May 27, 2022

Ms. Tracy Zinn
T&B Planning Inc.
3200 El Camino Real, Suite 100
Irvine, CA 92602

SUBJECT: SIERRA BUSINESS CENTER (COMPRISED OF THE SIERRA INDUSTRIAL FACILITY [SHEA PROJECT] & NORTH FONTANA INDUSTRIAL COMPLEX [ACACIA PROJECT]) NOISE ASSESSMENT

Dear Ms. Tracy Zinn:

Urban Crossroads, Inc. is pleased to provide the following Noise Assessment for the Sierra Business Center development (referred to as "Project") located east of Sierra Avenue and south of Duncan Canyon Road in the City of Fontana. The Project includes two separate and independent but adjacent projects: the Sierra Industrial Facility (Shea Project) and the North Fontana Industrial Complex (Acacia Project). The purpose of this Noise Assessment is to describe the cumulative off-site traffic noise level increases, as well as the operational and construction noise impacts both the Acacia and Shea projects since they are adjacent to one another and are expected to be entitled and constructed on similar timeframes.

The Shea Project provides for the development of an approximately 11.1-acre site with a single commerce center building with a maximum of 199,999 sf, including up to 19,900 sf of office space. The structure would be supported by a screened truck yard and trailer storage area along the south side of the structure, vehicular parking areas, drive aisles, and landscaping. The typical height of the building is designed to reach 41.0 feet above finished floor elevation; however, the building would have a varied roofline and the maximum height (including parapets) would extend to 46.0 feet above finished floor elevation. The building would be constructed of tilt-up panels and low-reflective, blue glass. The Shea Project would require a General Plan Amendment and a Zone change, revising the General Plan designation from Multi-Family High Density Residential (R-MFH) to Light Industrial (I-L) and the zoning designation from Multi-Family High Density Residential (R-5) to Light Industrial (M-1).

The Acacia Project provides for the development of an approximately 19.0-acre site with two commerce center buildings with a total maximum of 385,043 square feet (sf). Building 1 would consist of 296,297 sf and Building 2 would consist of 88,746 sf. The structures would be supported by a screened truck yard and trailer storage area along the south side of Building 1 and the west side of Building 2, vehicular parking areas, drive aisles, and landscaping. The typical heights of both Building 1 and Building 2 are designed to reach 40 feet 6 inches above finished floor elevation; however, the buildings would have a varied roofline and the maximum height (including parapets) would extend to 45 feet 6 inches above finished floor elevation. Both buildings would be constructed of tilt-up panels and low-reflective, blue glass. The Acacia Project would require a General Plan Amendment and a

Zone change, revising the General Plan designation from Multi-Family High Density Residential (R-MFH) and General Commercial (C-G) to Light Industrial (I-L) and the zoning designation from Multi-Family High Density Residential (R-5) and General Commercial (C-2) to Light Industrial (M-1).

OFF-SITE TRAFFIC NOISE METHODS AND PROCEDURES

The following section outlines the methods and procedures used to estimate and analyze the future traffic noise environment needed to describe the off-site Project-related traffic noise level increases.

FHWA TRAFFIC NOISE PREDICTION MODEL

The expected roadway noise level increases from vehicular traffic were calculated by Urban Crossroads, Inc. using a computer program that replicates the Federal Highway Administration (FHWA) Traffic Noise Prediction Model- FHWA-RD-77-108. (1) The FHWA Model arrives at a predicted noise level through a series of adjustments to the Reference Energy Mean Emission Level (REMEL). In California the national REMELs are substituted with the California Vehicle Noise (Calveno) Emission Levels. (2) Adjustments are then made to the REMEL to account for: the roadway classification (e.g., collector, secondary, major or arterial), the roadway active width (i.e., the distance between the center of the outermost travel lanes on each side of the roadway), the total average daily traffic (ADT), the travel speed, the percentages of automobiles, medium trucks, and heavy trucks in the traffic volume, the roadway grade, the angle of view (e.g., whether the roadway view is blocked), the site conditions ("hard" or "soft" relates to the absorption of the ground, pavement, or landscaping), and the percentage of total ADT which flows each hour throughout a 24-hour period. Research conducted by Caltrans has shown that the use of soft site conditions is appropriate for the application of the FHWA traffic noise prediction model used in this analysis. (3)

OFF-SITE TRAFFIC NOISE PREDICTION MODEL INPUTS

Table 1 presents the roadway parameters used to assess the Project-related off-site traffic noise level increases. Table 1 identifies the six off-site study area roadway segments, the distance from the centerline to adjacent land use based on the functional roadway classifications per the City of Fontana General Plan, and the posted vehicle speeds. The without project ADT volumes used in this study area presented on Table 2 are based on *North Fontana Industrial Complex (Acacia) Traffic Study by Urban Crossroads, Inc.* for the following traffic scenarios. (4)

1. Existing (2021)
2. Existing (2021) plus Project (E+P)
3. Existing plus Ambient Growth without Project (EA)
4. Existing plus Ambient Growth with Project (EAP) (Acacia + Shea Sites)
5. Opening Year Cumulative (2024) without Project (OYC)
6. Opening Year Cumulative (2024) with Project (OYCP)

The ADT volumes vary for each roadway segment based on the existing traffic volumes and the combination of (Acacia + Shea Sites) Project trip generation. This analysis relies on a comparative evaluation of the off-site traffic noise impacts at the boundary of the right-of-way of the receiving adjacent land use, without and with project ADT traffic volumes.

TABLE 1: OFF-SITE ROADWAY PARAMETERS

ID	Roadway	Segment	Classification[1]	Receiving Land Use[2]	Distance from Centerline to Receiving Land Use (Feet)[3]	Vehicle Speed (mph)
1	Sierra Av.	n/o Riverside Av.	Major Highway	Non-Sensitive	66'	55
2	Sierra Av.	n/o Terra Vista Dr.	Major Highway	Sensitive	66'	55
3	Sierra Av.	n/o Duncan Canyon Rd.	Major Highway	Sensitive	66'	55
4	Sierra Av.	s/o Dwy. 2	Major Highway	Sensitive	66'	55
5	Riverside Av.	e/o Sierra Av.	Major Highway	Sensitive	66'	55
6	Duncan Canyon Rd.	e/o Sierra Av.	Collector Street	Sensitive	34'	45

[1] North Fontana Industrial Complex (Acacia) Traffic Study, Urban Crossroads, Inc.
[2] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[3] Distance to receiving land use is based upon the right-of-way distances.

To quantify the off-site noise levels, the Project related truck trips were added to the heavy truck category in the FHWA noise prediction model. The addition of the Project related truck trips increases the percentage of heavy trucks in the vehicle mix. This approach recognizes that the FHWA noise prediction model is significantly influenced by the number of heavy trucks in the vehicle mix.

TABLE 2: AVERAGE DAILY TRAFFIC VOLUMES

ID	Roadway	Segment	Average Daily Traffic Volumes[1]					
			Existing (2021)		Existing plus Ambient		Opening Year (2024)	
			Without Project	With Project	Without Project	With Project	Without Project	With Project
1	Sierra Av.	n/o Riverside Av.	25,275	25,681	26,898	27,304	29,996	30,402
2	Sierra Av.	n/o Terra Vista Dr.	12,442	12,894	13,280	13,731	17,355	17,806
3	Sierra Av.	n/o Duncan Canyon Rd.	15,184	15,635	16,189	16,640	20,263	20,714
4	Sierra Av.	s/o Dwy. 2	15,538	16,169	16,871	17,502	21,600	22,231
5	Riverside Av.	e/o Sierra Av.	13,423	13,468	14,245	14,289	15,221	15,265
6	Duncan Canyon Rd.	e/o Sierra Av.	425	829	451	855	451	855

[1] North Fontana Industrial Complex (Acacia) Traffic Study, Urban Crossroads, Inc.

Table 3 provides the time of day (daytime, evening, and nighttime) vehicle splits. Table 4 shows the traffic flow by vehicle type (vehicle mix) used for all without Project traffic scenarios, and Tables 5 to 7 show the vehicle mixes used for the with Project (Acacia + Shea Sites) traffic scenarios. Due to the added Project truck trips, the increase in Project traffic volumes and the distributions of trucks on the study area road segments, the percentage of autos, medium trucks and heavy trucks will vary for each of the traffic scenarios. This explains why the existing and future traffic volumes and vehicle mixes vary between seemingly identical study area roadway segments.

TABLE 3: TIME OF DAY VEHICLE SPLITS

Vehicle Type	Time of Day Splits[1]			Total of Time of Day Splits
	Daytime	Evening	Nighttime	
Autos	77.50%	12.90%	9.60%	100.00%
Medium Trucks	84.80%	4.90%	10.30%	100.00%
Heavy Trucks	86.50%	2.70%	10.80%	100.00%

[1] Typical Southern California vehicle mix. Values rounded to the nearest one-hundredth.
"Daytime" = 7:00 a.m. to 7:00 p.m.; "Evening" = 7:00 p.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

TABLE 4: WITHOUT PROJECT VEHICLE MIX

Classification	Total % Traffic Flow			Total
	Autos	Medium Trucks	Heavy Trucks	
All Segments	89.82%	3.92%	6.27%	100.00%

Based on an existing vehicle count taken at Sierra Avenue and Riverside Avenue (North Fontana Industrial Complex (Acacia) Traffic Study, Urban Crossroads, Inc.). Vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 5: EXISTING WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Sierra Av.	n/o Riverside Av.	93.21%	3.80%	2.99%	100.00%
2	Sierra Av.	n/o Terra Vista Dr.	92.98%	3.81%	3.21%	100.00%
3	Sierra Av.	n/o Duncan Canyon Rd.	93.06%	3.81%	3.13%	100.00%
4	Sierra Av.	s/o Dwy. 2	93.15%	3.76%	3.09%	100.00%
5	Riverside Av.	e/o Sierra Av.	93.49%	3.77%	2.74%	100.00%
6	Duncan Canyon Rd.	e/o Sierra Av.	96.65%	1.94%	1.41%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 6: EXISTING PLUS AMBIENT WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Sierra Av.	n/o Riverside Av.	93.23%	3.80%	2.97%	100.00%
2	Sierra Av.	n/o Terra Vista Dr.	93.01%	3.81%	3.18%	100.00%
3	Sierra Av.	n/o Duncan Canyon Rd.	93.09%	3.80%	3.11%	100.00%
4	Sierra Av.	s/o Dwy. 2	93.17%	3.76%	3.06%	100.00%
5	Riverside Av.	e/o Sierra Av.	93.49%	3.77%	2.74%	100.00%
6	Duncan Canyon Rd.	e/o Sierra Av.	96.55%	2.00%	1.45%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

TABLE 7: OPENING YEAR CUMULATIVE 2024 WITH PROJECT VEHICLE MIX

ID	Roadway	Segment	With Project[1]			
			Autos	Medium Trucks	Heavy Trucks	Total[2]
1	Sierra Av.	n/o Riverside Av.	93.25%	3.80%	2.95%	100.00%
2	Sierra Av.	n/o Terra Vista Dr.	93.11%	3.80%	3.09%	100.00%
3	Sierra Av.	n/o Duncan Canyon Rd.	93.16%	3.80%	3.04%	100.00%
4	Sierra Av.	s/o Dwy. 2	93.24%	3.77%	3.00%	100.00%
5	Riverside Av.	e/o Sierra Av.	93.49%	3.77%	2.74%	100.00%
6	Duncan Canyon Rd.	e/o Sierra Av.	96.55%	2.00%	1.45%	100.00%

[1] Total of vehicle mix percentage values rounded to the nearest one-hundredth.

OFF-SITE TRAFFIC NOISE ANALYSIS

To assess the off-site traffic CNEL noise level impacts associated with the Project, noise contours were developed based on an estimate of without and with (Acacia + Shea Sites) Project traffic volumes. Noise contours were used to assess the Project's incremental 24-hour dBA CNEL traffic-related noise impacts at land uses adjacent to roadways conveying Project traffic. Noise contour boundaries represent the equal levels of noise exposure and are measured in CNEL from the center of the roadway. The noise contours represent the distance to noise levels of a constant value and are measured from the center of the roadway for the 70, 65, and 60 dBA CNEL noise levels. The noise contours do not consider the effect of any existing noise barriers or topography that may attenuate ambient noise levels. In addition, because the noise contours reflect modeling of vehicular noise on area roadways, they appropriately do not reflect noise contributions from the surrounding stationary noise sources within the Project study area. Tables 8 through 13 present a summary of the exterior

dBA CNEL traffic noise levels without barrier attenuation. Appendix A includes a summary of the dBA CNEL traffic noise level contours for each of the traffic scenarios.

TABLE 8: EXISTING WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	76.5	178	383	826
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	73.4	111	239	515
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	74.2	127	273	588
4	Sierra Av.	s/o Dwy. 2	Sensitive	74.3	129	277	597
5	Riverside Av.	e/o Sierra Av.	Sensitive	73.7	117	251	542
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	59.3	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 9: EXISTING WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	76.7	183	393	847
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	73.8	117	252	542
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	74.6	132	285	614
4	Sierra Av.	s/o Dwy. 2	Sensitive	74.7	134	289	624
5	Riverside Av.	e/o Sierra Av.	Sensitive	73.7	117	252	542
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	60.5	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 10: EA WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	76.7	185	400	861
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	73.7	116	250	538
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	74.5	132	285	614
4	Sierra Av.	s/o Dwy. 2	Sensitive	74.7	136	293	631
5	Riverside Av.	e/o Sierra Av.	Sensitive	74.0	121	262	564
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	59.6	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 11: EA WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	76.9	190	409	882
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	74.1	122	262	565
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	74.9	138	296	639
4	Sierra Av.	s/o Dwy. 2	Sensitive	75.1	141	305	657
5	Riverside Av.	e/o Sierra Av.	Sensitive	74.0	121	262	564
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	60.7	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 12: OYC 2024 WITHOUT PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	77.2	199	430	926
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	74.8	138	298	643
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	75.5	154	331	713
4	Sierra Av.	s/o Dwy. 2	Sensitive	75.8	160	345	744
5	Riverside Av.	e/o Sierra Av.	Sensitive	74.3	127	273	589
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	59.6	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

TABLE 13: OYC 2024 WITH PROJECT CONTOURS

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]	Distance to Contour from Centerline (Feet)		
					70 dBA CNEL	65 dBA CNEL	60 dBA CNEL
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	77.4	204	439	946
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	75.2	144	310	667
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	75.8	159	342	736
4	Sierra Av.	s/o Dwy. 2	Sensitive	76.1	165	356	768
5	Riverside Av.	e/o Sierra Av.	Sensitive	74.3	127	274	589
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	60.7	RW	RW	RW

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of the receiving adjacent land use.
"RW" = Location of the respective noise contour falls within the right-of-way of the road.

