and Climate Action Plan (CAP) Program Environmental Impact Report (PEIR). Therefore, this analysis focuses on the land use and zoning changes in the EVSP.

The EVSP Area (i.e., the 191-acre area in the City covered by the EVSP) is in central Escondido, immediately adjacent to and east of downtown. The EVSP Area is generally bounded by Escondido Creek to the north; Harding Street to the east; East Grand Avenue and East 2nd Avenue to the south; and North Hickory, South Hickory, and North Fig Streets to the west. The EVSP Area is adjacent to a variety of neighborhoods: Downtown Escondido to the west, residential neighborhoods to the north and south, and large commercial shopping centers to the east. The Escondido Transit Center is an approximately 20-minute walk southwest of the EVSP Area, and multiple transit stops exist throughout the EVSP Area.

The goal of the EVSP is to encourage new housing opportunities, improve economic vibrancy, and allow for flexibility in use and implementation as the EVSP Area changes over time. The EVSP rezones the existing 191-acre EVSP Area to cluster uses to create a more cohesive pattern and design with a goal of revitalizing the physical character and economic health of the community. The EVSP presents goals, policies, design standards, and implementation strategies for topics such as land use, mobility, and parks. The EVSP provides guidance for private development and public investment through 2035. The EVSP includes the EVSP Density Transfer Program to enable the City to transfer densities from undeveloped or underutilized properties in the EVSP Area to other properties in the EVSP Area to enable a developing property to increase its density beyond what current zoning would permit.

Noise Analysis Background

The California Department of Transportation defines “noise” as sound that is loud, unpleasant, unexpected, or undesired. Sound pressure levels are quantified using a logarithmic ratio of actual sound pressures to a reference pressure squared, called “bels.” A bel is typically divided into tenths, or decibels (dB). Sound pressure alone is not a reliable indicator of loudness because frequency (or pitch) also affects how receptors respond to sound. To account for the pitch of sounds and the corresponding sensitivity of human hearing to them, the raw sound pressure level is adjusted with a frequency-dependent A-weighting scale that is stated in units of decibels (dBA) (Caltrans 2013).

A receptor’s response to a given noise may vary depending on the sound level, duration of exposure, character of the noise sources, time of day during which the noise is experienced, and activity affected by the noise. Activities most affected by noise include rest, relaxation, recreation, study, and communications. In consideration of these factors, different measures of noise exposure have been developed to quantify the extent of the effects from a variety of noise levels. The community noise equivalent level (CNEL) is the average equivalent A-weighted sound level over a 24-hour period. This measurement applies weights to noise levels during evening and nighttime hours to compensate for the increased disturbance response of people at those times. CNEL is the equivalent sound level for a 24-hour period with a +five dBA weighting applied to sound occurring between 7 p.m. and 10 p.m. and a +10 dBA weighting applied to sound occurring between 10 p.m. and 7 a.m. (City of Escondido 2012a).

The dB 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 typically decreases by approximately six dBA for each doubling of distance from the source. Sound that originates from a linear (or “line”) source, such as vehicular traffic, attenuates by approximately three dBA per doubling of distance. Other contributing factors that affect sound reception include ground absorption, natural topography that provides a natural barrier, meteorological conditions, and the presence of human-made obstacles, such as buildings and sound barriers (Caltrans 2013).

Noise-sensitive land uses include noise receptors (receivers) where an excessive amount of noise interferes with normal activities. The Escondido General Plan Community Protection Element lists residential development, care facilities, schools, churches, transient lodging, hospitals, healthcare facilities, libraries, museums, cultural facilities, golf courses, and passive recreational sites as sensitive receptors. Community noise sources, defined as “common indoor and outdoor noise sources,” are also identified in the Escondido General Plan Community Protection Element. Commercial, general office, and industrial land uses are not considered noise-sensitive land uses. Community noise sources of note include the City’s roadway network (including Interstate 15 and State Route 78), North County Transit District’s SPINTER commuter rail service, two firing ranges, and flight operations to and from McClellan-Palomar Airport and helicopter flights to and from Palomar Medical Center Escondido (City of Escondido 2012a).

Vehicle noise is the main source of ambient noise in the EVSP Area. The noise contours modeled in the certified 2012 General Plan Update, Downtown Specific Plan Update, and CAP PEIR (City of Escondido 2012b) identify noise levels up to 70 dBA CNEL along Valley Parkway in the EVSP Area and noise levels from 60 to 65 dBA CNEL on several EVSP Area roadways, including Washington Avenue, Grand Avenue, Ash Street/San Pasqual Valley Road, Date Street, and Fig Street.

Regulatory Setting

Escondido General Plan

The Escondido General Plan Community Protection Element establishes noise and land use compatibility standards and outlines goals and policies to achieve these standards. New projects in the City are required to meet the noise exposure compatibility guidelines listed in Table 1, Escondido General Plan Community Protection Element Community Noise Exposure Levels (dBA CNEL), to determine the compatibility of land uses when evaluating proposed development projects (Noise Policy 5.1). A land use in an area identified as “normally

acceptable” indicates that standard construction methods attenuate exterior noise to an acceptable indoor noise level and that people could conduct outdoor activities with minimal noise interference. Land uses that fall into the “conditionally acceptable” noise environment include noise insulation features included in the design. Conventional construction, but with closed windows and fresh air supply systems or air conditioning, usually suffice. For land uses where the exterior noise level falls within the “normally unacceptable” range, new construction or development should generally be discouraged. If new construction or development proceeds, a detailed analysis of noise reduction requirements must be made with noise insulation features included in the design. For land uses where the exterior noise levels fall within the “clearly unacceptable” range, new construction generally should not be undertaken.

Following are other Escondido General Plan Community Protection Element policies relevant to ambient vehicle noise:

- **Noise Policy 5.2:** Apply a CNEL of 60 dB or less for single-family uses and 65 dB CNEL or less for multi-family uses as goals where outdoor use is a major consideration (back yards and single-family housing developments, and recreation areas in multi-family housing developments), and recognize that such levels may not necessarily be achievable in all residential areas.
- **Noise Policy 5.3:** Require noise attenuation for outdoor spaces in all developments where projected incremental exterior noise levels exceed those shown in Table 2, Exterior Incremental Noise Impact Standards for Noise-Sensitive Land Uses (dBA).
- **Noise Policy 5.4:** Require noise attenuation for new noise-sensitive receptors, which include residential, daycare facilities, schools, churches, transient lodging, hotels, motels, hospitals, healthcare facilities, and libraries, if the projected interior noise standard of 45 dBA CNEL is exceeded.

Table 1. Escondido General Plan Community Protection Element Community Noise Exposure Levels (dBA CNEL)

Land Use Category	Normally Acceptable	Conditionally Acceptable	Normally Unacceptable	Clearly Unacceptable
Residential – single-family, duplex, mobile home	50–60	60–70	70–75	75–85
Residential – multi-family, residential mixed use	50–65	60–70	70–75	75–85
Transient lodging, motels, hotels	50–65	60–70	70–80	80–85
Schools, libraries, churches, hospitals, nursing homes	50–65	60–70	70–80	80–85
Auditoriums, concert halls, amphitheaters	NA	50–70	65–85	NA
Sports arenas, outdoor spectator sports	NA	50–75	70–85	NA
Playgrounds, parks	50–70	NA	67–75	73–85
Golf courses, riding stables, water recreation, cemeteries	50–75	NA	70–80	80–85
Office buildings, business commercial and professional	50–70	67–73	75–85	NA
Industrial, manufacturing, utilities, agriculture	50–75	70–80	80–85	NA

Source: City of Escondido 2012a.