OFF-SITE TRAFFIC NOISE LEVEL INCREASES

Noise level increases resulting from the Project are evaluated based on the Appendix G CEQA Guidelines. Under CEQA, consideration must be given to the magnitude of the increase, the existing baseline ambient noise levels, and the location of receivers to determine if a noise increase represents a significant adverse environmental impact. This approach recognizes *that there is no single noise increase that renders the noise impact significant.* (5) This is primarily because of the wide variation in individual thresholds of annoyance and differing individual experiences with noise. Thus, an important

way of determining a person's subjective reaction to a new noise is the comparison of it to the existing environment to which one has adapted—the so-called *ambient* environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will typically be judged. The Federal Interagency Committee on Noise (FICON) (6) developed guidance to be used for the assessment of project-generated increases in noise levels that consider the ambient noise level. The FICON recommendations are based on studies that relate aircraft noise levels to the percentage of persons highly annoyed by aircraft noise. Although the FICON recommendations were specifically developed to assess aircraft noise impacts, these recommendations are often used in environmental noise impact assessments involving the use of cumulative noise exposure metrics, such as the average-daily noise level (CNEL) and equivalent continuous noise level (L_{eq}).

As previously stated, the approach used in this noise study recognizes *that there is no single noise increase that renders the noise impact significant*, based on a 2008 California Court of Appeal ruling on Gray v. County of Madera. (5) For example, if the ambient noise environment is quiet (<60 dBA) and the new noise source greatly increases the noise levels, an impact may occur if the noise criteria may be exceeded. Therefore, for this analysis, a *readily perceptible* 5 dBA or greater project-related noise level increase is considered a significant impact when the without project noise levels are below 60 dBA. Per the FICON, in areas where the without project noise levels range from 60 to 65 dBA, a 3 dBA *barely perceptible* noise level increase appears to be appropriate for most people. When the without project noise levels already exceed 65 dBA, any increase in community noise louder than 1.5 dBA or greater is considered a significant impact if the noise criteria for a given land use is exceeded, since it likely contributes to an existing noise exposure exceedance. The FICON guidance provides an established source of criteria to assess the impacts of substantial temporary or permanent increase in baseline ambient noise levels. Based on the FICON criteria, the amount to which a given noise level increase is considered acceptable is reduced when the without Project (baseline) noise levels are already shown to exceed certain land-use specific exterior noise level criteria. The specific levels are based on typical responses to noise level increases of 5 dBA or *readily perceptible*, 3 dBA or *barely perceptible*, and 1.5 dBA depending on the underlying without Project noise levels for noise-sensitive uses. These levels of increases and their perceived acceptance are consistent with guidance provided by both the Federal Highway Administration (7 p. 9) and Caltrans (8 p. 2_48).

EXISTING PROJECT TRAFFIC NOISE LEVEL INCREASES

An analysis of existing traffic noise levels plus traffic noise generated by the proposed Project has been included in this report for informational purposes and to fully analyze all the existing traffic scenarios identified in the Traffic Study. However, the analysis of existing off-site traffic noise levels plus traffic noise generated by the proposed Project scenario will not actually occur since the Project would not be fully constructed and operational until 2024 conditions. Table 8 shows the Existing without Project conditions CNEL noise levels. The Existing without Project exterior noise levels range from 59.3 to 76.5 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 9 shows the Existing with Project conditions ranging from 60.5 to 76.7 dBA CNEL. Table 14 shows

that the Project off-site traffic noise level increases range from 0.0 to 1.2 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

EA Traffic Noise Level Increases

Table 10 presents the EA 2024 without Project conditions CNEL noise levels. The EA without Project exterior noise levels range from 59.6 to 76.7 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 11 shows that the EA with Project conditions will range from 60.7 to 76.9 dBA CNEL. Table 15 shows that the Project off-site traffic noise level increases range from 0.0 to 1.1 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

OYC 2024 Traffic Noise Level Increases

Table 12 presents the OYC 2024 without Project conditions CNEL noise levels. The OYC 2024 without Project exterior noise levels range from 59.6 to 77.2 dBA CNEL, without accounting for any noise attenuation features such as noise barriers or topography. Table 13 shows that the OYC 2024 with Project conditions will range from 60.7 to 77.4 dBA CNEL. Table 16 shows that the Project off-site traffic noise level increases range from 0.0 to 1.1 dBA CNEL on the study area roadway segments. Based on the significance criteria for off-site traffic noise, land uses adjacent to the study area roadway segments would experience *less than significant* noise level impacts due to unmitigated Project-related traffic noise levels.

Table 14: Existing With Project traffic noise Level Increases

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	76.5	76.7	0.2	3.0	No
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	73.4	73.8	0.4	1.5	No
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	74.2	74.6	0.4	1.5	No
4	Sierra Av.	s/o Dwy. 2	Sensitive	74.3	74.7	0.4	1.5	No
5	Riverside Av.	e/o Sierra Av.	Sensitive	73.7	73.7	0.0	1.5	No
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	59.3	60.5	1.2	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria?

TABLE 15: EA WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	76.7	76.9	0.2	3.0	No
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	73.7	74.1	0.4	1.5	No
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	74.5	74.9	0.4	1.5	No
4	Sierra Av.	s/o Dwy. 2	Sensitive	74.7	75.1	0.4	1.5	No
5	Riverside Av.	e/o Sierra Av.	Sensitive	74.0	74.0	0.0	1.5	No
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	59.6	60.7	1.1	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria?

TABLE 16: OYC 2024 WITH PROJECT TRAFFIC NOISE LEVEL INCREASES

ID	Road	Segment	Receiving Land Use[1]	CNEL at Receiving Land Use (dBA)[2]			Incremental Noise Level Increase Threshold[3]	
				No Project	With Project	Project Addition	Limit	Exceeded?
1	Sierra Av.	n/o Riverside Av.	Non-Sensitive	77.2	77.4	0.2	3.0	No
2	Sierra Av.	n/o Terra Vista Dr.	Sensitive	74.8	75.2	0.4	1.5	No
3	Sierra Av.	n/o Duncan Canyon Rd.	Sensitive	75.5	75.8	0.3	1.5	No
4	Sierra Av.	s/o Dwy. 2	Sensitive	75.8	76.1	0.3	1.5	No
5	Riverside Av.	e/o Sierra Av.	Sensitive	74.3	74.3	0.0	1.5	No
6	Duncan Canyon Rd.	e/o Sierra Av.	Sensitive	59.6	60.7	1.1	5.0	No

[1] Based on a review of existing aerial imagery. Noise sensitive uses limited to existing residential land uses.
[2] The CNEL is calculated at the boundary of the right-of-way of each roadway and the property line of the receiving land use.
[3] Does the Project create an incremental noise level increase exceeding the significance criteria?

NOISE PREDICTION MODEL

To fully describe the exterior operational and construction noise levels from the Project, Urban Crossroads, Inc. developed a noise prediction model using the CadnaA (Computer Aided Noise Abatement) computer program. CadnaA can analyze multiple types of noise sources using the spatially accurate Project site plan, georeferenced Nearmap aerial imagery, topography, buildings, and barriers in its calculations to predict outdoor noise levels. Using the ISO 9613-2 protocol, CadnaA will calculate

the distance from each noise source to the noise receiver locations, using the ground absorption, distance, and barrier/building attenuation inputs to provide a summary of noise level at each receiver and the partial noise level contributions by noise source. The noise level calculations provided in this noise assessment account for the distance attenuation provided due to geometric spreading, when sound from a localized stationary source (i.e., a point source) propagates uniformly outward in a spherical pattern. A default ground attenuation factor of 0.5 was used in the noise analysis to account for mixed ground representing a combination of hard and soft surfaces.

OPERATIONAL NOISE

This section analyzes the potential stationary-source operational noise impacts at the nearby receiver locations resulting from the operation of the proposed Sierra Business Center Project. Using the same approach for the Shea and Acacia projects, this operational noise analysis is intended to describe noise level impacts associated with the expected typical of daytime and nighttime activities from the combined Sierra Business Center Project site. The on-site Sierra Business Center related noise sources are expected to include loading dock activity, roof-top, air-conditioning units, trash enclosure activity, parking lot vehicle movements, and truck movements. Exhibit A identifies the noise source locations used to assess the operational noise levels.

OPERATIONAL NOISE LEVEL COMPLIANCE

To demonstrate compliance with local noise regulations, the Project-only operational noise levels are evaluated against exterior noise level thresholds based on the City of Fontana and the City of Rialto exterior noise level standards at nearby noise-sensitive receiver locations. Table 17 shows that the operational noise levels associated with Sierra Business Center Project will satisfy the City of Fontana and the City of Rialto daytime and nighttime hourly exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations. Appendix B includes the detailed noise model inputs and calculations used to estimate the Project operational noise levels presented in this section.

EXHIBIT A: OPERATIONAL NOISE SOURCE LOCATIONS

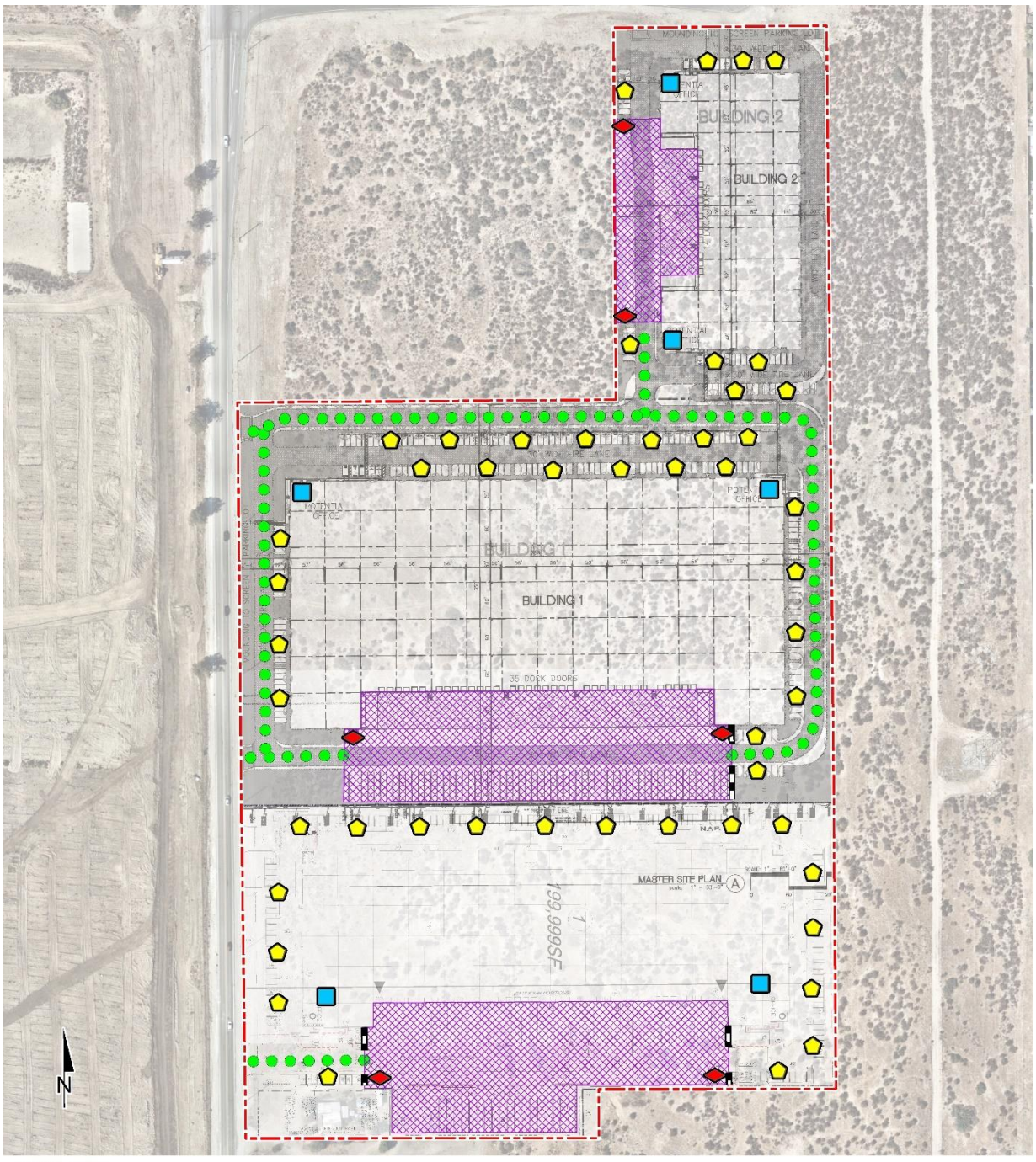


TABLE 17: OPERATIONAL NOISE LEVELS

Receiver Location	City	Project Operational Noise Levels (dBA L_{eq})[1]		Noise Level Standards (dBA L_{eq})[2]		Noise Level Standards Exceeded?[3]	
		Daytime	Nighttime	Daytime	Nighttime	Daytime	Nighttime
R1	Fontana	48.0	46.7	70	65	No	No
R2	Rialto	44.3	43.0	55	45	No	No
R3	Rialto	42.5	41.4	55	45	No	No
R4	Fontana	49.9	48.9	70	65	No	No
R5	Fontana	47.9	46.8	70	65	No	No

[1] Proposed Project operational noise level calculations are included in Appendix B.
[2] City of Fontana Development Code Section 30-543 and City of Rialto Municipal Code Section 9.50.050[B].
[3] Do the estimated Project operational noise source activities exceed the noise level standards?
"Daytime" = 7:00 a.m. to 10:00 p.m.; "Nighttime" = 10:00 p.m. to 7:00 a.m.