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel; NA = not applicable

Table 2. Exterior Incremental Noise Impact Standards for Noise-Sensitive Land Uses (dBA)

Residences and Buildings Where People Normally Sleep ¹		Institutional Land Uses with Primarily Daytime and Evening Uses ²	
Existing CNEL	Allowable Noise Increment	Existing Peak-Hour L _{eq}	Allowable Noise Increment
45	8	45	12
50	5	50	9
55	3	55	6
60	2	60	5
65	1	65	3
70	1	70	3
75	0	75	1
80	0	80	0

Source: City of Escondido 2012a.

Notes: CNEL = community noise equivalent level; dBA = A-weighted decibel; L_{eq} = equivalent continuous sound level
Noise levels are measured at the property line of the noise-sensitive land use.

- ¹ This category includes residences, hospitals, and hotels where a nighttime sensitivity to noise is assumed to be of utmost importance.
- ² This category includes schools, libraries, theaters, and churches where it is important to avoid interference with activities such as speech, meditation, and concentration on reading material.

Escondido Municipal Code – Noise Ordinance

The Escondido Noise Ordinance establishes prohibitions for disturbing, excessive, or offensive noise and provisions, such as sound level limits, to secure and promote public health, comfort, safety, peace, and quiet for the City’s residents. The Escondido Noise Ordinance applies to individual noise sources rather than overall ambient noise levels (City of Escondido 2018). The noise standards established in the Escondido General Plan Community Protection Element are the applicable standards for exposure to vehicle noise levels.

Standards of Significance

Implementation of the Project would result in a significant direct impact if it would result in an increase in vehicle noise levels that would exceed the incremental noise impact standards listed in Table 2 compared to noise levels without project implementation, or result in the development of new sensitive receptors in areas exposed to noise levels in excess of the compatibility standards listed in Table 1. A significant cumulative impact will occur related to vehicle noise if cumulative growth results in future noise levels that exceed the noise impact standards listed in Table 2 compared to existing conditions. The Project will result in a cumulatively considerable contribution if the Project’s contribution exceeds the allowable noise increment.

Impact Analysis

The following analysis includes an analysis of increases in vehicle noise that may result from project implementation and the potential for new sensitive receptors to be exposed to incompatible noise levels.

Permanent Increase in Vehicle Noise

The potential for implementation of the Project to permanently increase ambient noise levels as a result of increased traffic was assessed using standard noise modeling equations adapted from the Federal Highway Administration Noise Prediction Model (Attachment 1, FHWA Noise Prediction Model Results). The modeling calculations take into account the posted vehicle speed, median width, average daily trip volume, and estimated vehicle mix. Traffic volumes and roadway characteristics with buildout of the Project were obtained from Linscott, Law & Greenspan, Engineers (LLG) (2023), and modeling conducted for the Escondido General Plan (City of Escondido 2012b). Noise levels were calculated at 50 feet from the centerline of each roadway segment. Generally, noise from heavily traveled roadways experience a decrease of approximately three dBA for every

doubling of distance. The actual sound level at any receptor location depends on such factors as the source-to-receptor distance and the presence of intervening structures, barriers, vegetation, and topography; therefore, the result of the calculations is the worst-case scenario.

The 12 traffic analysis study area segments that will experience the greatest increase in vehicle trips as a result of project implementation (increase of 3,700 average daily trips or more) are modeled to represent the potential changes in traffic noise conditions. Buildout of the land uses accommodated by the Project will occur over a 15-year period, during which regional growth and development elsewhere in the City will occur. Therefore, consistent with the traffic analysis, the significance of project direct impacts on ambient noise levels is evaluated based on a comparison of future (2035) noise levels with and without project implementation. Although the Project will implement planned growth, growth under the EVSP is considered separately from this regional growth for the traffic impact analysis to identify Specific Plan-level impacts. The analysis also assumes implementation of the roadway classifications in the Escondido General Plan Mobility and Infrastructure Element with or without project implementation. However, the Transportation Analysis states that roadway upgrades may not be necessary for all segments. Therefore, the Transportation Analysis also includes an analysis of roadway conditions assuming existing segment build. Traffic volumes will be the same under each scenario, but the existing roadway builds will result in slightly lower noise levels under future conditions compared to the upgraded classifications due to smaller roadway footprints and reduced speed limits. Therefore, the following analysis that assumes roadways will be improved to Escondido General Plan Mobility and Infrastructure Element classifications represents the worst-case scenario.

Table 3, Future (Year 2035) Traffic Noise Levels With and Without Project Implementation, provides existing noise levels and future increases in traffic with implementation of the Project from the 12 traffic analysis study area segments. Table 4, Cumulative Vehicle Noise Impacts, evaluates the cumulative impact of project buildout and regional development compared to existing conditions. As shown in Table 3, implementation of the Project would result in a direct noise impact to two segments of Valley Parkway and one segment of Date Street. As shown in Table 4, regional growth will result in cumulative noise impacts to segments of Mission Avenue, Valley Parkway North Hickory Street, Fig Street, Date Street, and San Pasqual Valley Road. Implementation of the Project would result in a cumulatively considerable contribution to the cumulative noise on the segments of Valley Parkway from Fig Street to Date Street and Date Street from Valley Parkway to Grand Avenue.

Implementation of the Project would result in permanent increases in noise level in the traffic analysis study area, including direct and cumulative impacts from implementation on Valley Parkway and Date Street. Future development would be required under Escondido General Plan Community Protection Element Noise Policies 5.3 and 5.6 to evaluate potential project impacts to ambient noise levels and to implement noise attenuation to the extent feasible. As evaluated below, future noise levels with project implementation would generally be within the conditionally acceptable noise compatibility range for sensitive land uses (as identified in Table 1) that can be attenuated with standard building construction. However, consistent with the findings of the certified 2012 General Plan Update, Downtown Specific Plan Update, and CAP PEIR, development associated with the Project would still contribute to future regional noise increases associated with roadway traffic. It is anticipated that Escondido General Plan standards and policies will not be sufficient to reduce impacts to a less than significant level because project-level attenuation, such as noise barriers, window or other building upgrades, or changes to roadway design or speed, may not be available in all cases. Implementation of Escondido General Plan policies will reduce impacts related to permanent increases in noise level but not to a less than significant level. Therefore, implementation of the Project would result in direct impacts related to permanent increases in vehicle noise in the EVSP Area.

Table 3. Future (Year 2035) Traffic Noise Levels With and Without Project Implementation

Roadway	Segment	Future Noise Level (dBA CNEL)	Allowable Increase (dBA CNEL)	Future + Project (dBA CNEL)	Increase in Noise Level	Significant Impact?
Mission Avenue	Broadway to North Hickory Street	71	1	72	+1	No
Valley Parkway	Hickory Street to Fig Street	67	1	69	+2	Yes
	Fig Street to Date Street	68	1	70	+2	Yes
	Date Street to Ash Street	69	1	70	+1	No
North Hickory Street	Washington Avenue to Valley Parkway	61	2	62	+1	No
Fig Street	Mission Avenue to Washington Avenue	64	2	66	+2	No
	Washington Avenue to Valley Parkway	63	2	65	+2	No
Date Street	Valley Parkway to Grand Avenue	61	2	65	+4	Yes
	Grand Avenue to East 2nd Avenue	66	1	67	+1	No
Ash Street	Mission Avenue to Washington Avenue	68	1	69	+1	No
	Washington Avenue to Valley Parkway	69	1	70	+1	No
San Pasqual Valley Road	Grand Avenue to East 2nd Avenue	71	1	71	+0	No

Source: See Attachment 1.