PROJECT OPERATIONAL NOISE LEVEL INCREASES

To describe the Project operational noise level increases, the Project operational noise levels are combined with the existing ambient noise levels measurements for the nearby receiver locations potentially impacted by Project operational noise sources. Since the units used to measure noise, decibels (dB), are logarithmic units, the Project-operational and existing ambient noise levels cannot be combined using standard arithmetic equations. (9) Instead, they must be logarithmically added using the following base equation:

$$SPL_{Total} = 10\log_{10}[10^{SPL1/10} + 10^{SPL2/10} + \ldots 10^{SPLn/10}]$$

Where "SPL1," "SPL2," etc. are equal to the sound pressure levels being combined, or in this case, the Project-operational and existing ambient noise levels. The difference between the combined Project and ambient noise levels describes the Project noise level increases to the existing ambient noise environment. As indicated on Table 18, the Project will generate a daytime noise operational level increase ranging from 0.7 to 1.6 dBA L_{eq} at the nearest receiver locations. Table 19 shows that the Project will generate a nighttime operational noise level increase ranging from 1.0 to 4.6 dBA L_{eq} at the nearest receiver locations. A review of the operational noise level increases shows that the nighttime increases are somewhat higher than the daytime increases. This is largely due to the lower nighttime ambient conditions that when combined with the Project produce a higher relative increase.

The project-related operational noise level increases will satisfy the operational noise level increase significance criteria. Therefore, the incremental Project operational noise level increase is considered *less than significant* at all receiver locations.

TABLE 18: DAYTIME PROJECT OPERATIONAL NOISE LEVEL INCREASES

Receiver Location	Total Project Operational Noise Level[1]	Reference Ambient Noise Levels[2]	Combined Project and Ambient[3]	Project Increase[4]	Increase Criteria[5]	Increase Criteria Exceeded?
R1	48.0	54.5	55.4	0.9	5.0	No
R2	44.3	50.2	51.2	1.0	5.0	No
R3	42.5	50.2	50.9	0.7	5.0	No
R4	49.9	54.3	55.6	1.3	5.0	No
R5	47.9	51.4	53.0	1.6	5.0	No

[1] Total Project daytime operational noise levels as shown on Table 17.
[2] Observed daytime ambient noise levels.
[3] Represents the combined ambient conditions plus the Project activities.
[4] The noise level increase expected with the addition of the proposed Project activities.
[5] Significance increase criteria, FICON 1992.

TABLE 19: NIGHTTIME OPERATIONAL NOISE LEVEL INCREASES

Receiver Location	Total Project Operational Noise Level[1]	Reference Ambient Noise Levels[2]	Combined Project and Ambient[3]	Project Increase[4]	Increase Criteria[5]	Increase Criteria Exceeded?
R1	46.7	52.8	53.8	1.0	5.0	No
R2	43.0	45.3	47.3	2.0	5.0	No
R3	41.4	45.3	46.8	1.5	5.0	No
R4	48.9	47.8	51.4	3.6	5.0	No
R5	46.8	44.0	48.6	4.6	5.0	No

[1] Total Project nighttime operational noise levels as shown on Table 17.
[2] Observed nighttime ambient noise levels.
[3] Represents the combined ambient conditions plus the Project activities.
[4] The noise level increase expected with the addition of the proposed Project activities.
[6] Significance increase criteria, FICON 1992.

CONSTRUCTION NOISE

This section analyzes potential impacts resulting from the short-term construction activities associated with the development of the Project. Exhibit B shows the construction activity boundaries in relation to the nearest sensitive receiver locations

CONSTRUCTION NOISE SOURCES

To describe construction noise activities, this construction noise analysis was prepared using reference construction equipment noise levels from the Federal Highway Administration (FHWA) published the Roadway Construction Noise Model (RCNM), which includes a national database of construction equipment reference noise emission levels. (10) The RCNM equipment database, provides a comprehensive list of the noise generating characteristics for specific types of construction equipment. In addition, the database provides an acoustical usage factor to estimate the fraction of time each piece of construction equipment is operating at full power (i.e., its loudest condition) during a construction operation.

Using the reference construction equipment noise levels and the CadnaA noise prediction model, calculations of the Project construction noise level impacts at the nearby sensitive receiver locations were completed. Consistent with FTA guidance for general construction noise assessment, the Project construction noise analysis relies on the combined noise levels for the loudest construction equipment, assuming they operate at the same time, with the highest reference noise level of 83 dBA L_{eq}. Appendix C includes the detailed CadnaA construction noise model inputs.

CONSTRUCTION NOISE LEVEL COMPLIANCE

The construction noise analysis shows that the highest construction noise levels will occur when construction activities take place at the closest point from the edge of primary construction activity to each of the nearby receiver locations. Project construction noise levels are considered exempt if activities occur within the hours specified in the City of Fontana Municipal Code, Section 18-63(7) of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays.

If Project construction activity occurs outside of the hours specified in the Municipal Code, noise levels shall satisfy the City of Fontana construction noise level thresholds of 70 dBA L_{eq} during the daytime hours and 65 dBA L_{eq} during the nighttime hours. No Project construction activity is planned within the hours specified in the City of Fontana Municipal Code, Section 18-63(7). As shown on Table 20, the noise impacts due to project construction noise is considered *less than significant* at all receiver locations.

EXHIBIT B: CONSTRUCTION NOISE SOURCE AND RECEIVER LOCATIONS

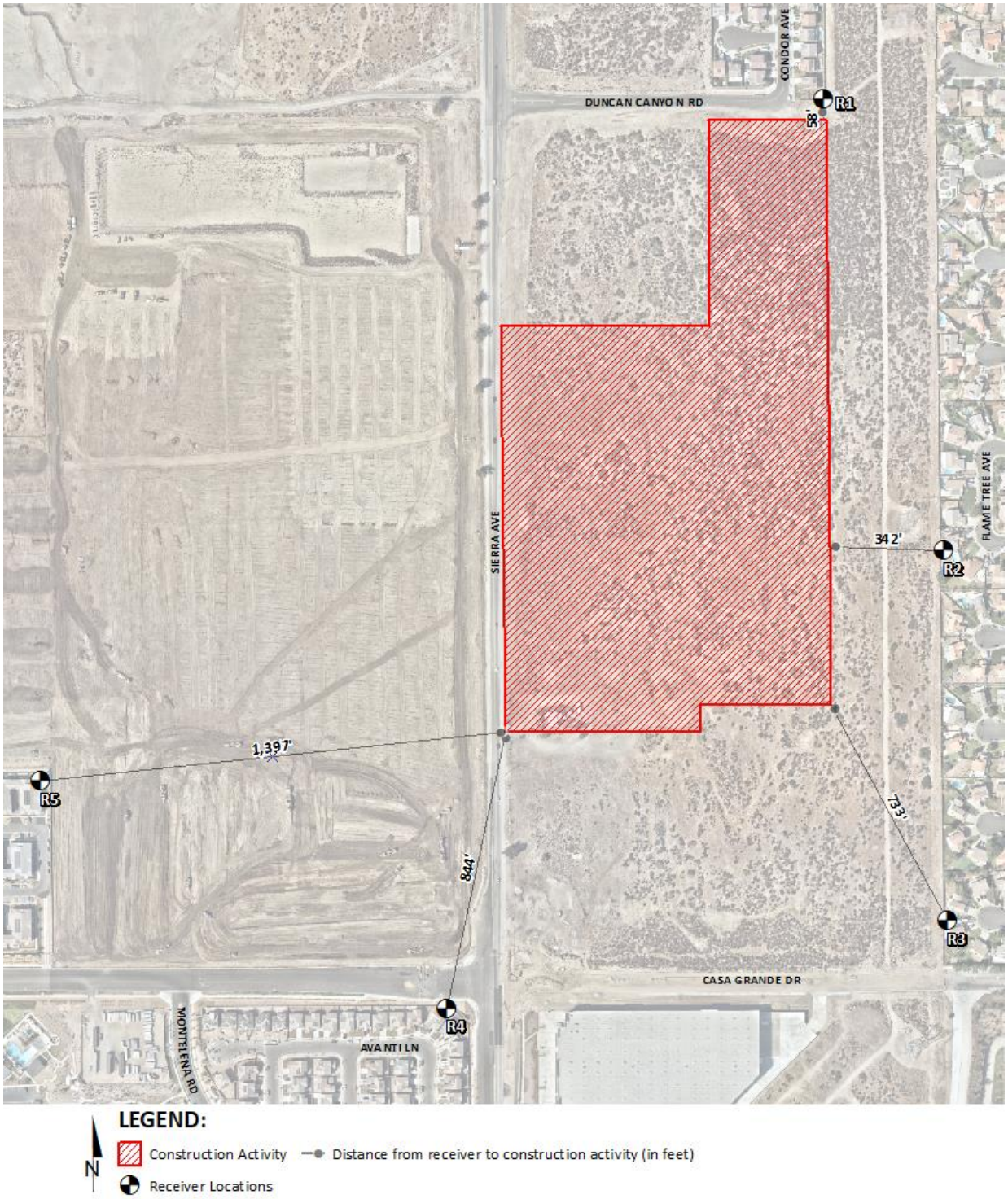


TABLE 20: TYPICAL CONSTRUCTION NOISE LEVEL COMPLIANCE

Receiver Location	Construction Noise Levels (dBA L_{eq})				
	Highest Construction Noise Levels[1]	Threshold			Specified Hours Threshold Exceeded?[4]
		Specified Hours[2]	Outside of Specified Hours Daytime[3]	Outside of Specified Hours Nighttime[3]	
R1	59.8	Exempt	70	65	No
R2	50.5	Exempt	70	65	No
R3	46.5	Exempt	70	65	No
R4	52.7	Exempt	70	65	No
R5	49.9	Exempt	70	65	No

[1] Highest construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations.
[2] Specified hours of 7:00 a.m. to 6:00 p.m. on weekdays and between the hours of 8:00 a.m. to 5:00 p.m. on Saturdays as per the City of Fontana Municipal Code Section 18-63(7).
[3] City of Fontana Development Code Section 30-543 exterior noise level standards for residential land use.
[4] Do the estimated Project construction noise levels exceed the construction noise level threshold during the specified hours mentioned in The City of Fontana Municipal Code Section 18-63(7)?

NIGHTTIME CONCRETE POUR NOISE ANALYSIS

Nighttime concrete pouring activities are often used to support reduced concrete mixer truck transit times and lower air temperatures than during the daytime hours and are generally limited to the actual building pad area as shown on Exhibit C. Since the nighttime concrete pours will take place outside the permitted City of Fontana Municipal Code, Section 18-63(b)(7) hours of *7:00 a.m. and 6:00 p.m. on weekdays and between the hours of 8:00 a.m. and 5:00 p.m. on Saturdays* the Project Applicant will be required to obtain authorization for nighttime work from the City of Fontana. Any nighttime construction noise activities shall satisfy the residential noise limit categories.

NIGHTTIME CONCRETE POUR REFERENCE NOISE LEVEL MEASUREMENTS

To estimate the noise levels due to nighttime concrete pour activities, sample reference noise level measurements were taken during a nighttime concrete pour at a construction site. Urban Crossroads, Inc. collected short-term nighttime concrete pour reference noise level measurements during the noise-sensitive nighttime hours between 1:00 a.m. to 2:00 a.m. The reference noise levels describe the expected concrete pour noise sources that may include concrete mixer truck movements and pouring activities, concrete paving equipment, rear mounted concrete mixer truck backup alarms, engine idling, air brakes, generators, and workers communicating/whistling. To describe the nighttime concrete pour noise levels associated with the construction of the Sierra Business Center, this analysis relies on reference sound power level of 100.3 dBA L_w. While the Project noise levels will depend on the actual duration of activities and specific equipment fleet in use at the time of construction, the

reference sound power level of 100.3 dBA L_w is used to describe the expected Project nighttime concrete pour noise activities.

NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

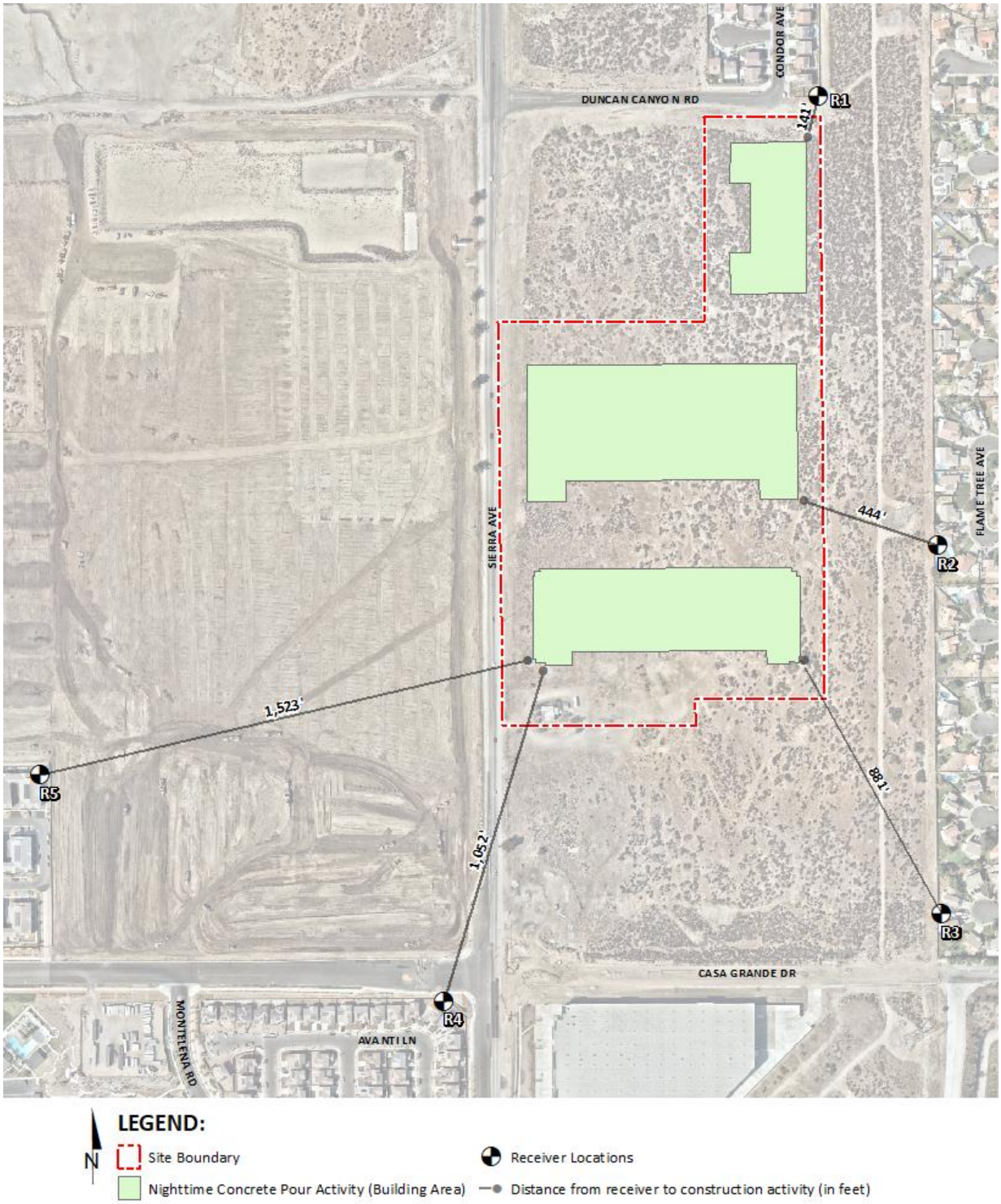
As shown on Table 21, the noise levels associated with the nighttime concrete pour activities are estimated to range from 31.8 to 48.0 dBA L_{eq} and will satisfy the City of Fontana 65 dBA L_{eq} nighttime stationary-source exterior hourly average L_{eq} residential noise level threshold at all the receiver locations. Based on the results of this analysis, all nearest noise receiver locations will experience *less than significant* impacts due to the Project related nighttime concrete pour activities. Appendix D includes the CadnaA nighttime concrete pour noise model inputs.

TABLE 5: NIGHTTIME CONCRETE POUR NOISE LEVEL COMPLIANCE

Receiver Location[1]	Construction Noise Levels (dBA L_{eq})		
	Paving Construction[2]	Nighttime Threshold[3]	Threshold Exceeded?[4]
R1	48.0	65	No
R2	36.3	65	No
R3	31.8	65	No
R4	37.4	65	No
R5	35.2	65	No

[1] Noise receiver locations are shown on Exhibit C.
[2] Paving construction noise level calculations based on distance from the construction noise source activity to nearby receiver locations.
[3] Exterior noise level standards based on the City of Fontana Development Code Section 30-543.
[4] Do the estimated Project construction noise levels exceed the nighttime construction noise level threshold?

EXHIBIT C: NIGHTTIME CONCRETE POUR NOISE SOURCE AND RECEIVER LOCATIONS



CONSTRUCTION VIBRATION ANALYSIS

Construction activity can result in varying degrees of ground vibration, depending on the equipment and methods employed. Operation of construction equipment causes ground vibrations that spread through the ground and diminish in strength with distance. Ground vibration levels associated with various types of construction equipment are summarized on Table 22. Based on the representative vibration levels presented for various construction equipment types, it is possible to estimate the potential for human response (annoyance) and building damage using the following vibration assessment methods defined by the FTA. To describe the vibration impacts the FTA provides the following equation: $PPV_{equip} = PPV_{ref} \times (25/D)^{1.5}$

TABLE 22: VIBRATION SOURCE LEVELS FOR CONSTRUCTION EQUIPMENT

Equipment	PPV (in/sec) at 25 feet
Small bulldozer	0.003
Jackhammer	0.035
Loaded Trucks	0.076
Large bulldozer	0.089

Federal Transit Administration, Transit Noise and Vibration Impact Assessment Manual

Table 23 presents the expected Project related vibration levels at the nearby receiver locations. At distances ranging from 58 to 1,397 feet from Project construction activities, construction vibration velocity levels are estimated to range from 0.000 to 0.025 in/sec PPV. Based on maximum acceptable continuous vibration threshold of 0.3 PPV (in/sec), the typical Project construction vibration levels will fall below the building damage thresholds at all the noise sensitive receiver locations. Therefore, the Project-related vibration impacts are considered *less than significant* during typical construction activities at the Project site. Moreover, the vibration levels reported at the sensitive receiver locations are unlikely to be sustained during the entire construction period but will occur rather only during the times that heavy construction equipment is operating adjacent to the Project site perimeter.

TABLE 23: PROJECT CONSTRUCTION VIBRATION LEVELS

Receiver[1]	Distance to Const. Activity (Feet)[2]	Typical Construction Vibration Levels PPV (in/sec)[3]					Thresholds PPV (in/sec)[4]	Thresholds Exceeded?[5]
		Small bulldozer	Jackhammer	Loaded Trucks	Large bulldozer	Highest Vibration Level		
R1	58'	0.001	0.010	0.022	0.025	0.025	0.3	No
R2	342'	0.000	0.001	0.002	0.002	0.002	0.3	No
R3	733'	0.000	0.000	0.000	0.001	0.001	0.3	No
R4	844'	0.000	0.000	0.000	0.000	0.000	0.3	No
R5	1,397'	0.000	0.000	0.000	0.000	0.000	0.3	No

[1] Receiver locations are shown on Exhibit B.
[2] Distance from receiver location to Project construction boundary (Project site boundary).
[3] Based on the Vibration Source Levels of Construction Equipment (Table 22).
[4] Caltrans Transportation and Construction Vibration Guidance Manual, April 2020, Table 19, p. 38.
[5] Does the peak vibration exceed the acceptable vibration thresholds?
"PPV" = Peak Particle Velocity

CONCLUSIONS

This Noise Assessment demonstrates that the off-site study area roadway segments will experience *less than significant* Project-related traffic noise level increases. In addition, the operational noise levels associated with Sierra Business Center Project will satisfy the City of Fontana exterior noise level standards at all nearby receiver locations. Therefore, the operational noise impacts are considered *less than significant* at the nearby noise-sensitive receiver locations and the Project construction noise is not expected to result in significant noise impacts. If you have any questions, please contact me directly at (949) 584-3148.

Respectfully submitted,

URBAN CROSSROADS, INC.

Bill Lawson, P.E., INCE
Principal

REFERENCES

1. **U.S. Department of Transportation, Federal Highway Administration.** *FHWA Highway Traffic Noise Prediction Model.* December 1978. FHWA-RD-77-108.
2. **California Department of Transportation Environmental Program, Office of Environmental Engineering.** *Use of California Vehicle Noise Reference Energy Mean Emission Levels (Calveno REMELs) in FHWA Highway Traffic Noise Prediction.* September 1995. TAN 95-03.
3. **California Department of Transportation.** *Traffic Noise Attenuation as a Function of Ground and Vegetation Final Report.* June 1995. FHWA/CA/TL-95/23.
4. **Urban Crossroads, Inc.** *North Fontana Industrial Complex (Acacia) Traffic Study.* January 2022.
5. **California Court of Appeal.** *Gray v. County of Madera, F053661.* 167 Cal.App.4th 1099; - Cal.Rptr.3d, October 2008.
6. **Federal Interagency Committee on Noise.** *Federal Agency Review of Selected Airport Noise Analysis Issues.* August 1992.
7. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning, Noise and Air Quality Branch.** *Highway Traffic Noise Analysis and Abatement Policy and Guidance.* December 2011.
8. **California Department of Transportation.** *Technical Noise Supplement.* November 2009.
9. **California Department of Transportation Environmental Program.** *Technical Noise Supplement - A Technical Supplement to the Traffic Noise Analysis Protocol.* Sacramento, CA : s.n., September 2013.
10. **U.S. Department of Transportation, Federal Highway Administration, Office of Environment and Planning.** *FHWA Roadway Construction Noise Model.* January, 2006.
11. **City of Bakersfield.** *Metropolitan Bakersfield General Plan.* December 2002.

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APPENDIX A

OFF-SITE TRAFFIC NOISE CONTOURS

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FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Av.
Road Segment: n/o Riverside Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,275 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,227 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.47	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-13.46	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.83	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.1	69.5	67.8	64.2	71.8	72.2
Medium Trucks:	67.9	66.4	62.1	61.3	68.7	69.0
Heavy Trucks:	70.5	68.0	67.0	65.9	72.6	73.0
Vehicle Noise:	74.8	72.9	71.0	69.0	76.1	76.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	169	363	783	1,686
CNEL:	178	383	826	1,779

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Av.
Road Segment: n/o Riverside Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	25,681 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,263 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.21%
Medium Trucks:	75.3%	7.0%	17.7%	3.80%
Heavy Trucks:	60.4%	12.0%	27.6%	2.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.53	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-13.36	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.41	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.2	69.5	67.9	64.2	71.8	72.3
Medium Trucks:	68.0	66.5	62.2	61.4	68.8	69.1
Heavy Trucks:	70.9	68.5	67.5	66.3	73.1	73.4
Vehicle Noise:	75.0	73.1	71.2	69.2	76.3	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	175	377	811	1,748
CNEL:	184	397	856	1,844

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EA 2024
Road Name: Sierra Av.
Road Segment: n/o Riverside Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	26,898 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,370 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.74	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-13.19	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.56	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.4	69.7	68.1	64.4	72.0	72.5
Medium Trucks:	68.1	66.7	62.3	61.6	69.0	69.3
Heavy Trucks:	70.7	68.3	67.3	66.2	72.9	73.2
Vehicle Noise:	75.1	73.2	71.3	69.2	76.4	76.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	176	379	816	1,758
CNEL:	185	400	861	1,855

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAP 2024
Road Name: Sierra Av.
Road Segment: n/o Riverside Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	27,304 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,406 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.23%
Medium Trucks:	75.3%	7.0%	17.7%	3.80%
Heavy Trucks:	60.4%	12.0%	27.6%	2.97%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.80	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-13.10	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.16	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.5	69.8	68.1	64.5	72.1	72.5
Medium Trucks:	68.2	66.7	62.4	61.7	69.1	69.3
Heavy Trucks:	71.1	68.7	67.7	66.6	73.3	73.6
Vehicle Noise:	75.3	73.4	71.5	69.5	76.6	76.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	182	392	844	1,818
CNEL:	192	413	890	1,918

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC 2024 | Project Name: Sierra Business Center
Road Name: Sierra Av. | Job Number: 14283
Road Segment: n/o Riverside Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,996 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,643 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.22	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-12.72	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.09	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	70.2	68.5	64.9	72.5	72.9
Medium Trucks:	68.6	67.1	62.8	62.1	69.5	69.7
Heavy Trucks:	71.2	68.8	67.8	66.6	73.4	73.7
Vehicle Noise:	75.6	73.7	71.8	69.7	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	189	407	877	1,890
CNEL:	199	430	926	1,995

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYCP 2024 | Project Name: Sierra Business Center
Road Name: Sierra Av. | Job Number: 14283
Road Segment: n/o Riverside Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,402 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,678 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.25%
Medium Trucks:	75.3%	7.0%	17.7%	3.80%
Heavy Trucks:	60.4%	12.0%	27.6%	2.95%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.27	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-12.63	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.73	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	70.3	68.6	65.0	72.5	73.0
Medium Trucks:	68.7	67.2	62.9	62.2	69.6	69.8
Heavy Trucks:	71.6	69.1	68.1	67.0	73.8	74.1
Vehicle Noise:	75.7	73.8	72.0	69.9	77.1	77.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	195	420	904	1,948
CNEL:	206	443	954	2,056

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: | Project Name: Sierra Business Center
Road Name: Sierra Av. | Job Number: 14283
Road Segment: n/o Riverside Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	29,996 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,643 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.22	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-12.72	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.09	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	71.9	70.2	68.5	64.9	72.5	72.9
Medium Trucks:	68.6	67.1	62.8	62.1	69.5	69.7
Heavy Trucks:	71.2	68.8	67.8	66.6	73.4	73.7
Vehicle Noise:	75.6	73.7	71.8	69.7	76.9	77.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	189	407	877	1,890
CNEL:	199	430	926	1,995

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: | Project Name: Sierra Business Center
Road Name: Sierra Av. | Job Number: 14283
Road Segment: n/o Riverside Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	30,809 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,714 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.04%
Medium Trucks:	75.3%	7.0%	17.7%	3.82%
Heavy Trucks:	60.4%	12.0%	27.6%	3.14%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	1.31	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-12.55	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-13.40	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	72.0	70.3	68.6	65.0	72.6	73.0
Medium Trucks:	68.8	67.3	63.0	62.2	69.6	69.9
Heavy Trucks:	71.9	69.5	68.5	67.3	74.1	74.4
Vehicle Noise:	75.9	74.0	72.1	70.1	77.2	77.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	201	432	931	2,006
CNEL:	212	456	982	2,116