Notes: dBA = A-weighted decibel; CNEL = community noise equivalent level



Table 4. Cumulative Vehicle Noise Impacts

Roadway	Segment	Existing Noise Level	Allowable Increase (dBA CNEL)	Future + Project Noise Level (dBA CNEL)	Increase in Noise Level From Existing	Cumulative Impact?	EVSP Contribution	Cumulatively Considerable?
Mission Avenue	Broadway to North Hickory Street	70	1	72	+2	Yes	+1	No
Valley Parkway	Hickory Street to Fig Street	69	1	69	0	No	0	No
	Fig Street to Date Street	68	1	70	+2	Yes	+2	Yes
	Date Street to Ash Street	69	1	70	+1	No	+1	No
North Hickory Street	Washington Avenue to Valley Parkway	58	3	62	+4	Yes	+1	No
Fig Street	Mission Avenue to Washington Avenue	59	3	66	+7	Yes	+2	No
	Washington Avenue to Valley Parkway	60	2	65	+5	Yes	+2	No
Date Street	Valley Parkway to Grand Avenue	58	3	65	+7	Yes	+4	Yes
	Grand Avenue to East 2nd Avenue	64	1	67	+3	Yes	+1	No
Ash Street	Mission Avenue to Washington Avenue	68	1	69	+1	No	+1	No
	Washington Avenue to Valley Parkway	69	1	70	+1	No	+1	No
San Pasqual Valley Road	Grand Avenue to East 2nd Avenue	69	1	71	+2	Yes	+0	No

Source: See Attachment 1.

Notes: dBA = A-weighted decibel; CNEL = community noise equivalent level

Noise Incompatibilities with New Sensitive Receptors

In addition to the potential to increase vehicle noise as a result of future development, implementation of the Project would have the potential to result in the placement of new sensitive receptors in areas that will be exposed to vehicle noise levels in excess of the City’s noise and land use compatibility standards. Development under the EVSP will increase residential density along the traffic analysis study area segments. As shown in Table 3, vehicle noise will generally be within the conditionally acceptable noise level range of 60 to 70 dBA CNEL at 50 feet from roadway centerlines under existing and future conditions, with two exceptions: Mission Avenue and San Pasqual Valley Road. Therefore, conventional construction, such as wall, insulation, and window design consistent with current building codes, will generally be sufficient to reduce noise exposure to an acceptable level. The portion of Mission Avenue that will exceed 70 dBA CNEL under future conditions is not in the EVSP Area, and the Project will not increase sensitive receptor density on this segment. The segment of San Pasqual Valley Road from Grand Avenue to East 2nd Avenue is partially in the EVSP Area. However, this area is currently developed with residential uses and includes a Park Overlay Zone that will likely decrease residential density adjacent to this roadway segment. Additionally, development proposed under the EVSP will comply with Escondido General Plan Community Protection Element Noise Policies 5.1 and 5.4, provided above in Regulatory Setting, which require proposed new sensitive receptors to include a project site-specific evaluation of potential noise exposure and installation of noise attenuation if the new receptors will be in an area where interior noise levels may exceed 45 dBA CNEL. Escondido General Plan Community Protection Element Noise Policy 5.7 recommends that the noise reduction strategies identified in Table 5, Escondido General Plan Community Protection Element Noise Reduction Strategies, be applied to future development of noise-sensitive receptors. Consistent with the findings of the certified 2012 General Plan Update, Downtown Specific Plan Update, and CAP PEIR, future development projects in the EVSP Area would be required to demonstrate that appropriate noise attenuation has been incorporated into project design to achieve noise compatibility. Therefore, implementation of the Project would not result in a significant impact related to exposure of new sensitive receptors to ambient noise levels in excess of the City’s noise and land use compatibility standards due to existing Escondido General Plan requirements and the likelihood of conventional construction to reduce impacts to a compatible level. This impact is less than significant.

Table 5. Escondido General Plan Community Protection Element Noise Reduction Strategies

Category	Strategies ¹
Site planning responsive to topography	<ul style="list-style-type: none"> • Increase distances between noise sources and receivers • Place non-noise-sensitive uses, such as utility areas, parking lots, and maintenance facilities, between the noise source and the receiver • Use non-noise-sensitive structures, such as garages, to shield noise-sensitive areas • Orient buildings to shield outdoor spaces from a noise source
Architecture responsive to noise-sensitive spaces	<ul style="list-style-type: none"> • Orient bedrooms away from noise sources • Limit openings and penetrations on portions of buildings impacted by noise
Barriers responsive to reduce noise levels	<ul style="list-style-type: none"> • Ensure that line of sight is interrupted between the noise source and receptor when constructing noise walls • Apply noise insulation to walls, roofs, doors, windows, and other penetrations

Source: City of Escondido 2012a.