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Riverside Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	91 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	8 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-23.96	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-37.90	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-39.27	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.7	45.0	43.4	39.7	47.3	47.8
Medium Trucks:	43.4	42.0	37.6	36.9	44.3	44.6
Heavy Trucks:	46.0	43.6	42.6	41.5	48.2	48.5
Vehicle Noise:	50.4	48.5	46.6	44.5	51.7	52.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	18	40
CNEL:	4	9	19	42

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Riverside Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	904 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	80 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	78.77%
Medium Trucks:	75.3%	7.0%	17.7%	5.11%
Heavy Trucks:	60.4%	12.0%	27.6%	16.12%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-14.73	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-26.61	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-21.62	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	55.9	54.3	52.6	49.0	56.5	57.0
Medium Trucks:	54.7	53.2	48.9	48.2	55.6	55.8
Heavy Trucks:	63.7	61.3	60.2	59.1	65.9	66.2
Vehicle Noise:	64.8	62.6	61.2	59.8	66.7	67.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	184	397
CNEL:	42	90	194	417

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,442 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,096 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.60	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-16.54	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.91	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.1	66.4	64.7	61.1	68.7	69.1
Medium Trucks:	64.8	63.3	59.0	58.3	65.7	65.9
Heavy Trucks:	67.4	65.0	64.0	62.8	69.6	69.9
Vehicle Noise:	71.7	69.8	68.0	65.9	73.0	73.4

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	105	226	488	1,051
CNEL:	111	239	515	1,109

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	12,894 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,136 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	92.98%
Medium Trucks:	75.3%	7.0%	17.7%	3.81%
Heavy Trucks:	60.4%	12.0%	27.6%	3.21%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.47	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-16.34	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.09	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.2	66.5	64.8	61.2	68.8	69.3
Medium Trucks:	65.0	63.5	59.2	58.5	65.9	66.1
Heavy Trucks:	68.2	65.8	64.8	63.6	70.4	70.7
Vehicle Noise:	72.1	70.2	68.4	66.4	73.5	73.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	113	243	524	1,130
CNEL:	119	257	553	1,191

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EA 2024
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,280 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,170 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.32	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-16.25	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.63	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.4	66.7	65.0	61.4	69.0	69.4
Medium Trucks:	65.1	63.6	59.3	58.5	65.9	66.2
Heavy Trucks:	67.7	65.2	64.2	63.1	69.9	70.2
Vehicle Noise:	72.0	70.1	68.2	66.2	73.3	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	110	237	510	1,098
CNEL:	116	250	538	1,159

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAP 2024
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,731 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,210 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.01%
Medium Trucks:	75.3%	7.0%	17.7%	3.81%
Heavy Trucks:	60.4%	12.0%	27.6%	3.18%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.20	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-16.07	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.85	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.5	66.8	65.1	61.5	69.1	69.5
Medium Trucks:	65.2	63.8	59.5	58.7	66.1	66.4
Heavy Trucks:	68.5	66.0	65.0	63.9	70.6	70.9
Vehicle Noise:	72.4	70.5	68.6	66.6	73.8	74.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	117	253	545	1,175
CNEL:	124	267	575	1,239

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC 2024
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,355 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,529 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.16	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.09	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.47	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.8	66.2	62.5	70.1	70.6
Medium Trucks:	66.2	64.8	60.4	59.7	67.1	67.4
Heavy Trucks:	68.8	66.4	65.4	64.3	71.0	71.3
Vehicle Noise:	73.2	71.3	69.4	67.3	74.5	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	131	283	609	1,312
CNEL:	138	298	643	1,385

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYCP 2024
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,806 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,569 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.11%
Medium Trucks:	75.3%	7.0%	17.7%	3.80%
Heavy Trucks:	60.4%	12.0%	27.6%	3.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.06	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-14.95	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-15.86	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.6	67.9	66.3	62.6	70.2	70.7
Medium Trucks:	66.4	64.9	60.6	59.8	67.2	67.5
Heavy Trucks:	69.4	67.0	66.0	64.9	71.6	71.9
Vehicle Noise:	73.5	71.6	69.7	67.7	74.8	75.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	138	298	642	1,383
CNEL:	146	314	677	1,459

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,355 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,529 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.16	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.09	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.47	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.8	66.2	62.5	70.1	70.6
Medium Trucks:	66.2	64.8	60.4	59.7	67.1	67.4
Heavy Trucks:	68.8	66.4	65.4	64.3	71.0	71.3
Vehicle Noise:	73.2	71.3	69.4	67.3	74.5	74.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	131	283	609	1,312
CNEL:	138	298	643	1,385

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	18,258 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,609 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	92.77%
Medium Trucks:	75.3%	7.0%	17.7%	3.83%
Heavy Trucks:	60.4%	12.0%	27.6%	3.40%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.97	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-14.82	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-15.33	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.7	68.0	66.4	62.7	70.3	70.8
Medium Trucks:	66.5	65.0	60.7	60.0	67.4	67.6
Heavy Trucks:	70.0	67.5	66.5	65.4	72.2	72.5
Vehicle Noise:	73.8	71.8	70.0	68.0	75.1	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	145	313	674	1,452
CNEL:	153	330	710	1,531

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	92 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	8 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-23.91	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-37.85	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-39.22	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.8	45.1	43.4	39.8	47.4	47.8
Medium Trucks:	43.5	42.0	37.7	37.0	44.4	44.6
Heavy Trucks:	46.1	43.7	42.6	41.5	48.3	48.6
Vehicle Noise:	50.4	48.5	46.6	44.6	51.7	52.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	19	40
CNEL:	4	9	20	42

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Terra Vista Dr.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	995 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	88 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	80.70%
Medium Trucks:	75.3%	7.0%	17.7%	4.65%
Heavy Trucks:	60.4%	12.0%	27.6%	14.65%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-14.21	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-26.61	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-21.62	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.8	53.1	49.5	57.1	57.5
Medium Trucks:	54.7	53.2	48.9	48.2	55.6	55.8
Heavy Trucks:	63.7	61.3	60.2	59.1	65.9	66.2
Vehicle Noise:	64.9	62.7	61.3	59.9	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	186	400
CNEL:	42	91	195	421

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Av.
Road Segment: n/o Duncan Canyon Rd.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,184 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,338 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.74	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.67	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-17.05	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	68.9	67.3	65.6	62.0	69.5	70.0
Medium Trucks:	65.6	64.2	59.9	59.1	66.5	66.8
Heavy Trucks:	68.3	65.8	64.8	63.7	70.4	70.7
Vehicle Noise:	72.6	70.7	68.8	66.7	73.9	74.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	120	259	557	1,201
CNEL:	127	273	588	1,267

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Av.
Road Segment: n/o Duncan Canyon Rd.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,635 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,377 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.06%
Medium Trucks:	75.3%	7.0%	17.7%	3.81%
Heavy Trucks:	60.4%	12.0%	27.6%	3.13%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.63	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.51	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.36	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.0	67.4	65.7	62.1	69.6	70.1
Medium Trucks:	65.8	64.3	60.0	59.3	66.7	66.9
Heavy Trucks:	68.9	66.5	65.5	64.4	71.1	71.4
Vehicle Noise:	72.9	71.0	69.2	67.2	74.3	74.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	127	274	591	1,274
CNEL:	134	290	624	1,344

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EA 2024
Road Name: Sierra Av.
Road Segment: n/o Duncan Canyon Rd.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,189 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,426 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.46	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.39	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.77	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.2	67.5	65.9	62.2	69.8	70.3
Medium Trucks:	65.9	64.5	60.1	59.4	66.8	67.1
Heavy Trucks:	68.5	66.1	65.1	64.0	70.7	71.0
Vehicle Noise:	72.9	71.0	69.1	67.0	74.2	74.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	125	270	582	1,253
CNEL:	132	285	614	1,322

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAP 2024
Road Name: Sierra Av.
Road Segment: n/o Duncan Canyon Rd.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,640 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,466 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.09%
Medium Trucks:	75.3%	7.0%	17.7%	3.80%
Heavy Trucks:	60.4%	12.0%	27.6%	3.11%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-1.36	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-15.24	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-16.12	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	69.3	67.6	66.0	62.3	69.9	70.4
Medium Trucks:	66.1	64.6	60.3	59.6	67.0	67.2
Heavy Trucks:	69.2	66.8	65.7	64.6	71.4	71.7
Vehicle Noise:	73.2	71.3	69.4	67.4	74.5	74.9

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	133	285	615	1,325
CNEL:	140	301	649	1,398

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC 2024 | *Project Name:* Sierra Business Center
Road Name: Sierra Av. | *Job Number:* 14283
Road Segment: n/o Duncan Canyon Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,263 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,785 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.49	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.42	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.79	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	68.5	66.8	63.2	70.8	71.2
Medium Trucks:	66.9	65.4	61.1	60.4	67.8	68.0
Heavy Trucks:	69.5	67.1	66.1	64.9	71.7	72.0
Vehicle Noise:	73.9	72.0	70.1	68.0	75.2	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	146	314	675	1,455
CNEL:	154	331	713	1,536

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYCP 2024 | *Project Name:* Sierra Business Center
Road Name: Sierra Av. | *Job Number:* 14283
Road Segment: n/o Duncan Canyon Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,714 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,825 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.16%
Medium Trucks:	75.3%	7.0%	17.7%	3.80%
Heavy Trucks:	60.4%	12.0%	27.6%	3.04%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.40	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.30	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.27	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	68.6	66.9	63.3	70.9	71.3
Medium Trucks:	67.0	65.5	61.2	60.5	67.9	68.1
Heavy Trucks:	70.0	67.6	66.6	65.5	72.2	72.5
Vehicle Noise:	74.1	72.2	70.3	68.3	75.4	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	152	328	707	1,522
CNEL:	161	346	745	1,606

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: | *Project Name:* Sierra Business Center
Road Name: Sierra Av. | *Job Number:* 14283
Road Segment: n/o Duncan Canyon Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	20,263 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,785 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.49	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.42	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-15.79	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.2	68.5	66.8	63.2	70.8	71.2
Medium Trucks:	66.9	65.4	61.1	60.4	67.8	68.0
Heavy Trucks:	69.5	67.1	66.1	64.9	71.7	72.0
Vehicle Noise:	73.9	72.0	70.1	68.0	75.2	75.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	146	314	675	1,455
CNEL:	154	331	713	1,536

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: | *Project Name:* Sierra Business Center
Road Name: Sierra Av. | *Job Number:* 14283
Road Segment: n/o Duncan Canyon Rd.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,166 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,865 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	92.87%
Medium Trucks:	75.3%	7.0%	17.7%	3.82%
Heavy Trucks:	60.4%	12.0%	27.6%	3.31%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-0.32	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-14.18	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-14.80	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	70.3	68.7	67.0	63.4	71.0	71.4
Medium Trucks:	67.1	65.7	61.4	60.6	68.0	68.3
Heavy Trucks:	70.5	68.1	67.1	65.9	72.7	73.0
Vehicle Noise:	74.4	72.4	70.6	68.6	75.7	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	159	342	737	1,588
CNEL:	167	361	777	1,675

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Duncan Canyon Rd.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	93 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	8 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-23.87	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-37.80	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-39.18	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.8	45.1	43.5	39.8	47.4	47.9
Medium Trucks:	43.5	42.0	37.7	37.0	44.4	44.6
Heavy Trucks:	46.1	43.7	42.7	41.6	48.3	48.6
Vehicle Noise:	50.5	48.6	46.7	44.6	51.8	52.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	19	40
CNEL:	4	9	20	42

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: n/o Duncan Canyon Rd.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	996 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	88 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	80.71%
Medium Trucks:	75.3%	7.0%	17.7%	4.65%
Heavy Trucks:	60.4%	12.0%	27.6%	14.64%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-14.21	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-26.60	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-21.62	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.8	53.1	49.5	57.1	57.5
Medium Trucks:	54.7	53.2	48.9	48.2	55.6	55.8
Heavy Trucks:	63.7	61.3	60.2	59.1	65.9	66.2
Vehicle Noise:	64.9	62.7	61.3	59.9	66.7	67.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	40	86	186	400
CNEL:	42	91	195	421

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,538 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,369 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.64	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.57	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.95	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	67.4	65.7	62.1	69.6	70.1
Medium Trucks:	65.7	64.3	60.0	59.2	66.6	66.9
Heavy Trucks:	68.4	65.9	64.9	63.8	70.5	70.8
Vehicle Noise:	72.7	70.8	68.9	66.8	74.0	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	122	263	566	1,219
CNEL:	129	277	597	1,286

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,169 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,424 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.15%
Medium Trucks:	75.3%	7.0%	17.7%	3.76%
Heavy Trucks:	60.4%	12.0%	27.6%	3.09%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.48	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.42	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.28	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.2	67.5	65.8	62.2	69.8	70.2
Medium Trucks:	65.9	64.4	60.1	59.4	66.8	67.0
Heavy Trucks:	69.0	66.6	65.6	64.5	71.2	71.5
Vehicle Noise:	73.1	71.1	69.3	67.3	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	130	279	601	1,296
CNEL:	137	294	634	1,367

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EA 2024
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	16,871 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,486 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.28	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.21	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-16.59	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.4	67.7	66.0	62.4	70.0	70.4
Medium Trucks:	66.1	64.6	60.3	59.6	67.0	67.2
Heavy Trucks:	68.7	66.3	65.3	64.1	70.9	71.2
Vehicle Noise:	73.1	71.2	69.3	67.2	74.4	74.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	129	277	598	1,288
CNEL:	136	293	631	1,359

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAP 2024
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	17,502 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,542 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.17%
Medium Trucks:	75.3%	7.0%	17.7%	3.76%
Heavy Trucks:	60.4%	12.0%	27.6%	3.06%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.14	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.07	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-15.97	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.5	67.9	66.2	62.6	70.1	70.6
Medium Trucks:	66.2	64.8	60.5	59.7	67.1	67.4
Heavy Trucks:	69.3	66.9	65.9	64.8	71.5	71.8
Vehicle Noise:	73.4	71.5	69.6	67.6	74.7	75.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	136	294	632	1,362
CNEL:	144	310	667	1,437