Notes:

¹ The strategies provide suggestions for attenuation that may be incorporated into Project to the extent required to achieve an interior noise level of 45 dBA CNEL. Individual strategies are not required to be implemented. For example, placing non-noise-sensitive uses between noise source and receivers will generally conflict with EVSP policies that prioritize building entrances along sidewalks. Therefore, this strategy will generally not be selected, and other available strategies will be used to achieve required noise reductions.

Mitigation Measures

Implementation of the Project would not result in a significant impact related to construction of new sensitive receptors that may be exposed to incompatible noise levels because existing Escondido General Plan requirements and conventional construction reduce impacts to a compatible level. No mitigation measures are required for this potential impact.

However, under the worst-case scenario, implementation of the Project would result in a direct noise impact to one segment of Valley Parkway (Hickory Street to Fig Street) and direct and cumulative impacts to an additional segment of Valley Parkway (Fig Street to Date Street) and one segment of Date Street (Valley Parkway to Grand Avenue). The certified 2012 General Plan Update, Downtown Specific Plan Update, and CAP PEIR considered mitigation measures that fully reduce impacts to below a level of significance, including construction of noise barriers and implementation of a Citywide moratorium on building permits for projects that result in a potentially significant increase in regional roadway noise for which no feasible mitigation is available. However, the City determined that these measures are infeasible. Noise barriers potentially require installation of noise walls in private property, in a designated right-of-way, or otherwise outside of the City's jurisdiction, which may not be allowed by a property owner or the jurisdiction in which the sound barrier would be located. The feasibility of noise walls is also restricted by access requirements for driveways, presences of local cross streets, underground utilities, other noise sources in the area, and safety considerations. Finally, construction of a noise barrier potentially walls off existing neighborhoods or individual residences from the surrounding community, which could result in adverse impacts to aesthetics, land use, and public safety. For example, the impacted segments of Valley Parkway and Date Street include existing driveways and cross streets on both sides of the roadways that reduce wall effectiveness. Additionally, walls on these segments block existing residential and commercial entrances from street view, which are a potential aesthetic and public safety impact by reducing visibility and accessibility. A building permit moratorium impedes the City's ability to implement the EVSP because it prohibits future development in areas identified for increased growth in the EVSP Area under the Escondido General Plan. This mitigation measure conflicts with the Escondido General Plan and the City's ability to meet the housing needs of existing and future residents.

Therefore, for the reasons listed above, these mitigation measures are infeasible for the Project. As determined by the certified 2012 General Plan Update, Downtown Specific Plan Update, and CAP PEIR, no feasible mitigation measures are available for impacts related to increases in roadway noise as a result of anticipated growth. Therefore, impacts from the Project related to increases in ambient noise level are significant and unavoidable.

Summary

Implementation of the Project would have the potential to contribute to direct and cumulative permanent increases in vehicle noise in the EVSP Area. Feasible mitigation measures are not available to reduce this impact to a less than significant level, and direct and cumulative impacts are significant and unavoidable.

New sensitive receptors accommodated by the EVSP have the potential to be exposed to noise levels in excess of normally compatible noise standards. However, the Escondido General Plan Community Protection Element includes requirements for project-specific noise evaluations and implementation of noise attenuation to reduce noise exposure to existing and new receptors to compatible noise levels. Compliance with Escondido General Plan Community Protection Element requirements ensures impacts related to exposure to vehicle noise are less than significant and do not require mitigation.