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC 2024
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,600 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,903 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.21	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-14.14	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-15.52	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.8	67.1	63.5	71.1	71.5
Medium Trucks:	67.2	65.7	61.4	60.7	68.1	68.3
Heavy Trucks:	69.8	67.4	66.4	65.2	72.0	72.3
Vehicle Noise:	74.1	72.2	70.3	68.3	75.4	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	152	327	705	1,519
CNEL:	160	345	744	1,602

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYCP 2024
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,231 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,959 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.24%
Medium Trucks:	75.3%	7.0%	17.7%	3.77%
Heavy Trucks:	60.4%	12.0%	27.6%	3.00%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.09	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-14.03	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-15.02	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.6	68.9	67.2	63.6	71.2	71.6
Medium Trucks:	67.3	65.8	61.5	60.8	68.2	68.4
Heavy Trucks:	70.3	67.9	66.8	65.7	72.5	72.8
Vehicle Noise:	74.4	72.5	70.6	68.6	75.7	76.1

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	159	342	737	1,587
CNEL:	167	361	777	1,675

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	21,600 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,903 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-0.21	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-14.14	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-15.52	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.5	68.8	67.1	63.5	71.1	71.5
Medium Trucks:	67.2	65.7	61.4	60.7	68.1	68.3
Heavy Trucks:	69.8	67.4	66.4	65.2	72.0	72.3
Vehicle Noise:	74.1	72.2	70.3	68.3	75.4	75.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	152	327	705	1,519
CNEL:	160	345	744	1,602

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	22,861 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	2,014 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.02%
Medium Trucks:	75.3%	7.0%	17.7%	3.76%
Heavy Trucks:	60.4%	12.0%	27.6%	3.23%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	0.02	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-13.92	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-14.58	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	70.7	69.0	67.3	63.7	71.3	71.7
Medium Trucks:	67.4	65.9	61.6	60.9	68.3	68.5
Heavy Trucks:	70.7	68.3	67.3	66.2	72.9	73.2
Vehicle Noise:	74.6	72.7	70.9	68.9	76.0	76.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	165	357	768	1,655
CNEL:	175	376	810	1,745

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	94 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	8 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-23.82	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-37.75	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-39.13	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	46.8	45.2	43.5	39.9	47.5	47.9
Medium Trucks:	43.6	42.1	37.8	37.0	44.4	44.7
Heavy Trucks:	46.2	43.7	42.7	41.6	48.4	48.7
Vehicle Noise:	50.5	48.6	46.7	44.7	51.8	52.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	4	9	19	40
CNEL:	4	9	20	43

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Sierra Av.
Road Segment: s/o Dwy. 2

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,355 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	119 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	85.82%
Medium Trucks:	75.3%	7.0%	17.7%	3.42%
Heavy Trucks:	60.4%	12.0%	27.6%	10.76%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-12.60	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-26.60	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-21.62	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	58.1	56.4	54.7	51.1	58.7	59.1
Medium Trucks:	54.7	53.2	48.9	48.2	55.6	55.8
Heavy Trucks:	63.7	61.3	60.2	59.1	65.9	66.2
Vehicle Noise:	65.2	63.0	61.6	60.0	66.9	67.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	41	89	192	413
CNEL:	43	94	202	434

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Riverside Av.
Road Segment: e/o Sierra Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,423 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,183 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.27	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-16.21	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.58	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.4	66.7	65.0	61.4	69.0	69.5
Medium Trucks:	65.1	63.6	59.3	58.6	66.0	66.2
Heavy Trucks:	67.7	65.3	64.3	63.1	69.9	70.2
Vehicle Noise:	72.1	70.2	68.3	66.2	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	238	513	1,106
CNEL:	117	251	542	1,167

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Riverside Av.
Road Segment: e/o Sierra Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	13,468 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,187 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.49%
Medium Trucks:	75.3%	7.0%	17.7%	3.77%
Heavy Trucks:	60.4%	12.0%	27.6%	2.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.26	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-16.21	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.58	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.4	66.7	65.1	61.4	69.0	69.5
Medium Trucks:	65.1	63.6	59.3	58.6	66.0	66.2
Heavy Trucks:	67.7	65.3	64.3	63.1	69.9	70.2
Vehicle Noise:	72.1	70.2	68.3	66.2	73.4	73.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	111	238	514	1,107
CNEL:	117	252	542	1,168

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EA 2024
Road Name: Riverside Av.
Road Segment: e/o Sierra Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,245 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,255 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.02	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.95	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.33	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	67.0	65.3	61.7	69.3	69.7
Medium Trucks:	65.4	63.9	59.6	58.9	66.3	66.5
Heavy Trucks:	68.0	65.6	64.5	63.4	70.2	70.5
Vehicle Noise:	72.3	70.4	68.5	66.5	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	248	534	1,151
CNEL:	121	262	564	1,214

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAP 2024
Road Name: Riverside Av.
Road Segment: e/o Sierra Av.
Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	14,289 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,259 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.49%
Medium Trucks:	75.3%	7.0%	17.7%	3.77%
Heavy Trucks:	60.4%	12.0%	27.6%	2.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-2.00	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.95	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.33	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.7	67.0	65.3	61.7	69.3	69.7
Medium Trucks:	65.4	63.9	59.6	58.9	66.3	66.5
Heavy Trucks:	68.0	65.6	64.5	63.4	70.2	70.5
Vehicle Noise:	72.3	70.4	68.5	66.5	73.6	74.0

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	115	248	534	1,151
CNEL:	122	262	564	1,215

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC 2024 | Project Name: Sierra Business Center
Road Name: Riverside Av. | Job Number: 14283
Road Segment: e/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,221 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,341 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.73	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.66	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.04	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.3	65.6	62.0	69.5	70.0
Medium Trucks:	65.7	64.2	59.9	59.1	66.5	66.8
Heavy Trucks:	68.3	65.8	64.8	63.7	70.4	70.8
Vehicle Noise:	72.6	70.7	68.8	66.8	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	558	1,203
CNEL:	127	273	589	1,269

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYCP 2024 | Project Name: Sierra Business Center
Road Name: Riverside Av. | Job Number: 14283
Road Segment: e/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,265 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,345 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.49%
Medium Trucks:	75.3%	7.0%	17.7%	3.77%
Heavy Trucks:	60.4%	12.0%	27.6%	2.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.71	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.66	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.04	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	67.3	65.6	62.0	69.6	70.0
Medium Trucks:	65.7	64.2	59.9	59.1	66.5	66.8
Heavy Trucks:	68.3	65.8	64.8	63.7	70.4	70.8
Vehicle Noise:	72.6	70.7	68.8	66.8	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	559	1,203
CNEL:	127	274	589	1,270

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Riverside Av. | Project Name: Sierra Business Center
Road Segment: e/o Sierra Av. | Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,221 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,341 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.73	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.66	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.04	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	68.9	67.3	65.6	62.0	69.5	70.0
Medium Trucks:	65.7	64.2	59.9	59.1	66.5	66.8
Heavy Trucks:	68.3	65.8	64.8	63.7	70.4	70.8
Vehicle Noise:	72.6	70.7	68.8	66.8	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	558	1,203
CNEL:	127	273	589	1,269

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Riverside Av. | Project Name: Sierra Business Center
Road Segment: e/o Sierra Av. | Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	15,310 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	1,349 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.51%
Medium Trucks:	75.3%	7.0%	17.7%	3.76%
Heavy Trucks:	60.4%	12.0%	27.6%	2.74%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	71.78	-1.70	0.09	-1.20	-4.71	0.000	0.000
Medium Trucks:	82.40	-15.66	0.11	-1.20	-4.88	0.000	0.000
Heavy Trucks:	86.40	-17.04	0.11	-1.20	-5.30	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	69.0	67.3	65.6	62.0	69.6	70.0
Medium Trucks:	65.7	64.2	59.9	59.1	66.5	66.8
Heavy Trucks:	68.3	65.8	64.8	63.7	70.4	70.8
Vehicle Noise:	72.6	70.7	68.8	66.8	73.9	74.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	120	259	559	1,204
CNEL:	127	274	590	1,271

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Riverside Av.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	95 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	8 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-23.78	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-37.71	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-39.08	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	46.9	45.2	43.5	39.9	47.5	47.9
Medium Trucks:	43.6	42.1	37.8	37.1	44.5	44.7
Heavy Trucks:	46.2	43.8	42.8	41.6	48.4	48.7
Vehicle Noise:	50.6	48.7	46.8	44.7	51.9	52.2

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	4	9	19	41
CNEL:	4	9	20	43

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Riverside Av.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	185 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	16 vehicles
Vehicle Speed:	55 mph
Near/Far Lane Distance:	90 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	66.0 feet
Centerline Dist. to Observer:	66.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	96.64%
Medium Trucks:	75.3%	7.0%	17.7%	1.94%
Heavy Trucks:	60.4%	12.0%	27.6%	1.42%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	48.539
Medium Trucks:	48.356
Heavy Trucks:	48.374

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	71.78	-20.75	0.09	-1.20	*-4.71*	0.000	0.000
Medium Trucks:	82.40	-37.71	0.11	-1.20	*-4.88*	0.000	0.000
Heavy Trucks:	86.40	-39.08	0.11	-1.20	*-5.30*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	49.9	48.3	46.6	42.9	50.5	51.0
Medium Trucks:	43.6	42.1	37.8	37.1	44.5	44.7
Heavy Trucks:	46.2	43.8	42.8	41.6	48.4	48.7
Vehicle Noise:	52.1	50.3	48.5	46.0	53.2	53.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	5	11	23	50
CNEL:	5	11	25	53

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E
Road Name: Duncan Canyon Rd.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	425 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	37 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-16.39	2.48	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	79.45	-30.33	2.53	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-31.70	2.52	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.3	51.7	50.0	46.4	53.9	54.4
Medium Trucks:	50.5	49.0	44.7	43.9	51.3	51.6
Heavy Trucks:	53.9	51.4	50.4	49.3	56.0	56.4
Vehicle Noise:	57.6	55.6	53.8	51.8	59.0	59.3

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	13	29	62
CNEL:	7	14	31	66

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: E+P
Road Name: Duncan Canyon Rd.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	829 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	73 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	96.65%
Medium Trucks:	75.3%	7.0%	17.7%	1.94%
Heavy Trucks:	60.4%	12.0%	27.6%	1.41%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-13.35	2.48	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	79.45	-30.33	2.53	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-31.70	2.52	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.4	54.7	53.0	49.4	57.0	57.4
Medium Trucks:	50.5	49.0	44.7	43.9	51.3	51.6
Heavy Trucks:	53.9	51.4	50.4	49.3	56.0	56.4
Vehicle Noise:	59.0	57.1	55.3	52.9	60.2	60.5

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	8	16	35	75
CNEL:	8	17	37	79

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EA 2024 | Project Name: Sierra Business Center
Road Name: Duncan Canyon Rd. | Job Number: 14283
Road Segment: e/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	451 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-16.14	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	79.45	-30.07	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-31.44	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.6	51.9	50.3	46.6	54.2	54.7
Medium Trucks:	50.7	49.2	44.9	44.2	51.6	51.8
Heavy Trucks:	54.1	51.7	50.7	49.6	56.3	56.6
Vehicle Noise:	57.8	55.9	54.1	52.1	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	30	65
CNEL:	7	15	32	68

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: EAP 2024 | Project Name: Sierra Business Center
Road Name: Duncan Canyon Rd. | Job Number: 14283
Road Segment: e/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	855 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	75 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	96.55%
Medium Trucks:	75.3%	7.0%	17.7%	2.00%
Heavy Trucks:	60.4%	12.0%	27.6%	1.45%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-13.22	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	79.45	-30.07	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-31.44	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.8	53.2	49.5	57.1	57.6
Medium Trucks:	50.7	49.2	44.9	44.2	51.6	51.8
Heavy Trucks:	54.1	51.7	50.7	49.6	56.3	56.6
Vehicle Noise:	59.2	57.3	55.5	53.1	60.4	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	17	36	77
CNEL:	8	18	38	82

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYC 2024 | Project Name: Sierra Business Center
Road Name: Duncan Canyon Rd. | Job Number: 14283
Road Segment: e/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	451 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-16.14	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	79.45	-30.07	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-31.44	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	53.6	51.9	50.3	46.6	54.2	54.7
Medium Trucks:	50.7	49.2	44.9	44.2	51.6	51.8
Heavy Trucks:	54.1	51.7	50.7	49.6	56.3	56.6
Vehicle Noise:	57.8	55.9	54.1	52.1	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	6	14	30	65
CNEL:	7	15	32	68

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario: OYCP 2024 | Project Name: Sierra Business Center
Road Name: Duncan Canyon Rd. | Job Number: 14283
Road Segment: e/o Sierra Av.

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	855 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	75 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	Day	Evening	Night	Daily
Autos:	71.9%	12.2%	15.9%	96.55%
Medium Trucks:	75.3%	7.0%	17.7%	2.00%
Heavy Trucks:	60.4%	12.0%	27.6%	1.45%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	Grade Adjustment:	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	REMEL	Traffic Flow	Distance	Finite Road	Fresnel	Barrier Atten	Berm Atten
Autos:	68.46	-13.22	2.48	-1.20	-4.53	0.000	0.000
Medium Trucks:	79.45	-30.07	2.53	-1.20	-4.86	0.000	0.000
Heavy Trucks:	84.25	-31.44	2.52	-1.20	-5.67	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	Leq Peak Hour	Leq Day	Leq Evening	Leq Night	Ldn	CNEL
Autos:	56.5	54.8	53.2	49.5	57.1	57.6
Medium Trucks:	50.7	49.2	44.9	44.2	51.6	51.8
Heavy Trucks:	54.1	51.7	50.7	49.6	56.3	56.6
Vehicle Noise:	59.2	57.3	55.5	53.1	60.4	60.7

Centerline Distance to Noise Contour (in feet)

	70 dBA	65 dBA	60 dBA	55 dBA
Ldn:	8	17	36	77
CNEL:	8	18	38	82

Friday, May 27, 2022

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Duncan Canyon Rd.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	451 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	40 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-16.14	2.48	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	79.45	-30.07	2.53	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-31.44	2.52	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	53.6	51.9	50.3	46.6	54.2	54.7
Medium Trucks:	50.7	49.2	44.9	44.2	51.6	51.8
Heavy Trucks:	54.1	51.7	50.7	49.6	56.3	56.6
Vehicle Noise:	57.8	55.9	54.1	52.1	59.2	59.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	14	30	65
CNEL:	7	15	32	68

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Duncan Canyon Rd.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	1,258 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	111 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	97.66%
Medium Trucks:	75.3%	7.0%	17.7%	1.36%
Heavy Trucks:	60.4%	12.0%	27.6%	0.99%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-11.49	2.48	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	79.45	-30.07	2.53	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-31.44	2.52	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	58.2	56.6	54.9	51.3	58.8	59.3
Medium Trucks:	50.7	49.2	44.9	44.2	51.6	51.8
Heavy Trucks:	54.1	51.7	50.7	49.6	56.3	56.6
Vehicle Noise:	60.2	58.4	56.6	54.0	61.3	61.6

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	9	19	41	89
CNEL:	9	20	44	94

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Duncan Canyon Rd.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	96 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	8 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	93.47%
Medium Trucks:	75.3%	7.0%	17.7%	3.78%
Heavy Trucks:	60.4%	12.0%	27.6%	2.75%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-22.86	2.48	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	79.45	-36.79	2.53	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-38.17	2.52	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	46.9	45.2	43.5	39.9	47.5	47.9
Medium Trucks:	44.0	42.5	38.2	37.5	44.9	45.1
Heavy Trucks:	47.4	45.0	44.0	42.8	49.6	49.9
Vehicle Noise:	51.1	49.2	47.3	45.4	52.5	52.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	2	5	11	23
CNEL:	2	5	11	24

FHWA-RD-77-108 HIGHWAY NOISE PREDICTION MODEL (9/12/2021)

Scenario:
Road Name: Duncan Canyon Rd.
Road Segment: e/o Sierra Av.

Project Name: Sierra Business Center
Job Number: 14283

SITE SPECIFIC INPUT DATA

Highway Data

Average Daily Traffic (Adt):	902 vehicles
Peak Hour Percentage:	8.81%
Peak Hour Volume:	80 vehicles
Vehicle Speed:	45 mph
Near/Far Lane Distance:	14 feet

Site Data

Barrier Height:	**0.0 feet**
Barrier Type (0-Wall, 1-Berm):	0.0
Centerline Dist. to Barrier:	34.0 feet
Centerline Dist. to Observer:	34.0 feet
Barrier Distance to Observer:	0.0 feet
Observer Height (Above Pad):	5.0 feet
Pad Elevation:	0.0 feet
Road Elevation:	0.0 feet
Road Grade:	0.0%
Left View:	-90.0 degrees
Right View:	90.0 degrees

NOISE MODEL INPUTS

Site Conditions (Hard = 10, Soft = 15)

Autos:	15
Medium Trucks (2 Axles):	15
Heavy Trucks (3+ Axles):	15

Vehicle Mix

VehicleType	*Day*	*Evening*	*Night*	*Daily*
Autos:	71.9%	12.2%	15.9%	99.31%
Medium Trucks:	75.3%	7.0%	17.7%	0.40%
Heavy Trucks:	60.4%	12.0%	27.6%	0.29%

Noise Source Elevations (in feet)

Autos:	0.000		
Medium Trucks:	2.297		
Heavy Trucks:	8.004	*Grade Adjustment:*	0.0

Lane Equivalent Distance (in feet)

Autos:	33.645
Medium Trucks:	33.381
Heavy Trucks:	33.407

FHWA Noise Model Calculations

VehicleType	*REMEL*	*Traffic Flow*	*Distance*	*Finite Road*	*Fresnel*	*Barrier Atten*	*Berm Atten*
Autos:	68.46	-12.86	2.48	-1.20	*-4.53*	0.000	0.000
Medium Trucks:	79.45	-36.79	2.53	-1.20	*-4.86*	0.000	0.000
Heavy Trucks:	84.25	-38.17	2.52	-1.20	*-5.67*	0.000	0.000

Unmitigated Noise Levels (without Topo and barrier attenuation)

VehicleType	*Leq Peak Hour*	*Leq Day*	*Leq Evening*	*Leq Night*	*Ldn*	*CNEL*
Autos:	56.9	55.2	53.5	49.9	57.5	57.9
Medium Trucks:	44.0	42.5	38.2	37.5	44.9	45.1
Heavy Trucks:	47.4	45.0	44.0	42.8	49.6	49.9
Vehicle Noise:	57.5	55.8	54.1	50.9	58.3	58.8

Centerline Distance to Noise Contour (in feet)

	70 dBA	*65 dBA*	*60 dBA*	*55 dBA*
Ldn:	6	12	26	57
CNEL:	6	13	28	60

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APPENDIX B

OPERATIONAL NOISE LEVEL CALCULATIONS

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14283 - Sierra Business Center

CadnaA Noise Prediction Model: 14283_06_Acacia+ Shea.cna
Date: 13.04.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	48.0	46.7	53.2	70.0	65.0	0.0				5.00	a	6203825.03	2369601.69	5.00
RECEIVERS		R2	44.3	43.0	49.5	55.0	45.0	0.0				5.00	a	6204157.27	2368253.24	5.00
RECEIVERS		R3	42.5	41.4	47.8	55.0	45.0	0.0				5.00	a	6204143.03	2367148.53	5.00
RECEIVERS		R4	49.9	48.9	55.3	70.0	65.0	0.0				5.00	a	6202651.19	2366912.74	5.00
RECEIVERS		R5	47.9	46.8	53.2	70.0	65.0	0.0				5.00	a	6201448.49	2367611.31	5.00

Point Source(s)

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		PARK50	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203492.41	2369449.24	5.00
POINTSOURCE		PARK49	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203628.80	2369496.13	5.00
POINTSOURCE		PARK48	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203687.85	2369496.22	5.00
POINTSOURCE		PARK47	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203740.32	2369495.33	5.00
POINTSOURCE		PARK46	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203494.06	2369031.51	5.00
POINTSOURCE		PARK45	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203632.43	2369001.82	5.00
POINTSOURCE		PARK44	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203704.56	2368999.50	5.00
POINTSOURCE		PARK43	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203665.50	2368953.15	5.00
POINTSOURCE		PARK42	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203749.67	2368951.72	5.00
POINTSOURCE		PARK41	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203684.97	2368876.27	5.00
POINTSOURCE		PARK40	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203611.69	2368875.33	5.00
POINTSOURCE		PARK39	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203526.37	2368873.50	5.00
POINTSOURCE		PARK38	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203418.18	2368877.53	5.00

Name	M.	ID	Result. PWL			Lw / Li			Operating Time			Height		Coordinates		
			Day	Evening	Night	Type	Value	norm.	Day	Special	Night			X	Y	Z
			(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	(ft)		(ft)	(ft)	(ft)
POINTSOURCE		PARK37	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203313.20	2368877.12	5.00
POINTSOURCE		PARK36	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203194.07	2368880.24	5.00
POINTSOURCE		PARK35	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203097.85	2368880.78	5.00
POINTSOURCE		PARK34	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203147.36	2368834.01	5.00
POINTSOURCE		PARK33	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203255.60	2368833.27	5.00
POINTSOURCE		PARK32	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203363.75	2368827.06	5.00
POINTSOURCE		PARK31	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203475.28	2368827.35	5.00
POINTSOURCE		PARK30	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203564.98	2368829.11	5.00
POINTSOURCE		PARK29	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203648.06	2368827.69	5.00
POINTSOURCE		PARK28	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203757.53	2368448.59	5.00
POINTSOURCE		PARK27	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203758.22	2368553.55	5.00
POINTSOURCE		PARK26	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203759.93	2368654.12	5.00
POINTSOURCE		PARK25	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203760.63	2368760.17	5.00
POINTSOURCE		PARK24	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202913.64	2368722.08	5.00
POINTSOURCE		PARK23	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202909.15	2368651.08	5.00
POINTSOURCE		PARK22	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202908.50	2368548.30	5.00
POINTSOURCE		PARK21	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202908.09	2368459.74	5.00
POINTSOURCE		PARK20	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203689.73	2368384.13	5.00
POINTSOURCE		PARK19	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203690.95	2368327.25	5.00
POINTSOURCE		PARK18	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202976.33	2367835.71	5.00
POINTSOURCE		PARK17	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203718.54	2367832.89	5.00
POINTSOURCE		PARK16	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202900.38	2367960.36	5.00
POINTSOURCE		PARK15	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202901.79	2368043.53	5.00
POINTSOURCE		PARK14	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202901.32	2368143.36	5.00
POINTSOURCE		PARK13	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6202937.75	2368244.02	5.00
POINTSOURCE		PARK12	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203032.52	2368244.58	5.00
POINTSOURCE		PARK11	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203133.78	2368243.58	5.00
POINTSOURCE		PARK10	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203229.96	2368241.95	5.00
POINTSOURCE		PARK09	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203342.80	2368241.48	5.00
POINTSOURCE		PARK08	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203443.35	2368241.21	5.00
POINTSOURCE		PARK07	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203543.13	2368238.07	5.00
POINTSOURCE		PARK06	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203650.17	2368236.98	5.00
POINTSOURCE		PARK05	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203731.13	2368233.43	5.00
POINTSOURCE		PARK04	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203773.23	2368156.76	5.00
POINTSOURCE		PARK03	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203773.08	2368062.72	5.00
POINTSOURCE		PARK02	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203772.19	2367967.97	5.00
POINTSOURCE		PARK01	87.8	87.8	87.8	Lw	87.8		900.00	0.00	540.00	5.00	a	6203772.75	2367873.20	5.00
POINTSOURCE		AC01	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6202960.89	2367945.59	50.00
POINTSOURCE		AC02	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6203692.60	2367962.64	50.00
POINTSOURCE		AC03	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6202950.70	2368797.49	50.00
POINTSOURCE		AC04	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6203718.63	2368788.89	50.00
POINTSOURCE		AC05	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6203563.98	2369036.99	50.00
POINTSOURCE		AC06	88.9	88.9	88.9	Lw	88.9		585.00	0.00	252.00	5.00	g	6203567.70	2369460.06	50.00
POINTSOURCE		TRASH03	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203488.94	2369390.65	5.00
POINTSOURCE		TRASH04	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203486.58	2369078.41	5.00
POINTSOURCE		TRASH05	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203634.54	2368388.88	5.00
POINTSOURCE		TRASH06	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203027.72	2368392.12	5.00
POINTSOURCE		TRASH01	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203054.54	2367829.91	5.00
POINTSOURCE		TRASH02	89.0	89.0	89.0	Lw	89.0		150.00	0.00	90.00	5.00	a	6203620.32	2367824.03	5.00

Line Source(s)

Name	M.	ID	Result. PWL			Result. PWL'			Lw / Li			Operating Time			Moving Pt. Src				Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	Number			Speed		
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)	Day	Evening	Night	(mph)	(ft)	
LINESOURCE		TRUCK01	87.7	71.0	78.8	69.9	53.2	61.0	PWL-Pt	93.2					47.0	1.0	6.0	6.2	8	a
LINESOURCE		TRUCK02	90.9	76.4	81.8	73.8	59.2	64.7	PWL-Pt	93.2					114.0	4.0	14.0	6.2	8	a
LINESOURCE		TRUCK03	95.9	81.3	86.8	73.8	59.2	64.7	PWL-Pt	93.2					114.0	4.0	14.0	6.2	8	a
LINESOURCE		TRUCK04	90.5	75.9	81.4	73.8	59.2	64.7	PWL-Pt	93.2					114.0	4.0	14.0	6.2	8	a
LINESOURCE		TRUCK05	100.7	86.1	91.6	73.8	59.2	64.7	PWL-Pt	93.2					114.0	4.0	14.0	6.2	8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
LINESOURCE	8.00	a			6203037.61	2367859.76	8.00	0.00
					6202840.61	2367863.65	8.00	0.00
LINESOURCE	8.00	a			6203012.33	2368363.75	8.00	0.00
					6202842.45	2368362.37	8.00	0.00
LINESOURCE	8.00	a			6202882.94	2368362.70	8.00	0.00
					6202888.90	2368897.17	8.00	0.00
LINESOURCE	8.00	a			6203517.73	2369068.10	8.00	0.00
					6203516.22	2368913.71	8.00	0.00
LINESOURCE	8.00	a			6202846.53	2368902.03	8.00	0.00
					6202888.90	2368897.17	8.00	0.00
					6202901.64	2368912.55	8.00	0.00
					6202920.45	2368918.47	8.00	0.00
					6202933.97	2368918.24	8.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6203516.22	2368913.71	8.00	0.00
					6203766.66	2368906.17	8.00	0.00
					6203789.35	2368895.39	8.00	0.00
					6203790.51	2368412.89	8.00	0.00
					6203780.75	2368389.14	8.00	0.00
					6203773.21	2368373.67	8.00	0.00
					6203756.40	2368363.56	8.00	0.00
					6203739.64	2368356.57	8.00	0.00
					6203649.19	2368353.89	8.00	0.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
AREASOURCE		DOCK01	111.5	111.5	111.5	71.6	71.6	71.6	Lw	111.5		900.00	0.00	540.00	8	a
AREASOURCE		DOCK02	111.5	111.5	111.5	71.3	71.3	71.3	Lw	111.5		900.00	0.00	540.00	8	a
AREASOURCE		DOCK03	111.5	111.5	111.5	76.1	76.1	76.1	Lw	111.5		900.00	0.00	540.00	8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
AREASOURCE	8.00	a			6203054.34	2367955.31	8.00	0.00
					6203635.96	2367948.69	8.00	0.00
					6203635.75	2367909.07	8.00	0.00
					6203633.13	2367811.67	8.00	0.00
					6203385.11	2367813.96	8.00	0.00
					6203383.28	2367735.64	8.00	0.00
					6203080.52	2367741.31	8.00	0.00
					6203079.09	2367811.74	8.00	0.00
					6203036.65	2367811.74	8.00	0.00
					6203038.71	2367915.33	8.00	0.00
					6203052.72	2367915.25	8.00	0.00
AREASOURCE	8.00	a			6203041.99	2368467.16	8.00	0.00
					6203622.42	2368462.12	8.00	0.00
					6203621.96	2368403.70	8.00	0.00
					6203649.68	2368403.23	8.00	0.00
					6203648.45	2368280.12	8.00	0.00
					6203010.20	2368287.08	8.00	0.00
					6203013.52	2368406.53	8.00	0.00
					6203040.95	2368406.07	8.00	0.00
AREASOURCE	8.00	a			6203474.86	2369401.30	8.00	0.00
					6203550.40	2369402.60	8.00	0.00
					6203549.09	2369351.56	8.00	0.00
					6203610.19	2369351.06	8.00	0.00
					6203607.21	2369144.20	8.00	0.00
					6203546.10	2369144.17	8.00	0.00
					6203545.46	2369067.96	8.00	0.00
					6203472.23	2369068.34	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin		End	x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)	(ft)
BARRIERTEMP		0						14.00	a		6203636.12	2367909.07	14.00	0.00
											6203635.12	2367871.72	14.00	0.00
BARRIERTEMP		0						14.00	a		6203037.19	2367838.62	14.00	0.00
											6203036.81	2367819.83	14.00	0.00
BARRIERTEMP		0						14.00	a		6203038.71	2367915.33	14.00	0.00
											6203037.98	2367878.49	14.00	0.00
BARRIEREXISTING		0						7.00	a		6204134.92	2367013.98	7.00	0.00
											6204157.70	2370287.00	7.00	0.00
BARRIEREXISTING		0						14.00	a		6203650.65	2368403.31	14.00	0.00
											6203650.45	2368376.88	14.00	0.00
BARRIEREXISTING		0						14.00	a		6203649.66	2368330.71	14.00	0.00
											6203649.07	2368280.01	14.00	0.00
BARRIEREXISTING		0						14.00	a		6203634.47	2367847.82	14.00	0.00
											6203633.53	2367811.57	14.00	0.00