References

- Caltrans (California Department of Transportation). 2013. Technical Noise Supplement to the Traffic Noise Analysis Protocol. September.
- City of Escondido. 2012a. "Chapter VI: Community Protection." In the Escondido General Plan. Adopted May 23. Accessed March 2023. <https://www.escondido.org/Data/Sites/1/media/PDFs/Planning/GPUpdate/GeneralPlanChapterVI.pdf>.
- City of Escondido. 2012b. Environmental Impact Report for the Escondido General Plan Update, Downtown Specific Plan Update, and Climate Action Plan. Final. Vol. 1. PHG 09-0020, PHG 10-0016, SCH No. 2010071064. Prepared by Atkins. April 23. Accessed March 2023. <https://www.escondido.org/Volume-I-Draft-EIR.aspx>.
- City of Escondido. 2021. Escondido Municipal Code. September.
- LLG (Linscott, Law & Greenspan, Engineers). 2023. Transportation Analysis for East Valley Specific Plan.

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Attachment 1. FHWA Noise Prediction Model Results

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TRAFFIC NOISE LEVELS AND NOISE CONTOURS

Project Number:
Project Name: Escondido EVSP/Housing Element

Background Information

Model Description: FHWA Highway Noise Prediction Model (FHWA-RD-77-108) with California Vehicle Noise (CALVENO) Emission Levels.
 Source of Traffic Volumes: Linscott, Law, and Greenspan, December 2022
 Community Noise Descriptor: L_{dn}: _____ CNEL: X