Building(s)

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING		BUILDING00001	x	0		45.00	a	6202939.85	2368185.66	45.00	0.00
								6202944.53	2368186.51	45.00	0.00

Name	M.	ID	RB	Residents	Absorption	Height		Coordinates			
						Begin		x	y	z	Ground
						(ft)		(ft)	(ft)	(ft)	(ft)
								6202944.77	2368200.96	45.00	0.00
								6202960.61	2368200.22	45.00	0.00
								6202961.19	2368206.74	45.00	0.00
								6203715.70	2368197.18	45.00	0.00
								6203715.53	2368187.40	45.00	0.00
								6203731.38	2368187.59	45.00	0.00
								6203732.53	2368172.66	45.00	0.00
								6203740.45	2368172.52	45.00	0.00
								6203738.63	2367928.30	45.00	0.00
								6203734.44	2367928.37	45.00	0.00
								6203735.57	2367912.97	45.00	0.00
								6203705.73	2367912.54	45.00	0.00
								6203705.66	2367908.35	45.00	0.00
								6203635.75	2367909.07	45.00	0.00
								6203635.96	2367948.69	45.00	0.00
								6203054.34	2367955.31	45.00	0.00
								6203052.72	2367915.25	45.00	0.00
								6202970.23	2367915.72	45.00	0.00
								6202971.73	2367921.75	45.00	0.00
								6202941.88	2367920.86	45.00	0.00
								6202942.16	2367937.64	45.00	0.00
								6202937.05	2367938.65	45.00	0.00
BUILDING		BUILDING00001	x	0		45.00	a	6202931.62	2368816.91	45.00	0.00
								6203741.92	2368806.90	45.00	0.00
								6203737.71	2368401.73	45.00	0.00
								6203621.96	2368403.70	45.00	0.00
								6203622.42	2368462.12	45.00	0.00
								6203041.99	2368467.16	45.00	0.00
								6203040.95	2368406.07	45.00	0.00
								6202924.67	2368408.04	45.00	0.00
BUILDING		BUILDING00002	x	0		45.00	a	6203552.23	2369473.72	45.00	0.00
								6203781.63	2369472.50	45.00	0.00
								6203774.99	2369018.60	45.00	0.00
								6203545.05	2369019.29	45.00	0.00
								6203546.10	2369144.17	45.00	0.00
								6203607.21	2369144.20	45.00	0.00
								6203610.19	2369351.06	45.00	0.00
								6203549.09	2369351.56	45.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	1.0	6203807.85	2367020.69
				6203883.57	2370250.68
				6204126.37	2370232.67
				6204087.39	2367016.66

APPENDIX C

CONSTRUCTION NOISE LEVEL CALCULATIONS

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14283 - Sierra Business Center

CadnaA Noise Prediction Model: 14283_06_Acacia+ Shea_Construction.cna
Date: 13.04.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	59.8	59.8	66.4	70.0	65.0	0.0				5.00	a	6203825.03	2369601.69	5.00
RECEIVERS		R2	50.5	50.5	57.2	55.0	45.0	0.0				5.00	a	6204157.27	2368253.24	5.00
RECEIVERS		R3	46.5	46.5	53.1	55.0	45.0	0.0				5.00	a	6204143.03	2367148.53	5.00
RECEIVERS		R4	52.7	52.7	59.3	70.0	65.0	0.0				5.00	a	6202651.19	2366912.74	5.00
RECEIVERS		R5	49.9	49.9	56.6	70.0	65.0	0.0				5.00	a	6201448.49	2367611.31	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL"			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	66.0	66.0	66.0	Lw	115					8	a
SITEBOUNDARY		CONSTRUCTION	115.0	115.0	115.0	68.3	68.3	68.3	Lw	115					8	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
SITEBOUNDARY	8.00	a			6203475.34	2369552.66	8.00	0.00
					6203825.73	2369550.46	8.00	0.00
					6203815.85	2368272.37	8.00	0.00
					6202841.85	2368283.18	8.00	0.00
					6202846.87	2368946.79	8.00	0.00
					6203468.62	2368940.92	8.00	0.00
SITEBOUNDARY	8.00	a			6202843.54	2368283.63	8.00	0.00

Name	Height		Coordinates			
	Begin	End	x	y	z	Ground
	(ft)	(ft)	(ft)	(ft)	(ft)	(ft)
			6203814.67	2368271.98	8.00	0.00
			6203811.24	2367800.98	8.00	0.00
			6203421.08	2367806.84	8.00	0.00
			6203420.50	2367726.80	8.00	0.00
			6202839.72	2367735.86	8.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height			Coordinates			
			left	right		horz.	vert.	Begin	End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)	(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						7.00 a			6204134.92	2367013.98	7.00	0.00
											6204157.70	2370287.00	7.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	1.0	6203807.85	2367020.69
				6203883.57	2370250.68
				6204126.37	2370232.67
				6204087.39	2367016.66

APPENDIX D

CADNAA CONCRETE POUR NOISE MODEL INPUTS

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14283 - Sierra Business Center

CadnaA Noise Prediction Model: 14283_06_Acacia+ Shea_ConcretePour.cna
Date: 13.04.22
Analyst: B. Lawson

Calculation Configuration

Configuration	
Parameter	**Value**
General	
Max. Error (dB)	**0.00**
Max. Search Radius (#(Unit,LEN))	**2000.01**
Min. Dist Src to Rcvr	**0.00**
Partition	
Raster Factor	**0.50**
Max. Length of Section (#(Unit,LEN))	**999.99**
Min. Length of Section (#(Unit,LEN))	**1.01**
Min. Length of Section (%)	**0.00**
Proj. Line Sources	**On**
Proj. Area Sources	**On**
Ref. Time	
Reference Time Day (min)	**960.00**
Reference Time Night (min)	**480.00**
Daytime Penalty (dB)	**0.00**
Recr. Time Penalty (dB)	**5.00**
Night-time Penalty (dB)	**10.00**
DTM	
Standard Height (m)	**0.00**
Model of Terrain	**Triangulation**
Reflection	
max. Order of Reflection	**2**
Search Radius Src	**100.00**
Search Radius Rcvr	**100.00**
Max. Distance Source - Rcvr	**1000.00 1000.00**
Min. Distance Rvcr - Reflector	**1.00 1.00**
Min. Distance Source - Reflector	**0.10**
Industrial (ISO 9613)	
Lateral Diffraction	**some Obj**
Obst. within Area Src do not shield	**On**
Screening	**Incl. Ground Att. over Barrier**
	Dz with limit (20/25)
Barrier Coefficients C1,2,3	**3.0 20.0 0.0**
Temperature (#(Unit,TEMP))	**10**
rel. Humidity (%)	**70**
Ground Absorption G	**0.50**
Wind Speed for Dir. (#(Unit,SPEED))	**3.0**
Roads (TNM)	
Railways (FTA/FRA)	
Aircraft (???)	
Strictly acc. to AzB	

Receiver Noise Levels

Name	M.	ID	Level Lr			Limit. Value			Land Use			Height		Coordinates		
			Day	Night	CNEL	Day	Night	CNEL	Type	Auto	Noise Type			X	Y	Z
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)				(ft)		(ft)	(ft)	(ft)
RECEIVERS		R1	48.0	48.0	54.7	70.0	65.0	0.0				5.00	a	6203825.03	2369601.69	5.00
RECEIVERS		R2	36.3	36.3	43.0	55.0	45.0	0.0				5.00	a	6204157.27	2368253.24	5.00
RECEIVERS		R3	31.8	31.8	38.5	55.0	45.0	0.0				5.00	a	6204143.03	2367148.53	5.00
RECEIVERS		R4	37.4	37.4	44.1	70.0	65.0	0.0				5.00	a	6202651.19	2366912.74	5.00
RECEIVERS		R5	35.2	35.2	41.8	70.0	65.0	0.0				5.00	a	6201448.49	2367611.31	5.00

Area Source(s)

Name	M.	ID	Result. PWL			Result. PWL''			Lw / Li			Operating Time			Height	
			Day	Evening	Night	Day	Evening	Night	Type	Value	norm.	Day	Special	Night	(ft)	
			(dBA)	(dBA)	(dBA)	(dBA)	(dBA)	(dBA)			dB(A)	(min)	(min)	(min)		
BUILDING		CONCRETEPOUR01	100.3	100.3	100.3	61.0	61.0	61.0	Lw	100.3					6	a
BUILDING		CONCRETEPOUR02	100.3	100.3	100.3	55.9	55.9	55.9	Lw	100.3					6	a
BUILDING		CONCRETEPOUR03	100.3	100.3	100.3	57.4	57.4	57.4	Lw	100.3					6	a

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BUILDING	6.00	a			6203552.23	2369473.72	6.00	0.00
					6203781.63	2369472.50	6.00	0.00
					6203774.99	2369018.60	6.00	0.00
					6203545.05	2369019.29	6.00	0.00
					6203546.10	2369144.17	6.00	0.00
					6203607.21	2369144.20	6.00	0.00

Name	Height				Coordinates			
	Begin		End		x	y	z	Ground
	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
					6203610.19	2369351.06	6.00	0.00
					6203549.09	2369351.56	6.00	0.00
BUILDING	6.00	a			6202931.62	2368816.91	6.00	0.00
					6203741.92	2368806.90	6.00	0.00
					6203737.71	2368401.73	6.00	0.00
					6203621.96	2368403.70	6.00	0.00
					6203622.42	2368462.12	6.00	0.00
					6203041.99	2368467.16	6.00	0.00
					6203040.95	2368406.07	6.00	0.00
					6202924.67	2368408.04	6.00	0.00
BUILDING	6.00	a			6202939.85	2368185.66	6.00	0.00
					6202944.53	2368186.51	6.00	0.00
					6202944.77	2368200.96	6.00	0.00
					6202960.61	2368200.22	6.00	0.00
					6202961.19	2368206.74	6.00	0.00
					6203715.70	2368197.18	6.00	0.00
					6203715.53	2368187.40	6.00	0.00
					6203731.38	2368187.59	6.00	0.00
					6203732.53	2368172.66	6.00	0.00
					6203740.45	2368172.52	6.00	0.00
					6203738.63	2367928.30	6.00	0.00
					6203734.44	2367928.37	6.00	0.00
					6203735.57	2367912.97	6.00	0.00
					6203705.73	2367912.54	6.00	0.00
					6203705.66	2367908.35	6.00	0.00
					6203635.75	2367909.07	6.00	0.00
					6203635.96	2367948.69	6.00	0.00
					6203054.34	2367955.31	6.00	0.00
					6203052.72	2367915.25	6.00	0.00
					6202970.23	2367915.72	6.00	0.00
					6202971.73	2367921.75	6.00	0.00
					6202941.88	2367920.86	6.00	0.00
					6202942.16	2367937.64	6.00	0.00
					6202937.05	2367938.65	6.00	0.00

Barrier(s)

Name	M.	ID	Absorption		Z-Ext.	Cantilever		Height				Coordinates			
			left	right		horz.	vert.	Begin		End		x	y	z	Ground
					(ft)	(ft)	(ft)	(ft)		(ft)		(ft)	(ft)	(ft)	(ft)
BARRIEREXISTING		0						7.00	a			6204134.92	2367013.98	7.00	0.00
												6204157.70	2370287.00	7.00	0.00

Ground Absorption(s)

Name	M.	ID	G	Coordinates	
				x	y
				(ft)	(ft)
GROUND		0	1.0	6203807.85	2367020.69
				6203883.57	2370250.68
				6204126.37	2370232.67
				6204087.39	2367016.66