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%

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

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	65 CNEL	60 CNEL	55 CNEL
Mission Avenue												
Broadway to Hickory St, existing	4	10	23,500	40	0.5	2.0%	2.0%	70.2	52	111	240	517
Broadway to Hickory St, existing + project	4	10	28,240	40	0.5	2.0%	2.0%	71.0	58	126	271	585
Broadway to Hickory St, future	4	10	28,800	40	0.5	2.0%	2.0%	71.1	59	128	275	592
Broadway to Hickory St, future + project	4	10	33,540	40	0.5	2.0%	2.0%	71.8	66	141	304	656
Valley Parkway												
Hickory Street to Fig Street, existing	4	0	23,680	35	0.5	2.0%	2.0%	68.8	-	90	193	416
Hickory Street to Fig Street, existing + project	4	0	31,760	35	0.5	3.0%	2.0%	70.4	54	115	249	536
Hickory Street to Fig Street, future	4	0	15,700	35	0.5	3.0%	2.0%	67.4	-	72	155	335
Hickory Street to Fig Street, future + project	4	0	23,780	35	0.5	3.0%	2.0%	69.2	44	95	205	442
Valley Parkway												
Fig Street to Date Street, existing	4	10	19,600	35	0.5	2.0%	2.0%	68.3	-	83	179	385
Fig Street to Date Street, existing + project	4	10	28,230	35	0.5	3.0%	2.0%	70.3	52	112	241	520
Fig Street to Date Street, future	4	10	16,200	35	0.5	3.0%	2.0%	67.8	-	77	167	359
Fig Street to Date Street, future + project	4	10	24,830	35	0.5	3.0%	2.0%	69.7	-	103	222	478
Valley Parkway												
Date Street to Ash Street, existing	4	10	25,360	35	0.5	2.0%	2.0%	69.4	-	99	212	458
Date Street to Ash Street, existing + project	4	10	34,400	35	0.5	3.0%	2.0%	71.1	59	128	276	594
Date Street to Ash Street, future	4	10	19,900	35	0.5	3.0%	2.0%	68.7	-	89	191	412
Date Street to Ash Street, future + project	4	10	28,940	35	0.5	3.0%	2.0%	70.4	53	114	246	529
Hickory Street												
Washington Avenue to Valley Parkway, existing	2	0	4,810	25	0.5	2.0%	1.0%	58.2	-	-	38	81
Washington Avenue to Valley Parkway, existing + project	2	0	8,510	25	0.5	2.0%	1.0%	60.6	-	-	55	119
Washington Avenue to Valley Parkway, future	2	0	8,800	25	0.5	2.0%	1.0%	60.8	-	-	56	122
Washington Avenue to Valley Parkway, future + project	2	0	12,500	25	0.5	2.0%	1.0%	62.3	-	33	71	154
Fig Street												
Mission Ave to Washington Ave, existing	2	0	5,200	25	0.5	2.0%	1.0%	58.5	-	-	40	86
Mission Ave to Washington Ave, existing + project	4	0	9,680	35	0.5	2.0%	2.0%	64.9	-	49	106	229
Mission Ave to Washington Ave, future	4	0	7,600	35	0.5	2.0%	2.0%	63.9	-	-	91	195
Mission Ave to Washington Ave, future + project	4	0	12,080	35	0.5	2.0%	2.0%	65.9	-	57	123	266
Fig Street												
Washington Ave to Valley Parkway, existing	2	0	7,950	25	0.5	2.0%	1.0%	60.3	-	-	53	114
Washington Ave to Valley Parkway, existing + project	4	0	13,160	30	0.5	2.0%	2.0%	65.8	-	57	122	263
Washington Ave to Valley Parkway, future	4	0	6,300	30	0.5	2.0%	2.0%	62.6	-	-	75	161
Washington Ave to Valley Parkway, future + project	4	0	11,510	30	0.5	2.0%	2.0%	65.2	-	52	112	241
Date Street												
Valley Parkway to Grand Ave, existing	2	0	3,570	30	0.5	2.0%	1.0%	58.3	-	-	39	83
Valley Parkway to Grand Ave, existing + project	4	0	8,640	35	0.5	2.0%	2.0%	64.4	-	46	99	212
Valley Parkway to Grand Ave, future	4	0	3,800	35	0.5	2.0%	2.0%	60.9	-	-	57	123
Valley Parkway to Grand Ave, future + project	4	0	8,870	35	0.5	2.0%	2.0%	64.5	-	47	100	216
Date Street												
Grand Ave to 2nd Ave, existing	2	0	9,800	30	0.5	2.0%	2.0%	64.1	-	44	94	203
Grand Ave to 2nd Ave, existing + project	4	0	14,320	35	0.5	2.0%	2.0%	66.6	-	64	138	298
Grand Ave to 2nd Ave, future	4	0	11,400	35	0.5	2.0%	2.0%	65.6	-	55	119	256
Grand Ave to 2nd Ave, future + project	4	0	15,920	35	0.5	2.0%	2.0%	67.1	-	69	148	319
Ash Street												
Mission Ave to Washington Ave, existing	4	0	20,660	35	0.5	2.0%	2.0%	68.2	-	82	176	380
Mission Ave to Washington Ave, existing + project	4	0	24,360	35	0.5	3.0%	2.0%	69.3	45	97	208	449
Mission Ave to Washington Ave, future	4	0	19,700	35	0.5	3.0%	2.0%	68.4	-	84	181	390
Mission Ave to Washington Ave, future + project	4	0	23,400	35	0.5	3.0%	2.0%	69.1	-	94	203	437
Ash Street												
Washington Ave to Valley Pkwy, existing	4	10	21,980	35	0.5	2.0%	2.0%	68.8	-	90	193	416
Washington Ave to Valley Pkwy, existing + project	4	10	26,360	35	0.5	3.0%	2.0%	70.0	50	107	231	497
Washington Ave to Valley Pkwy, future	4	10	21,000	35	0.5	3.0%	2.0%	69.0	-	92	198	427
Washington Ave to Valley Pkwy, future + project	4	10	25,380	35	0.5	3.0%	2.0%	69.8	-	104	225	485
San Pasqual Valley Road												
Grand Ave to 2nd Ave, existing	4	10	23,400	35	0.5	2.0%	2.0%	69.1	-	93	201	434
Grand Ave to 2nd Ave, existing + project	4	10	27,100	35	0.5	3.0%	2.0%	70.1	51	109	235	506
Grand Ave to 2nd Ave, future	4	10	29,900	35	0.5	3.0%	2.0%	70.5	54	116	251	541
Grand Ave to 2nd Ave, future + project	4	10	33,600	35	0.5	3.0%	2.0%	71.0	58	126	271	584

